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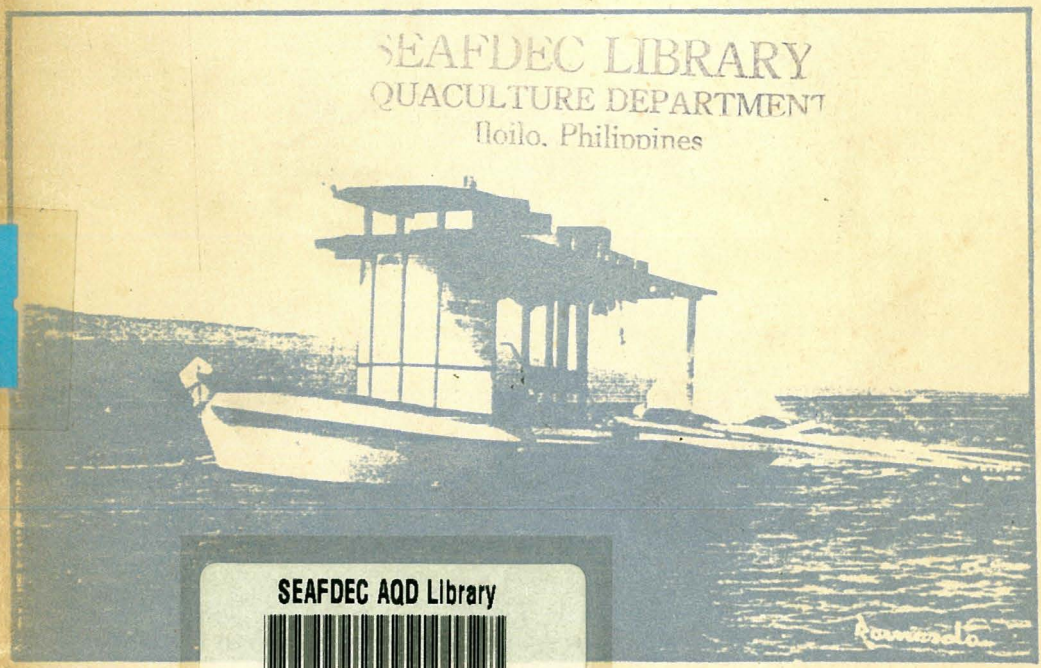
SMALL RING NET FISHING



by

Danilo O. Maputol

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The Small Ring Net Fishing manual has been prepared for SAFIS by Mr. Danilo O. Maputol of the Philippines. Mr. Maputol is a fishery extension specialist stationed at the Bureau of Fisheries and Aquatic Resources (BFAR) Provisional Fishery Office located at Cagayan de Oro City.

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INTRODUCTION

Since ring net fishing has proved to be so effective in catching large schools of pelagic fish, many Filipino subsistence fishermen were eager to acquire the net for operating it themselves. However, because of their limited skill and financial constraints, many of them had to give up the hope of possessing this gear. Nevertheless, a few fishermen persisted in their endeavours and through their ingenuity a smaller version of the gear requiring lower capital investment was designed. This small ring net was tested, improved and finally adopted after it was found to be viable and effective for catching pelagic fish.

The aim of this manual is to impart to the subsistence fishermen the basic principles of designing, constructing and operating the small ring net. The information has been gathered through contacts with fishermen and operators of this fishing gear in the hope that subsistence fishermen may be able to improve their status by becoming medium-scale fishermen.

DESCRIPTION OF THE SMALL RING NET

A small ring net, which is known locally either as "semi-likom"or "sinsorong-gamay"is very similar in structure to the original ring net. It varies from the latter only in the dimensions and specifications of netting and other materials (see Tables 1 to 3) as well as in the size or type of fishing craft used for its operation (see Figs. 1 and 2).

This gear has a long wall of netting whose mesh size gradually becomes smaller towards the bunt. Both ends of the net are tapered. The net is provided with a series of large floats on its upper rim and with lead sinkers on the lower portion. The rings are attached to the lead line sinker line by means of bridle lines or straps at regular intervals. It is through these rings that a purse line is passed and pulled to close the lower part of the net prior to the hauling operation, thereby forming a purse which traps the fish.

The fishing gear is payed out in a circle or shot in such a position as to surround the body of water containing the school, thus, localizing the fish. The catch is then concentrated in the bunt of the net, from which it is brailed using a scoop.

The net has been found to be effective for catching pelagic and other fishes such as tuna, mackerel, round-scad, moonfish, slipmouth, as well as garfish and half-beak.

Table 1. Specifications of a small ring net (548.39 m long by 56.16 m deep)

Sections	No. of strips	Length of netting (m)	No. of knots	Size of twine	Hanging %	Length of line (m)	Width/ depth (m)	No. of floats	No. of sinkers
A	5	148.5	7	210d/6	60	89.1	39.82	371	556
A_1	5	148.5	7	210d/6	60	89.1	39.82	371	556
B	8	198.0	10	210d/6	60	118.8	42.55	540	808
B_1	8	198.0	10	210d/6	60	118.8	42.55	540	808
C	12	99.0	13	210d/6	60	59.4	47.99	297	446
C_1	12	99.0	13	210d/6	60	59.4	47.99	297	446
D	6	56.16	14	210d/9	50	13.79	27.59	72	108
E	1	918.6	7	210d/15	-	548.39	5 meshes depth		
F	1	918.6	7	210d/15	-	548.39	10 meshes depth		

Table 2. Materials used for making a small ring net.

Parts of net	Specifications of materials
Wing sections (A and A_1)	15 rolls Nylon netting No. 210d/6, 7K, 200 MD (PAMO)
First shoulder (B and B_1)	32 rolls Nylon netting No. 210d/6, 10K, 200 MD (PAMO)
Second shoulder (C and C_1)	24 rolls Nylon netting No. 210d/6, 13K, 200 MD (PAMO)
Bunt section (D)	4 rolls Nylon netting No. 210d/9, 14K, 200 MD (PAMO)
Selvage (E and F)	1 roll Nylon netting No. 210d/15, 7K, 200 MD (PAMO)
Purse line	4 coils Evelon rope No. 24
Float line	9 coils Evelon rope No. 16
Lead line	8 coils Evelon rope No. 12
Bridle line	1 coil Evelon rope No. 16
Floats	2,490 pieces Synthetic Floats No. 16 (Clover)
Sinkers	414 kilos Lead Sinker No. 4
Tom weight	130 kilos Lead (assorted sizes)
Rings	45 pieces Brass Ring 10 cm diameter
Mending twine	60 spools Nylon twine No. 210d/6
Stapling twine	50 spools Nylon twine No. 210d/12

Table 3. Estimated cost of vessels, equipment and materials for a small ring net fishing outfit.

I. FISHING BOAT/BANCA

Unit	Vessels	Unit Price	Total
1	Mother Boat (16.05 m x 1.85 m x 1.23 m) complete with accessories	₱ 85,000	₱ 85,000
1	Service Banca (9.26 m x 0.93 m x 0.62 m)	5,000	5,000
		Sub-Total	₱ 90,000

II. ENGINES

Unit	Equipment	Unit Price	Total
1	Fuso-Canter Engine 4DR5 (surplus) complete with accessories	₱ 21,000	₱ 21,000
1	Briggs and Stratton Engine (16 H.P.) complete with accessories	12,300	12,300
		Sub-Total	₱ 33,300

III. NETTING, ROPES AND OTHER ACCESSORIES

Quantity	Materials	Unit Price	Total
1 roll	Multi-nylon Netting No. 210d/15, 7K, 200 MD (PAMO)	₱ 2,350	₱ 2,350
4 rolls	Multi-nylon Netting No. 210d/9, 14K, 200 MD (PAMO)	2,217	8,868
24 rolls	Multi-nylon Netting No. 210d/6, 13K, 200MD (PAMO)	2,141	51,384
32 rools	Multi-nylon Netting No. 210d/6, 10K, 200 MD (PAMO)	1,947	62,304
15 rools	Multi-nylon Netting No. 210d/6, 7K, 200 MD (PAMO)	1,694	25,410
60 spools	Nylon twine No. 210d/6	9.00	540
50 spools	Nylon twine No. 210d/12	9.00	450

Table 3. (cont'd)

Quantity	Materials	Unit Price	Total
8 coils	Evelon rope No. 12	200.00	1,600
10 coils	Evelon rope No. 16	364.00	3,640
4 coils	Evelon rope No. 24	835.00	3,340
490 pieces	Synthetic floats No. 16 (CLOVER)	24.00	59,760
45 pieces	Brass ring 10 cm diameter	45.00	2,025
414 kilos	Lead sinker No. 4	18.50	7,659
130 kilos	Lead sinker (assorted sized)	18.50	2,405
		Sub-Total	₱ 231,735
		Grand Total	₱ 355,035

Note: Quoted prices as at July 1984

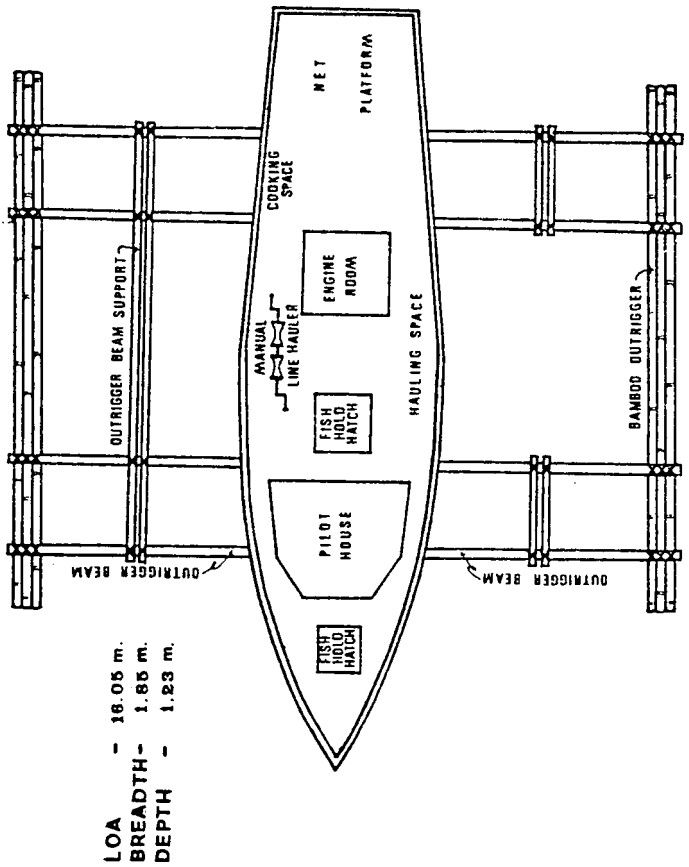


Fig. 1 Deck arrangement of a typical small ring net boat.

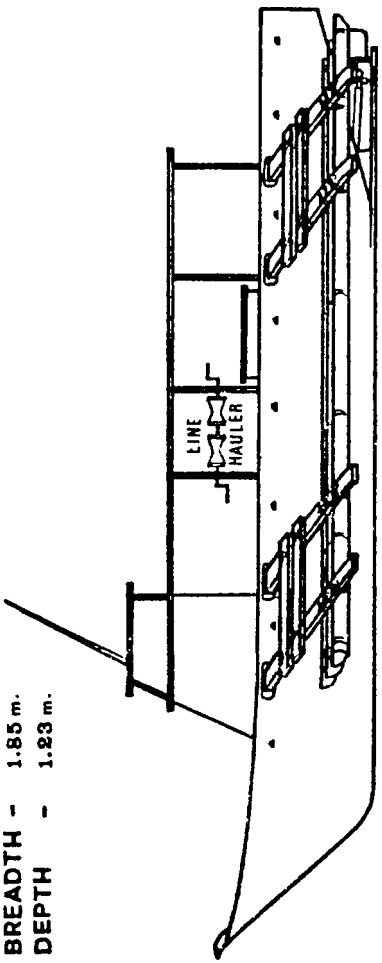


Fig. 2 Outboard profile of a small ring net boat.

A typical small ring net fishing outfit is normally operated by 18 to 25 fishermen on board a fishing boat of three to slightly over eight gross tons.

METHOD OF CONSTRUCTION

Take nylon netting No. 210 d/6, 7K (5.08 cm mesh stretched) with a length of 1,485 meters and a depth of 200 meshes and cut it into ten equal parts, thereby making each strip measure 148.5 meters long by 200 meshes deep. By the mesh to mesh method, join the five strips of this netting along their length to make a whole piece measuring 148.5 meters long by 1,000 meshes deep, then mark it Section A. Following the same procedure, join the other five strips of netting and mark the whole piece Section A_1 (see Fig. 3).

Measure and cut eight strips of nylon netting No. 210 d/6, 10K (3.78 cm mesh stretched), each strip measuring 198 meters long by 200 meshes deep. Join the strips along their length by the mesh to mesh method in order to make a whole piece measuring 198 meters long by 1,600 meshes deep, then mark it Section B. From the same material, measure and cut another eight strips of netting with each strip 198 meters long by 200 meshes deep. Follow the same procedure for joining and mark the whole piece as Section B_1 (see Fig. 3).

Using alternately ratios 1:2 and 1:1 (or 5:8), join together the sides of Sections A and B, then Sections A_1 and B_1 along their depth (see Fig. 3).

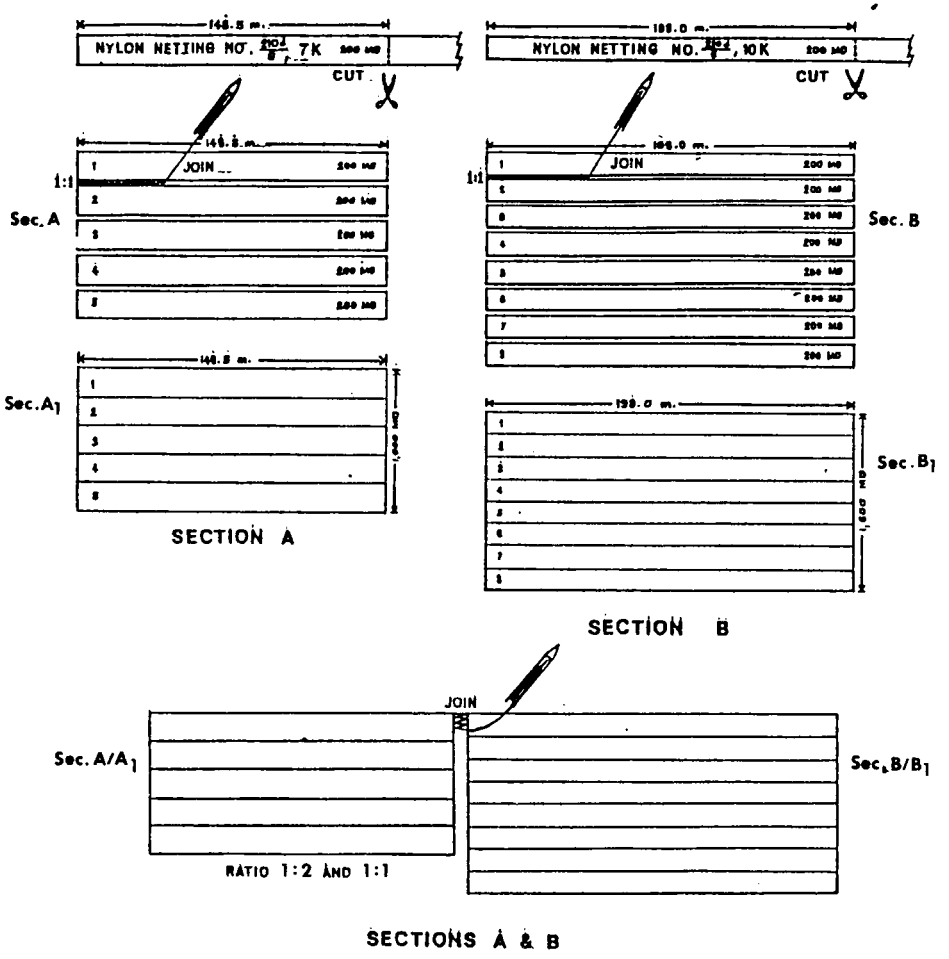


Fig. 3 Method of joining sections A and B of small ring net

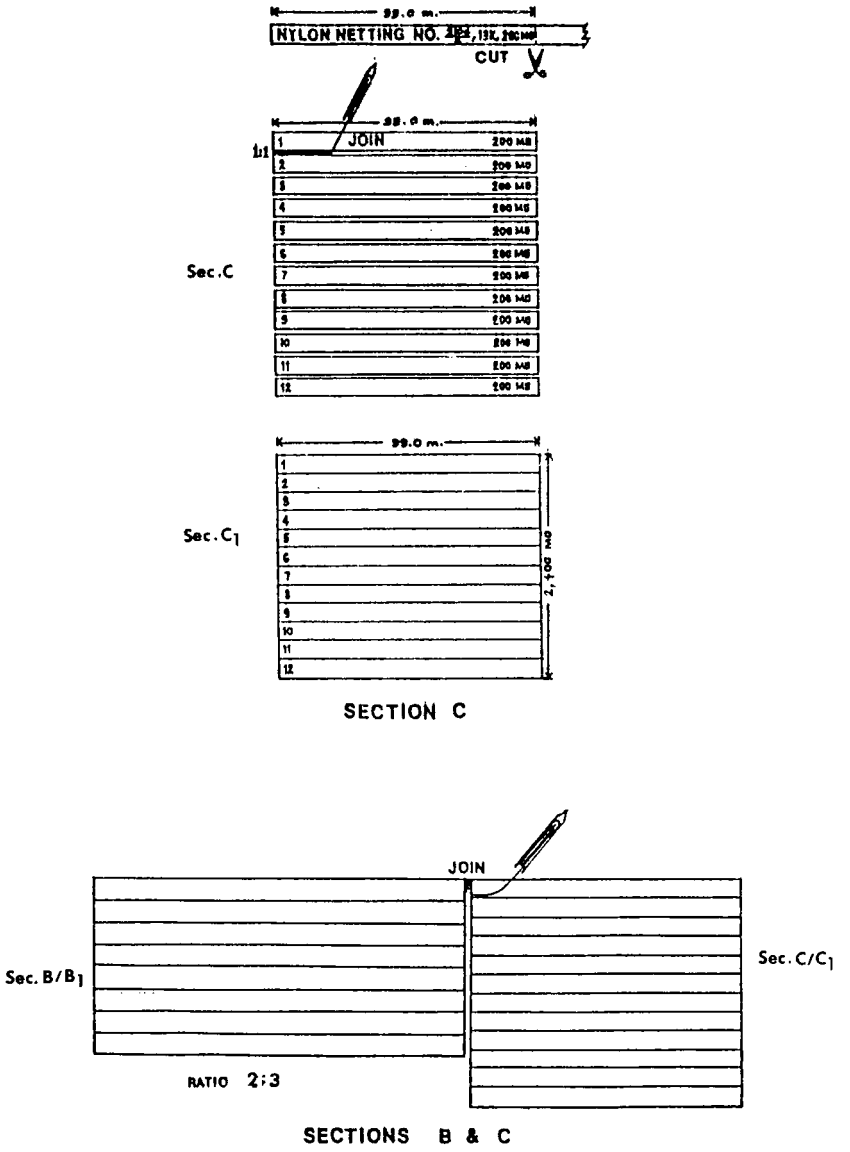
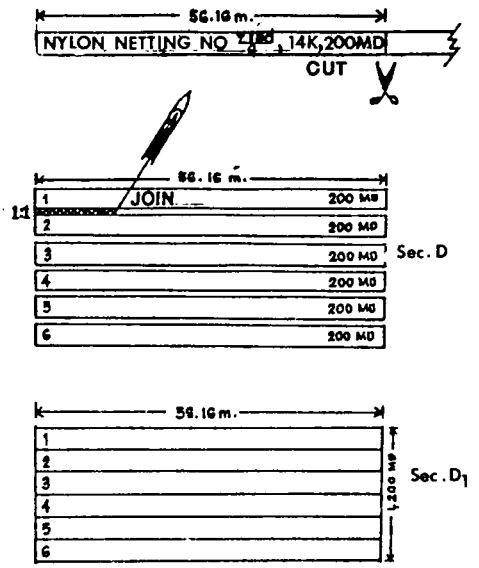


Fig. 4 Method of joining sections B and C of small ring net.


56.16 m.
NYLON NETTING NO 210D/3, 14K,200MD
CUT
56.16 m.
1
JOIN
200 MD
2
200 MD
3
200 MD
Sec. D
4
200 MD
5
200 MD
6
200 MD
56.16 m.
1
2
3
4
5
6
1.200 mm
Sec. D1

SECTION D

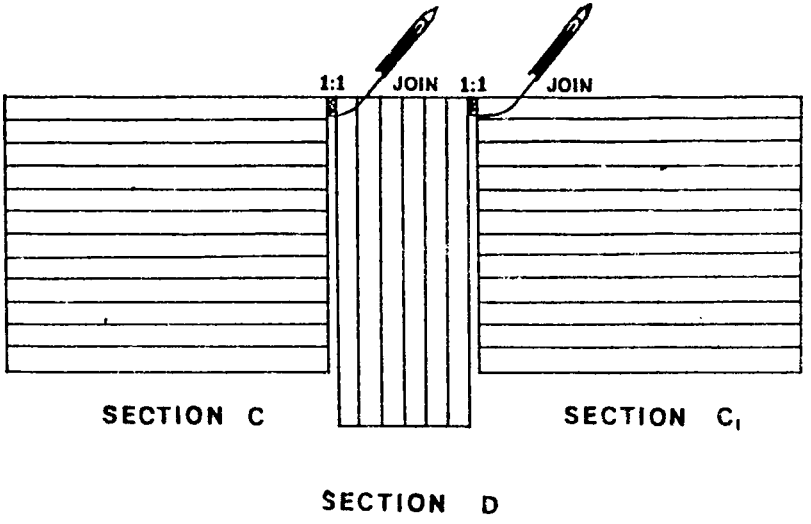
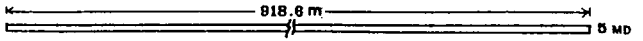
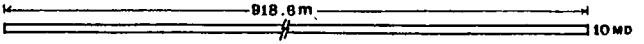


Fig. 5 Method of joining section D to Sections C and C_1 of small ring net.



SECTION E



SECTION F

Fig. 6 Upper selvage piece (section E) and lower selvage piece (section F) and small ring net.

Measure and cut twelve strips of nylon netting No. 210 d/6, 13K (2.54 cm mesh stretched) each strip measuring 99 meters long by 200 meshes deep. Make a mesh to mesh joint on the sides of each strip along their depth to make a whole piece of netting measuring 99 meters long by 2,400 meshes deep, then mark it Section C. From the same material, measure and cut another twelve strips of netting with each strip 99 meters long by 200 meshes deep. Follow the same procedure for joining and mark the whole piece as Section C_1 (see Fig. 4).

With a ration of 2:3, join the sides of Sections B and C, then Sections B_1 and C_1 along their depth (see Fig. 4).

Measure and cut six strips of nylon netting No. 210 d/9, 14K (2.34 cm mesh stretched) with each strip 56.16 meters long by 200 meshes deep. Join the sides of the strips along their length by the mesh to mesh method in order to make a whole piece of netting measuring 56.16 meters long by 1,200 meshes deep, then mark it Section D.

Place Section D between the two large pieces of joined nettings (i.e. Sections A, B and C; and Sections C_1, B_1 and A_1) in such a manner that the strips of netting are running vertically, while those of the two large pieces are placed horizontally. With a ratio of 1:1, join one side of Section D to Section C and the other side to Section C_1 (see Fig. 5).

Measure and cut a strip of nylon netting No. 210 d/15, 7K (5/08 cm mesh stretched) with a length of 918.6 meters and a depth of five meshes. Mark it Section E. From the same material, measure and cut another strip 918.6 meters long by ten meshes deep, and mark it as Section F (see Fig. 6).

Join the upper selvage piece marked E to the other pieces with the following take-up ratios:

E to A and E to A_1 - 1:1

E to B and E to B_1 - 3:4

E to C and E to C_1 - 1:2

E to D - 3:13

Join also the lower selvage piece marked F to the other pieces with the following take-up ratios:

F to A and F to A_1 - 1:1

F to B and F to B_1 - 3:4

F to C and F to C_1 - 1:2

F to D - 3:13

Pass an Evelon rope No. 16 through the outer meshes of the upper selvage to serve as the inner hanging line. Spread out the netting along the line to distribute the slack following the required finished measurement in every section of the netting as given in the structural plan (see Fig. 7). Allow a considerable length of Evelon rope No. 16 for the outer hanging line.

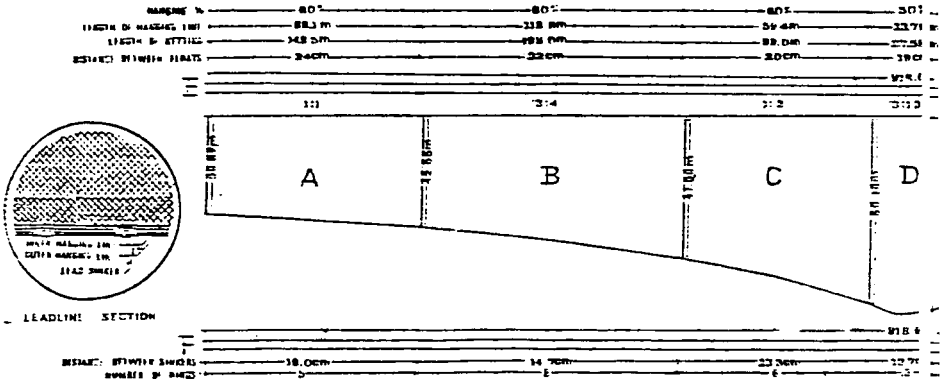
Join together the two hanging lines by stapling, after allowing the desired hanging ratio for each section of the net.

Pass another Evelon rope No. 16 through the synthetic floats. Follow the distribution pattern of floats as specified for each section of the netting, then staple together the float and hanging lines.

While the activities discussed above are being carried out by one group of net makers, another group should be assigned to work on the lower selvage portion of the net.

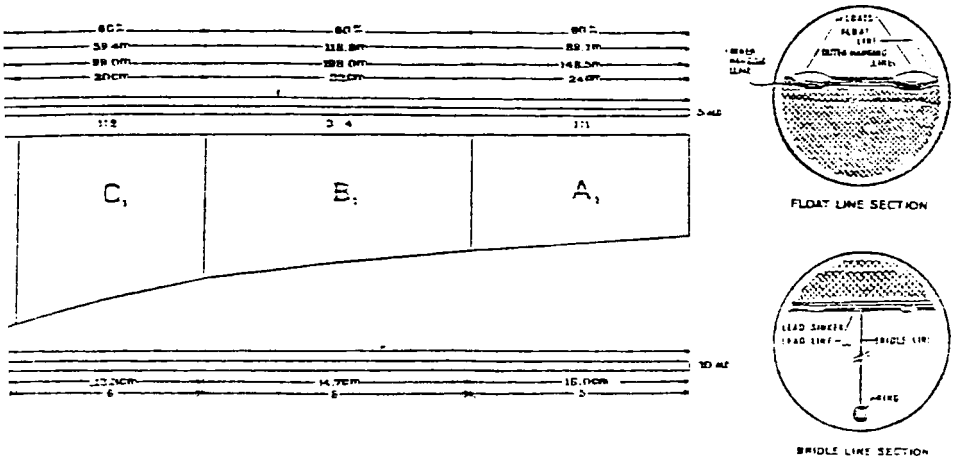
Pass an Evelon rope No. 12 through the outer meshes of the lower selvage. Distribute the slacks of netting in the same manner as is being done for the float line. Hang the net to another Evelon rope No. 12 by stapling the two hanging lines observing the prescribed hanging percentage. Pass an Evelon rope No. 12 through the lead sinkers No. 4. Follow the distribution pattern of the sinkers as specified for every section of the netting, then staple together the lead and hanging lines.

Cut forty pieces of Evelon rope No. 16 measuring 1.8 meters each for the bridle lines. Attach a brass ring with a diameter of 10 cm to the end of each bridle line. Secure the other ends to the lead line starting from one end of the net and observing the distances between rings as shown in the structural plan (Fig. 7).



NOTE: Not drawn to scale

Fig. 7 Structural p



)lan of a small ring net

METHOD OF OPERATION

A small ring net is either operated during the day or at night, depending on the presence and volume of fish.

A fishing operation starts as soon as the boats leave for the fishing ground. Fish detection is the first phase of the operation and this is done by employing various scouting techniques or inspecting fish shelters and visiting lighted "bancas" at night to determine the volume of fish that have been lured or attracted.

A. FISH DETECTION

The different methods used in scouting a school of fish are generally of a practical nature. This is due primarily to the fact that sophisticated electronic devices such as fish finders are generally beyond the means of the small-scale fishermen. Hence, it is during this phase of the operation that the skill and experience of the masterfisherman are essential in fish detection. Through visual means and keen observation of the surface of the surrounding waters, he will search for the characteristics that normally indicate the presence of fish.

Daytime scouting for the presence of a school of fish, known locally as "pangalak", is done by looking for simple indications such as the distinctive coloration of the water, the presence of a flock of birds, small bubbles or ripples emitted on the water's surface, and wavelets associated with fish movement. "Pangalak" is divided into observations done in the early morning called "paulbo" and those done in the late afternoon called "palabo".

Night time scouting or "pangamag" is another practical method used for searching a school of fish by means of the luminescence reflected by the fish on the waters surface as they swim around. A skilled masterfisherman can determine the species and volume of fish from the nature and extent of the luminescence. Scouting at night is found to be especially effective during moonless nights.

The presence of fish in fish shelters or "payao" is determined either by the combination of the different methods mentioned above or by means of divers who make underwater observations to estimate the volume of fish. For fish in lighted "bancas", observations are made either of the luminescence or darting movements of fishes being attracted or the appearance of small bubbles or ripples on the water's surface. Sometimes, weighted lines are lowered into the water and the presence of fish is detected through the vibrations transmitted along the line.

Usually a small ring net outfit has at least one motorized banca used as a service or scout "banca". This is employed to patrol the fishing grounds in search of a school of fish and also to visit fish shelters or lighted "bancas" at night. Whenever a considerable volume of fish has been found, the scout "banca" loses no time in relaying prearranged signals to the mother boat, to which the latter responds as it head in the direction where the school of fish has been located.

The mother boat slows down as it approaches the area where the school of fish is concentrated and the engine is shifted into neutral gear. This is done to allow the masterfisherman to observe the fish behaviour, as well as the direction of the predominant wind or water current. The boat then moves around the school at a radius of about 30 meters. This method is generally used when the school of fish is not very active as is the case when it has been lured into fish shelters or attracted by lights.

The most difficult phase of the operation, however, is during daytime or night time scounting, when the school is either actively feeding or travelling a course. The mother boat and the scout "banca" have to keep pace with the speed and direction of the school of fish. Keen observation in this case is essential in order not to lose sight of the moving school, and proper timing is likewise required in setting the net.

The procedures for setting, pursing and hauling the net described below are illustrated in Figure 8.

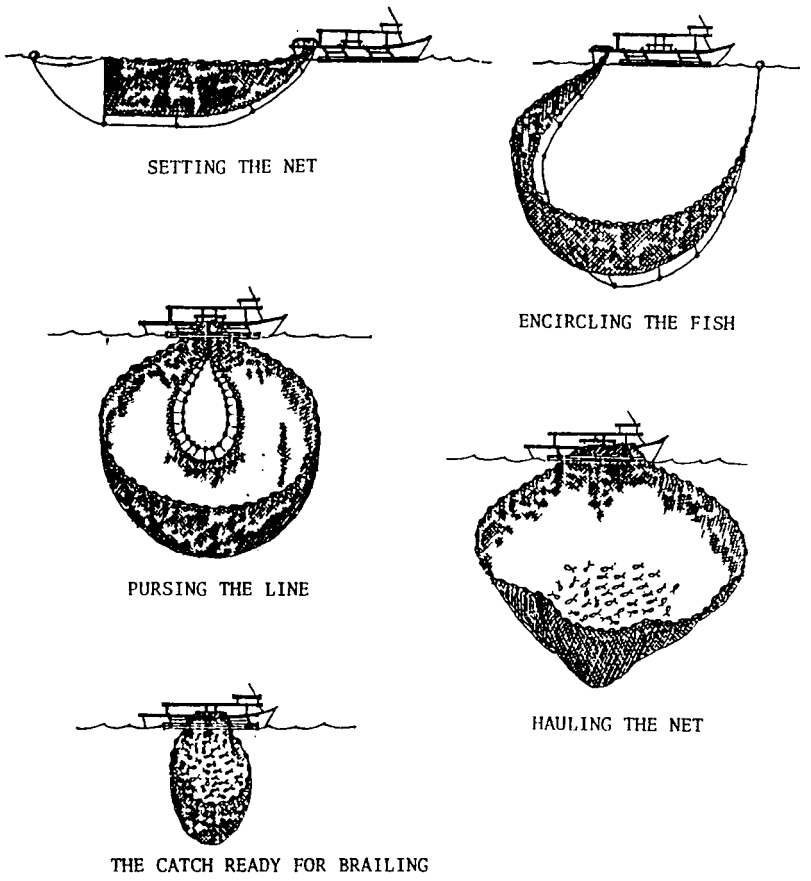


Fig. 8 Operation of small ring net.

B. SETTING THE NET

The net is set in the direction of the wind or water current whichever is dominant, except when the above-mentioned factors are too strong.

First a buoy, tied with a considerable length of rope to the end of the float line, is thrown overboard. Paying out the coils of net starts as the mother boat moves to encircle the fish. A diver jumps into the water as soon as the upper wing end portion of the net has been thrown out in order to fix its position and to hold the loose end of the purse time. Proper timing is essential during the encircling operation to ensure that both ends of the net meet. When the last portion of the net has been thrown out, another diver holding the other end of the purse line must immediately jump into the water.

Upon completion of the circle, the engine is shifted into neutral gear and then brought to a stop. Fishing crew members position themselves in pre-designated areas of the mother boat. The buoy lines are hooked up and retrieved on board, gradually hauling in both ends of the float lines in order to keep the breast lines of the net parallel to each other. The free ends of the purse line being held by the divers are passed up to the crew members aboard the boat, who in turn will pass them through the slings on the tom weight. The latter is then released until it reaches the bottom corners of the net.

It should be noted that brightly coloured buoys must be used as markers to distinguish them easily. During night-time operations, it is necessary to provide the buoys with a light so that they can be easily seen.

C. PURSING

Pursing is started immediately after setting the net. The free ends of the purse line are wound two or three times around the head of the line hauler. The transmission is then engaged to start the operation of the line hauler to heave in the purse lines. If the line hauler is manually operated, two fishermen, one on each side, turn it systematically to close the bottom of the net. They are assisted by another two fishermen who take a firm hold of the purse line and pull both ends simultaneously to prevent the line from slipping because of the tom weight. Another fisherman coils the purse line. The manual line hauler must be turned as fast as possible to prevent the fish from diving and escaping below the lead lines of the net.

A spare line, which is provided with strips of white plastic material and a stone weight at the end, is dropped inside the enclosure formed by the net, directly opposite the breast lines. This spare line must be moved up and down continuously to prevent the fish from getting near the breast lines and escape through the opening. At night, a flash light is used and

directed on the opening of the breast line. The light is made to crisscross parallel to the length of the fishing boat. Extreme care must be taken not to direct the light on the school of fish so as not to scare them out of the enclosure.

While this is being done, the other fishing crew members gradually pull the float lines and place them on deck along the gunwale of the mother boat engaged in the hauling operation. A considerable length of rope is tied to the midship portion of the mother boat and the service "banca" pulls the boat in the opposite direction to the force of action to prevent deformation of the net.

Once the bottom of the net has been closed, the tom weight, including the bunch of rings, is hauled aboard.

D. HAULING THE NET

A hauling operation is done either on the port or starboard side depending on the design of the boat. The fishing crew members haul the wings and body of the net manually on board the boat in a rhythmic motion, following the undulating movement of the waves. The operation must be properly synchronized to evenly distribute the slack of the net. Hauling must continue until the fish are concentrated at the bunt portion of the net. The catch is then bailed out with a large scoop or dip net, and placed in boxes.

OPERATION OF A FISH SHELTER

Generally, small ring net fishing involves the use of an accessory device called a fish shelter, locally known as "payao", for attracting schools of fish, mainly surface swimming species, such as sardine/herring, mackerel, scad, tuna and tuna-like fishes.

A fish shelter consists of an anchored bamboo raft provided with coconut leaves which afford a refuge for the fish. Algae and other marine life that become attached to and grow on these leaves are food for smaller fishes which in turn serve as bait to attract tuna and similar species of fish that feed on them.

On dark nights, the fish shelter is provided with lights to attract the fish. It is checked regularly to ascertain whether the school of fish is large enough to warrant its capture.

If, upon inspection, the quantity of fish is found to be considerable, the masterfisherman is immediately notified and he informs his fishing crew about the operation to be conducted. The net is then prepared for setting.

The anchor rope of the fish shelter is disengaged from the raft and allowed to drift clear of the anchor line. The net is payed out in a circle around the fish shelter and hauling follows the procedure described above.

After each hauling operation, the fish shelter is towed back and secured to its anchor rope.

SYSTEM OF SHARING PROCEEDS FROM THE CATCH

As for other types of fishing gear, the traditional practice of sharing the income of a small ring net fishing operation has up to the present been adopted by Filipino fishermen. The sharing scheme, however, may differ slightly from one place to another or in accordance with the agreement between the fishing boat operator and the fishing crews.

First, the total expenditure incurred during the fishing operation, such as crude oil, gasoline, lubricants, subsistence of the crew members and miscellaneous expenses, is deducted from the gross earnings derived from the sale of the catch. The net proceeds are then divided into two equal parts between the fishing boat operator and the crew members.

The share of the operator is most often used for the upkeep of the fishing outfit and its equipment, payment of loan amortization or as a return for his capital investiment as the case may be.

The share of the crew members, on the other hand, is divided among them as payment for the work done during the fishing operation. The number of shares for each fisherman varies according to his position or the nature of the work undertaken during the operation.

An example of the sharing scheme generally followed by crew members of a small ring net fishing establishment is given below:

No. of Crew Members	Designation/ Position	Number of shares
1	Masterfisherman	2 shares plus 15% of the operator's share
2	Marine engineers	2 shares each
2	Divers	$1\frac{1}{4}$ shares each plus 5% of the operator's share
4	Net operators	$1\frac{1}{4}$ shares each
1	Cook	$1\frac{1}{4}$ shares
1	Service "banca" operator	$1\frac{1}{4}$ shares
7	Ordinary fishermen	$1\frac{1}{4}$ shares each
Total 18		

When the fish has been caught through the aid of a fish shelter or a lighted "banca", one-third of the value of the total catch or gross earnings from the sale of fish is set aside as the share of the owner of the fish shelter or operator of the lighted "banca". As for the remaining two-thirds share of the catch or gross earnings from sales, a similar procedure as described above is followed, i.e., the operating expenses are deducted and the net income is shared.

Table 4 gives the recorded catch of a typical small ring net fishing outfit, including the volume and gross sales of the catch by species of fish.

Table 4. Recorded catch of a typical small ring net fishing outfit.

Month (1983)	Number of days in operation	Volume of catch (kg)	Gross Sales of Catch (in Pesos)	Species of fish
January	7	4,454.0	₱ 14,393.00	Frigate tuna, round scad, yellow fin tuna
February	18	16,457.0	51,446.00	Frigate tuna, round scad, slipmouth
March	14	8,372.0	25,138.00	Frigate tuna, half-beak, slipmouth
April	17	16,059.0	40,756.00	Frigate tuna, sardine/herring
May	17	4,658.0	16,441.00	Frigate tuna, slipmouth
June	17	266.0	956.00	Frigate tuna, Spanish mackerel
July *	-	-	-	-
August	13	48.4	252.00	Sardine/herring, mullet
September	20	256.0	1,261.00	Frigate tuna, garfish
October**	-	-	-	-
November	4	193.5	1,679.00	Frigate tuna
December	3	64.5	451.00	Frigate tuna
TOTAL	130	50,828.4	₱ 152,773.00	

* No fishing operation. Fishing boat was drydocked.

** No fishing operation owing to adverse weather conditions and off-seasonal occurrence of fish.

LIST OF SAFIS EXTENSION MANUALS

SEC/SM/1 Khumua liang pla namcheut (Freshwater Fish Farming: How to Begin), (original: English; translated: Thai)

SEC/SM/2 Oyster Culture (original: Bahasa Malaysia; translated: English)

SEC/SM/3 Mussel Culture (original: Bahasa Malaysia; translated: English)

SEC/SM/4 Ang pagpuna ug pagtapak sa pukot (Net Mending and Patching), (original: English; translated: Cebuano-Bisaya)

SEC/SM/5 Mussel Farming (original: English)

SEC/SM/6 Menternak Ikan Airtawar (Freshwater Fish Farming: How to Begin), (original: English; translated: Bahasa Malaysia)

SEC/SM/7 Makanan dan Pemakanan Udang Harimau, *Penaeus monodon* (Nutrition and Feeding of Sugpo, *Penaeus monodon*), (original: English; translated: Bahasa Malaysia)

SEC/SM/8 Macrobrachium Culture (original: Thai; translated: English)

SEC/SM/9 Selection of Marine Shrimp for Culture (original: Thai; translated: English)

SEC/SM/10 Induced Breeding of Thai Silver Carp (original: Thai; translated: English)

SEC/SM/11 Culture of Sea Bass (original: Thai; translated: English)

SEC/SM/12 Smoke-curing of Fish (original: English)

SEC/SM/13 Cockle Culture (original: English)

SEC/SM/14 Net Mending and Patching (original: English)

SEC/SM/15 Kanliang hoy malangphu (Mussel Farming), (original: English; translated: Thai)

SEC/SM/16 Nursery Management of Prawns (original: Bahasa Indonesia; translated: English)

SEC/SM/17 Culture of Sultan Fish *(Leptobarbus hoevenii)*, (original: Bahasa Malaysia; translated: English)

SEC/SM/18 The Use of the Traditional Drying Method and Solar Drier for Croaker, Mullet and Herring (original: English)

SEC/SM/19 Shrimp Culture (original: Thai; translated: English)

SEC/SM/20 Rok Plaa (Fish Diseases), (original: English; translated: Thai)

SEC/SM/21 Kanliang phomae pan kung kuladam (Brood-stock of Sugpo, *Penaeus monodon*, Fabricius), (original: English; translated: Thai)

SEC/SM/22 Nakakaing Krustasyo ng Pilipinas (Field Guide to Edible Crustacea of the Philippines), (original: English; translated: Tagalog)

SEC/SM/23 Khumua kanliang plaa nai krasang thi Singapore lae Indonesia (Floating Net-cage Fish Farming in Singapore and Indonesia), (original: English; translated: Thai)

SEC/SM/24 Small Ring Net Fishing (original: English)

SAFIS

0 What is SAFIS?

SAFIS is the Southeast Asian Fisheries Information Service. It is a project of the SEAFDEC Secretariat set up to provide extension materials for small-scale fishermen and fish farmers in the region.

0 What are its objectives?

The immediate objectives are to collect and compile fisheries extension manuals, brochures, pamphlets and related aids for small-scale fisheries development, and to translate selected literature into local languages for distribution to fisheries extension workers in Southeast Asia.

0 What services will SAFIS provide?

SAFIS will attempt to provide information and publications such as:

- lists of available texts in fisheries extension services,
- translation of suitable manuals,
- manuals of appropriate technologies,
- photocopies of appropriate fisheries extension literature,
- a current awareness service of regional fisheries.

0 How much will these services cost?

A nominal fee of US $0.15 per page will be charged for photocopying, handling, and surface mail. Airmail costs will be extra. The publication cost per manual will vary according to the book.

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SAFIS is the Southeast Asian Fisheries Information Service. It is a project of the SEAFDEC Secretariat set up to provide extension materials for small - scale fishermen and fish farmers in the region. For additional information, contact the Project Leader of SAFIS

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