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A NEW STYLE BRANCHLINE FOR MONOFILAMENT LONGLINE SYSTEMS

(Paper prepared by the Secretariat)

Since the beginning of 1995 many boats in Hawaii's longline fleet have been adopting a new style of branchline. Most of the fleet in Hawaii is equipped with Lindgren-Pitman , or LP, monofilament longline drums. The drums, or reels, hold up to 40 miles of monofilament nylon mainline ranging from 3.0 mm diameter to 4.5 mm diameter. During each set about 1500 baited hooks attached to branchlines are snapped onto the mainline at intervals as it is shot from the line setter. In the past few years most vessels have used branchlines made up of four to eight fathoms (8 to 16 metres) of 1.8 mm to 2.5 mm diameter monofilament nylon line, the same material as the mainline. (Before the advent of monofilament reel systems, longlining was mostly done using Japanese 'basket' gear which was comprised of tarred 6.4 mm Kuralon. A branchline, or "sagi", was made up of tarred Kuralon, a tarred "sekiyama" wire, and a galvanised leader wire. These branchlines were labouriously coiled by hand during hauling operations). With the LP system branchlines are usually set from a tub that may contain as many as 500 branchlines. Snaps are attached to a stainless steel bar running around the edge of the tub; the line is coiled into the tub and allowed to lie naturally; and the hook is placed into the snap. Baited branchlines are thrown out of the tub during setting and coiled back into the tub during hauling. Often the branchlines are very simple with a hook at one end and a swivel snap at the other. The hooks and snaps are usually crimped onto the "mono" with aluminium sleeves. Some crews attach a wire leader of about half a fathom to one fathom (1 to 2 metres) as well. This type of gear generally works fine but it does have its problems. Monofilament tends to tangle easily, especially after it has been used for a while. Often it does not return to its original shape when stretched or kinked: it retains twists and kinks. This can cause problems on the following day's set as branchlines may tangle during setting as they are thrown from the tub. Also monofilament branchlines often become tangled around the mainline during hauling (in Hawaii this is called a "wili wili") and have to be labouriously unwound or cut resulting in lost time, lost gear, and lost fish.

A few years ago several Hawaii boats in the "Korean" fleet began to use a different style branchline with their monofilament systems. Instead of using monofilament they used 3.0 mm tarred red polyester three-strand line for branchlines. This was actually an adaptation of one element of the older "basket" gear to fit with the more modern "mono" gear. It took a while for the rest of Hawaii's fleet to notice but now several more boats are switching to this style of gear (there are over one hundred vessels in Hawaii's longline fleet). The branchlines are composed of four to six fathoms (eight to twelve metres) of tarred red line that is tied to the swivel snap at one end and tied to a swivel at the other end. Tarred red line needs to be burned with a hot knife or an electric line cutter so the ends won't fray and unravel. The swivels can be either barrel swivels, bullet swivels, or leaded swivels. Leaded swivels come in a variety of weights ranging from 38 grams to 75 grams. A half fathom (one metre) stainless steel 1.0 mm leader wire with hook is attached to the swivel to complete the branchline. Hooks are usually Japanese style tuna hooks with rings but some fishermen prefer circle hooks. The knot used to tie the tarred red line to the snap, and to the swivel is a barrel knot (sometimes called a slip knot). Lastly, the bitter end of the tarred red line is tucked into the lay of the line to prevent the knot from slipping and to keep the end out of the way. This is done with a small Swedish fid.

Because knots are used on the tarred red branchlines there is an initial savings of USD $200-300 as no crimps need to be purchased (if 1500 branchlines are made). However, this savings is offset by the comparative costs of tarred red line. Monofilament branchline (just the line) costs an average of $0.04/metre while the tarred red line costs $0.11/metre. Considering the savings involved by not using crimps on the red line, it would cost about $ 800 more to gear up a vessel with red line than with mono (1500 hooks). In the long run, however, longliners can save a substantial amount by using tarred red line as it tends to outlast mono. It is not unusual for longliners using mono branchlines to lose as many as 50 or more branchlines per set. This can add up to several hundred per trip. Most branchlines are lost due to shark damage or damage from small by-catch fish and discards such as mahi mahi, skipjack tuna, snake mackeral, oilfish, etc. Typically the snaps and even the hooks can be re-used, but the line is usually discarded. Vessels in Hawaii using tarred red line reported losing only about 20 to 30 branchlines per trip.

Besides having a greater longevity than mono, tarred red line branchlines are easier to fabricate, are easier to set with fewer tangles, make it easier to pull in fish (especially large fish), and are easier to re-coil while hauling. Both mono and tarred red line are subject to sun damage from ultra-violet light and should be covered when not in use. However, mono is much more susceptible to sun damage than tarred polyester. Mono is also more likely to suffer from abrasion than tarred red line. The biggest benefit to using tarred red line, however, is the ease of handling. Since tarred red line does not kink or twist like mono it always lays back into the tub naturally during hauling. This makes the following set easier as the lines leave the tub without twisting and tangling. Also, tarred red line does not tend to "wili wili"as much as mono. Generally both setting time and hauling time are shortened when using tarred red line. This means that more gear can be set so fishing effort is increased, or more time can be allowed for travel to new fishing grounds.

The best feature of tarred red line, however, is the increased gripping power that it has over mono. Monofilament is, by its nature, slippery. When pulling in a large, active fish it is not unusual for the fisherman to lose his grip on the line which allows the fish to run. Often, the branchline will break when the fish reaches the end of his run and the line becomes tight. Three-strand tarred red line has a fairly rough surface as compared to mono so there is much more friction between the fisherman's hands and the line. This allows the fisherman to maintain a strong grip so that the fish can be brought up to the rail for gaffing as quickly as possible. Fewer fish are lost on tarred red branchlines than on mono branchlines. This statement is based on the personal experiences of SPC's Masterfisherman and on information related to him from other fishermen from the longline fleet in Hawaii. How much better tarred red line actually is as compared to mono is a question that needs to be investigated further.

During an SPC project in Pohnpei, FSM (March-June 1996) SPC's Capture Section introduced tarred red branchlines to National Fisheries Corporation. 1320 new branchlines were made up for NFC's 53 foot fibreglass longliner, NFC Waab, which is equipped with an LP system. Several things contributed to the successful fishing during the two trips that were made during the project including a better maintenance regime and improved fishing strategies, but the introduction of new tarred red branchlines also had some bearing on the outcome of fishing. The Masterfisherman was able to instruct the crew of NFC Waab in fabricating new branchlines in just a few hours, and in about a week's time the crew of three had completed the task. By the time they were finished with 1320 branchlines they were expert at making them up. The crew had been having difficulties with mono branchlines- not so much with fabrication, which is relatively easy and takes about the same amount of time, but with fishing. Most of the gear on NFC Waab, prior to SPC's arrival, was is a rough state. The lines were badly tangled and damaged and the crew was having a difficult time maintaining a full compliment of gear. After using tarred red line on two trips with the Masterfisherman they were all convinced that this style of gear was a vast improvement over monofilament gear.

Note: a display showing the components and the steps involved in fabricating tarred red polyester branchlines is set up in the lobby.
