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Fishing Methods Developed for Small Boats

D. W. WILES

*Fisheries Officer
Barbados, West Indies*

SMALL BOATS play a most important part in many fisheries of the world. Although some of the methods used for the capture of fish from small boats may be considered primitive, many fishermen may find some interest in what is done in other parts of the world.

Line Fishing

First let us deal with line fishing as this must be one of the most important fishing methods of the small boat fishermen.

Today there is a choice of hemp, cotton, nylon, Dacron, and wire.

After our experiments, nylon monofilament lines of several breaking strengths have been widely accepted over the old hemp line by the entire local fishing fleet. As a trolling line the nylon can be much finer, is less visible in the water, and as a result more fish are landed. It is estimated that our dolphin (*Coryphaena*) fishery has been increased 33½% since the introduction of nylon lines. Wire line has played an important part in the capture of wahoo. Again it is suspected that the fine wire is the reason for the successes over the hemp line, and the wire line sinks deeper than the nylon. Wire lines are quite easily handled, either with gloves, or on a rod, but commercial fishermen prefer hand lines.

It has been found that one person can handle a 40-50 pound wahoo on a wire line, provided the line is hauled while it rests on the gunwale of the vessel. When the wire is lifted off the gunwale the fish is likely to fight or call for line which can be very awkward. Small boats manned by one or two men often fish three lines from a boat with an 8- to 8½-foot beam. The center line is a wire line, with two nylon lines on the beams, or it may be one nylon line in the center with two wire lines on the beams. This method avoids entangling the lines when turning the vessel. Outriggers and weights of different sizes may be used with advantage.

With crews of one or two persons fishing from a boat, the lines are attached to a rubber harness and the line is not disturbed by the crew until the rubber harness is good and properly stretched. The rubber being more sensitive than a person's reflexes does not permit a slipping line, especially unlucky if a wahoo has struck, as the hook must be set before the fish is allowed any run.

Lines are also used in a number of ways for the capture of fish which swim at depths, and recently we have introduced to the industry a miniature long line of just five hooks for use from a small boat. This method of fishing takes place from a drifting boat, during a flying fish operation. A heavy nylon line

of 1500- to 2000-pound breaking strength forms the main line. On it four overhand knots are tied six fathoms apart, then short lengths are tied by a reverse-loop knot into each of the four loops in the main line. These short drop lines are three fathoms long and of 700- to 1100-pound breaking strength nylon, carrying the swivel, trace wire, small lead ball, and hook.

This line is mainly used for the capture of large fish such as yellow fin tuna, marlin, shark, and any other deep swimming fish. The bait, mostly flying fish, is put on the hooks alive and will survive many hours. The moving bait appears to be much more attractive than a dead bait.

This line is fished in the following manner. The hooks with the baits are put over, then a 6- to 8-pound lead weight is used to sink the line to a depth of about 30 fathoms. The main line streams down current from the weight, and the attached drop lines carrying the hooks fall away in a vertical manner, clear of each other. From the lead weight, the line runs vertically to the boat, and is tied off to a rubber harness. Care must be used in recovering the line, especially if fish are on any of the hooks. In hauling back the line, the lead weight is released before hauling in the first hook. After reaching the first hook and putting either fish or empty hook on board, the short drop line must be released from the main line. This must be done with each of the four hooks, because a large fish could take one of the baited hooks remaining in the water and run with the line. Should the hooks remain attached to the main line, with the line running back, a fisherman could be seriously injured.

If caution is used in the operation of this miniature long line, it may be of considerable help to the small boat fishermen. In our trials we have taken as many as five tunas from a set of 15 hooks on a good day; on a number of days fishermen have had two and three strikes on a five hook assembly.

It is recommended that fishermen operating from small boats start with three hooks and then build up to five or more after they have learned how to handle this gear.

Bottom Fishing

This fishery operates on banks of varying depths primarily taking snapper, grouper, amberjack, and sea bream. Handlines were used formerly, but experimental fishing has demonstrated that modified longline gear can be successfully fished from small launches. Using up to 100 hooks, this gear has been fished in depths of more than 100 fathoms to take 36 valuable fish from one single haul.

This gear may be considered in two parts, (a) the longline and (b) the main fishing line. A 15-inch glass float is attached to one end of the longline. At the opposite end, the line is tied so that a loop of about 2 feet in diameter is formed. A 6- or 7-foot length of bamboo is lashed across this loop. The arrangement assumes a diamond shape when a weight is tied to the bottom of the loop. The main fishing line, up to 360 yards long, is tied to a projecting end of the bamboo. Drop lines of 80-pound breaking strength nylon are attached at intervals along the main fishing line.

Before setting the gear all hooks are baited and laid out on the gunwale of the vessel. The fishing position on a given bank is selected, the fisherman puts his boat slow ahead, and the crew member throws over the hooks starting with the tail hook. As the last hook nearest to the pole between the weight and the main line is reached, the lead is put over and allowed to run to the bottom. On reaching bottom, about 6 yards of line is hauled back, which clears the

line carrying the hooks. The end of the line in the boat is then tied to a large 15-inch glass float and thrown overboard. Another such line is released elsewhere on the fishing bank. The first line is then recovered, fish removed, hooks rebaited where necessary, and reset; the day's operation is spent moving from line to line.

Net Fishing

Drift nets or gill nets of many sizes have been developed for operation from small vessels. More recently a circular ring net, as it has been called by us in Barbados, is used in the ocean for the capture of flying fish. Most of you know this species represents 65% of the catch of our local fishermen.

Drift gill nets used in the flying fish fishery are made from nylon of 0.02 thread and of 1¾-inch stretched mesh size. Because of sharks, nets are kept small, 25-50 yards in length, and are 2 fathoms deep. They are well corked (15 inches apart) and 2-ounce leads are placed every 4 feet along the lead line.

This net is released into the water after the flying fish have been attracted by bait to the drifting boat. As the boat drifts with the prevailing current, the net stretches to windward of the vessel, flying fish in the area quickly enter the net and are caught. Nets are hauled and fish are removed by hand. One of our good catches, 1,040 flying fish, approximately 310 pounds, was taken in a 30 yard net in 35 minutes. This is mostly a daylight fishery and I know of no other species of fish that enters a gill net during daylight hours.

The circular gill net is a small net, 50 yards long and 24 feet deep. To support the weight of the catch, 2½-inch corks are placed every 12 inches along the cork line. The lead line is weighted every 4 feet with a leaded ring, 1¼-inches in diameter weighing approximately 4 ounces. A separate rope is threaded through these rings and is used for pursing the net.

To capture flying fish with this net, the net is put into the water from the windward side of the drifting boat. A rope attached to the far end of the drifting net is taken to the stern of the vessel and is hauled back slowly. The tide, moving against the net with the vessel drifting downward, tends to balloon the net and a graceful horseshoe shape is formed. As soon as both ends of the net are retrieved, the bottom pursing rope is hauled, slowly bringing the rings closer together, and eventually a miniature purse seine effect is formed. The mesh of the net, being the size for gilling, captures any flying fish that dart towards it. A hoop net is used for dipping out any fish that remain free swimming. Work with this net has been most satisfactory and on many occasions hauls of over 1000 fish, 300 pounds, have been taken in one-half hour. In one good day in four hauls, over 10,000 flying fish were taken in this way. This net has very great potential, and when many more boats use this gear the annual production of flying fish could be increased 100%.

Today, Barbados' catch of flying fish is estimated to be in the region of 6 million pounds, or 18 million fish annually, in a fishing season lasting from October 15th to July 15th.

Advantages from powered launches

Seine net fisherman have pressed their small powered launches into use during the search for schooling fish. The seine is usually carried in an open boat towed by the powered vessel.

The use of fish pots or traps has also been adapted and these are now launched and hauled with the use of the small powered craft.

Small powered boats or launches now make night fishing possible. A powerful petrol light is mounted on a spar or oar and placed overhead, to attract the fish to an anchored or drifting boat. In a short time, large quantities of bait fish can be seen in the surrounding area covered by the light. Larger fish shortly appear in the area and are attracted by both the bait and the glow of light. Bait is free and is easily dipped with a net. A live fish is usually used on the hook for this operation, and strikes are frequent. Some very good catches have been made, especially on dark nights. It is not unusual for 200 or more pounds of fish to be taken in four to six hours fishing time by just two men.

When one is dealing with the development of a fishery which for years has been operated by poor fishermen, it is necessary to restrict the introduction of new gear or methods to a cost that can be met by the men in their respective fishery. It has been found that a gradual release of the results of gear development has a better chance of being accepted, than if several developments are released at the same time. Fishermen who have never had much can be encouraged, but they cannot be forced in any way. One or two pieces of gear successfully developed for a fishery often places the research officer in a favorable position with respect to the introduction of other new techniques. To end on a personal note, any research officer must have faith in the method he is introducing, and must never lose his patience.

The Human Side of Technical Assistance

WILLIAM ELLIS RIPLEY
U.S. Bureau of Commercial Fisheries
Washington, D.C.

Abstract

The contribution of technical assistance to the growth of the developing nations has been of mounting interest since World War II. Considerable information has been written about the scientific, economic, and administrative phases of the subject. Although some consideration has been given to the effect of the non-technical factors of assistance, there is an increasing realization that the social side plays an important part in the success of development programs.

To be successful the aid furnished must satisfy both the human and the technical requirements of the problem. Among some of the human phases discussed are personal interest and social acceptance and their relation to technical assistance.

IN THE YEARS since World War II technical assistance has commanded increasing world attention as an aid to the development of the resources of many nations. Much has been written on the scientific, economic, and administrative side of the subject. In fact, hardly a day goes by but what interesting comments are seen in the newspapers regarding the merits of foreign aid, technical assistance, and its effect upon the domestic and world scene. Much less is seen of the human side of technical assistance.

Population growth has contributed to the problems of this world. Intensified