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# C43_Bass Lured Long Lines

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Seafish Research & Development

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# Bass Lured long lines

## Summary:

Systems of long lining for bass using monofilament line and artificial lures are largely new and undocumented. This report describes work carried out on the North coast of Devon trialling a long line system using a range of artificial lures for bass; it's evolution from conception to a full commercial application.

The trial lasted for six month from May to October 2008 and was undertaken from a 17ft open boat working from the North Devon harbour of Clovelly. The project looked at various methods of rigging and setting the lines, with a range of artificial lures tested in various weather and tidal conditions. A novel hauling system was also developed, whereby the lures could be checked, and any fish removed, without having to haul the lines inboard.

This report lists the materials required to construct a bass long line and describes how to rig and set the lines to achieve the best returns. A 'hit rate' of one bass every 12 hooks was achieved during the final stages of the project.

By-catch and environmental impact data are covered but were not the primary focus of the study.

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# 1. Introduction

The system of long lining for bass using monofilament lines and artificial lures was developed in response to the rise in consumer demand for line caught bass. The system developed allows fishermen to target bass with minimal environmental impact, in waters otherwise commercially un-viable due to tidal conditions or restrictions on the use of static nets.

A six month trial from May to October was undertaken from a licensed 17” ft open boat (MFV Caroline) working daily from the North Devon harbour of Clovelly.

The basis of this study came from independent trials during the 2007 season by the author, Sam Rush owner/skipper. The project was part funded by Seafish under the Industry Project Fund.


**Sam Rush (MFV Caroline)**

 

### 1.1. Project rationale

The rationales behind adopting an artificial lure long line fishery for bass are as follows:

- Fulfilling the expanding demand for line caught bass
- The difficulties and expense of obtaining live bait
- Cost effective equipment
- Reduction in fuel consumption
- The need to fish in waters where the use of static nets is restricted due to, too much tide, net bans, conflict with potting interests
- Need for low environmental impact fisheries to minimise the by-catch of species such as dolphin/porpoise by-catch.
- Need for sustainability and live release of undersized fish

### 1.2. Benefits

The primary benefit of the lured long line system over other long line methods is the quantity of gear able to be worked single handed. There is no need for the gear to be boarded when hauling the lines, reducing both time and effort required to clear and reset the lines. With no need to re-bait, the lines can be fished for up to two weeks, being harvested daily.

Lines can be completely rigged ready to shoot even weeks before being deployed allowing fishermen to take full advantage of favourable conditions, having gear immediately fishing with no other preparation needed. This combined of speed and ease of deployment, efficiencies can be achieved when harvesting fish from the gear.

## 2. Methodology

The principle of the lured long line method is for long lines of monofilament to be suspended between the surface and seabed. From these lines artificial lures are attached at equal distances. This method differs from other line fisheries for bass, which involve either baiting hooks with live bait such as mackerel or sand eel or fishing with poles and rods using live bait or artificial lures, as the lines can be left in situ for long periods and still continue to fish.

The method of fishing these types of long lines went through several stages of evolution; however the principle remained roughly the same using artificial lures to replace the need to catch live bait.

### 2.1. Equipment

The general principle of the equipment worked toward low cost, easily manufactured gear for simple replication by fishermen

- **Back line:** A range of thicknesses of monofilament back line were used, from a maximum of 2.4mm (400lbs breaking strain) right down to 1.6mm (200 lbs). It was found that 1.6 mm was optimal as has a good blend between cost, strength, invisibility and flexibility.
- **Swivels:** Some makes of swivel suffered rapid deterioration; it was assumed that electrolysis was the cause of the premature destruction of low cost swivels, as various metals were in contact with each other (stainless steel, aluminium and brass). When deployed in salt water for long periods of time the relatively delicate workings of the swivels quickly eroded leading to ‘breakaways’ and loss of fish. It was for this reason that more expensive Berkley swivels were used.

 

- **Crimps:** Aluminium or stainless coated double crimps were used to hold the swivels in position on the back line. In conjunction with a plastic sleeve to eliminate the swivel chaffing through the back line. This was found to be the simplest, quickest and most cost effective method.
- **Lambs rings:** Small rubber lambs rings were used to act as shock absorbers. Whilst the fish are able to run and snap at the line when hooked the lambs rings cushion the snap effect and so resulted in far fewer break outs. Lambs rings are cheap and available from farmers suppliers
- **Hooks:** An appropriate hook in stainless steel or dura tin was essential. Due to continual emersion, corrosion quickly rendered other hooks useless. The optimum hook size varied on the size of fish running, but from between 3/0 and 5/0. **Important**, a good fish will soon chafe any knot through. You will get far fewer breakouts if you whip the hooks not tie them.
- **Attractor beads:** A luminescent bead on the end of the snood seemed to increase the catch rate.
- **Snoods:** Snoods were of 60lbs breaking strain. The optimal length for the snood, (minimum length = maximum number on long line) was 5ft**.**



**Left**: Whipped Stainless hook **Middle**: Swivel, clip, lambs ring & snood **Right**: Backline crimps and Swivels

- **Lures:** Lure types vary in cost, durability and effectiveness the following table illustrates the range used for this project.

 

| | Name | Qualities | Unit price/Trade | Rated |
|---|---|---|---|---|
|  | Side Winder 4”<br><br>Kiddy Tackle 01803-293999 | **Pro:** Very good catcher, integral hook, Does not spin on backline due to weight.<br>**Con:** Not long lasting and expensive. | 62p | 8/10 |
|  | Red Gill<br>Kiddy Tackle 01803-293999 | **Pro:** Long lasting<br>**Con:** Caught less than other types. Still expensive | 37p | 6/10 |
|  | Tempest Holographic Eel<br>Kiddy Tackle 01803-293999 | **Pro:** Good catcher, inexpensive<br>**Con:** Not long lasting, not quick to hook up | 18p | 7/10 |
|  | Luminescent Jumping Jack Minnow<br><br>Seareels 01347-811186 | **Pro:** Luminescent, so good for night/poor visibility.<br>**Con:** Un-life like. Not good in clear conditions | 28p | 5/10 |
|  | Luminescent Bay Shrimp<br><br>Seareels 01347-811186 | **Pro:** Luminescent. Inexpensive Also good for Cod<br>**Con:** Not much movement. | 18p | 6/10 |

 

## 2.2. Anchoring the lines

The lines were anchored using a combination of 56lb weights and 20lb weights; this allowed the lines to be brought to the boat without the need to lift the heavier end weight so keeping the line taut when running along the long line. **Fig:1**

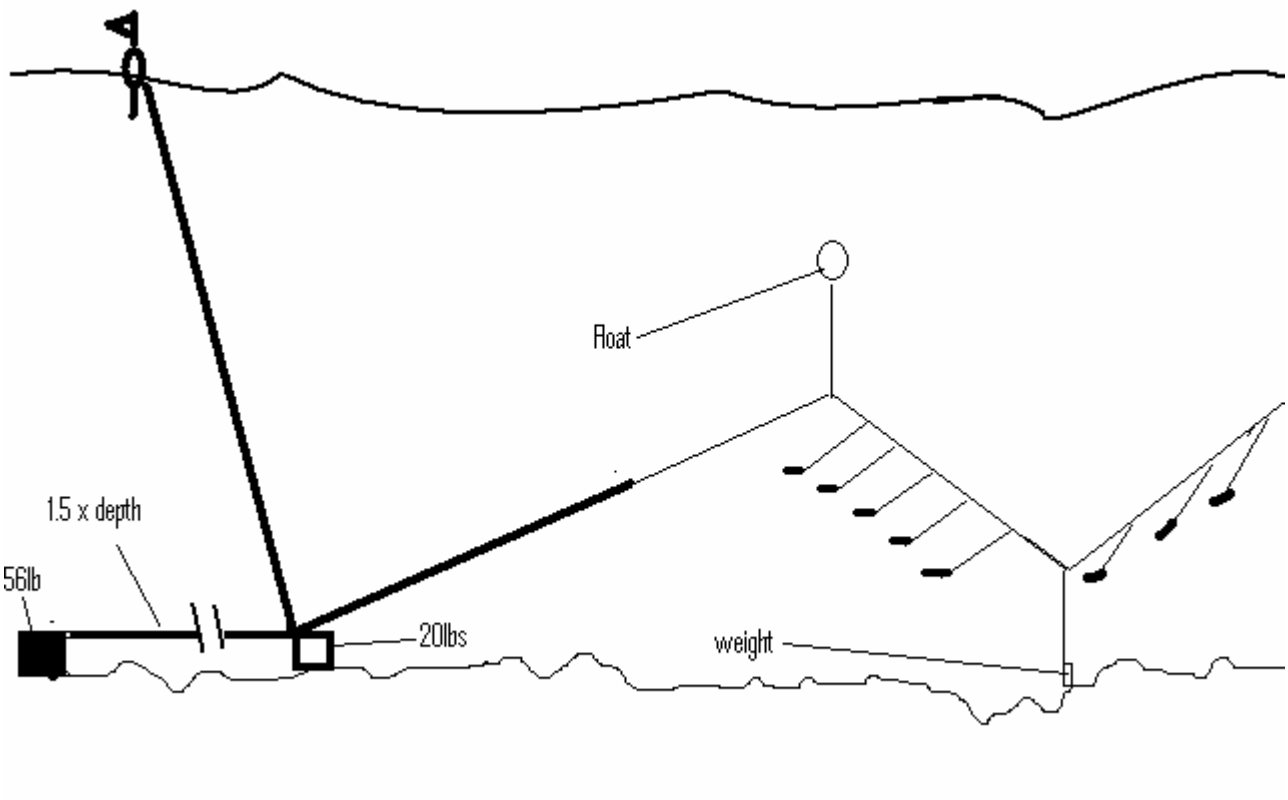


**Figure 1**


**Left: Hauling the 20lb end weight and float Middle and right: Running along the backline**

 

### 2.3. Shooting the lines

Initially the back line was held on a large reel with no snood attachments, one end was attached to the end weights. The end weights were shot and the boat steamed away paying out the line in the desired direction. At the end of the line the second set of end weights were shot. The line was then hauled clipping the snoods to the swivels on the backline as the boat worked along the gear. Initially this was done primarily for safety until a routine was developed. Later it was found that if lines were shot from bins with snoods and hooks already attached and held on the rim of the bins, held by pipe insulating foam, speed of setting gear was greatly improved, without safety being seriously compromised. It must be noted though that long lining is inherently dangerous and every precaution must be taken to minimise the risk of accidents, particularity if working single handed.

This system of bins and insulting foam was also found to be effective when retrieving the lines as they were easily stowed in bins with the hooks embedded in the insulating foam.

## 3. Location

### 3.1. Tide

Tide played an extremely important role in the positioning of lines. It was deemed that at least 0.8 knots was needed to keep the lures working when tide ran at its hardest, up to 3knots, after which the lures began to spin and reduce in effectiveness. It was for this reason that lines were positioned throughout all the states of the tide to take advantage of the tidal range over both springs and neaps. It has been noted that bass move location to feed in an optimal tidal flow which in our case fell between the 0.8 & 3.0 knots

### 3.2. Orientation

Orientation to the tide was found to play a significant role in the effectiveness of the lines. Throughout the first trial stages lines were shot across tide, the reasons being that it enabled the lures and snood to be held well away from the back line. It had been found that snoods would be inclined to spin up on the back line should the direction of tide allow it.

The disadvantages of shooting across the tide were three fold:

- Fish were deemed to be running up tide in quiet narrow bands, resulting in the line being loaded in isolated patches rather than right through.
- Running through the gear across the tide when hauling, picking off the fish, was considerably more difficult with tide running, putting considerable strain on the line.
- With the lines running across the tide the hooks were prone to catch far more debris, plastics etc. which in extreme cases would chaff through the back line.

Shooting with tide initially had the disadvantage of having the snoods spinning up the back line, but with the use of weights and floats, creating a dragons' back effect. (Fig: 1) The three previous disadvantages were overcome and it was found to be a far superior method of orientating the lines.

 

### 3.3. Turbidity

Turbidity levels were a consideration with both extremes to be avoided.
Very high turbidity, (visibility < 1meter) to very low, (visibility > 8 meters) saw catch rates reduce significantly. Whilst fish that were caught in high turbidity were thought to have been more than would have been expected purely through sight, vibration could have been a contributing factor. In very low turbidity, it was though that fish were getting caught at the change of light, dawn and dusk.
Optimum turbidity levels were found to be between 3 m and 5m.

### 3.4. Hauling

Hauling the lines is where the greatest time and energy saving is realised in the whole system. Owing to the lines not needing to be re-baited there is, therefore, no reason to bring the line back to the boat, as in normal long lining. The way the lines are set (fig 1) allows the line to be brought to the boat without disturbing the end weights.

### 3.5. Fishfinger

By the use of an arm extended from the beam of the boat, the “Fishfinger”. The line is able to be hooked over the fishfinger and the boat is steamed along the line and fish unhooked accordingly. The “fishfinger” as illustrated was made from available material. Modification is required in order for it to be perfected.

Steaming along the line is considerably easier with lines that are shot with the tide.

**Hauling the gear using the “Fishfinger”**

 

# 4. Other information

## 4.1. Scent

Scent was experimented with. Lures were dressed in pilchard oil prior to fishing. The effect was negative. Whilst the lures had traces of oil they did not catch Bass. It is not known if other attractants might work, however the lures fished well in all but the most turbid conditions without scent.

## 4.2. Length of time

It was found that after a period of about two weeks, the lines and lures started to grow algae and results fell away sharply. When lines and lures were removed and dried they returned to normal effectiveness.

## 4.3. May Bloom

May bloom and any algal infestation rendered the lines as good as useless. Organic matter would attach itself to the lines rendering them visible.

## 4.4. Seals

The lines were fished in some areas notorious for seals damaging fishing gear and catches. There were incidences of Pollock being eaten by seals whilst Bass on the adjacent hook were alive and untouched. There were no incidences of half eaten Bass, but when seals were present, catches were down.

 

## 5. Evolution of lines.

In order to avoid others repeating lessons already learned here we have a brief explanation of the evolution of the lines

| Length | Hook No | Floats | Weights | Comments | Catch rate (approx) |
|---|---|---|---|---|---|
| 100m | 25 | Single float suspending line from centre | End weight only | With the size of the tidal range only sight slackening of the line would lead to chaffing on the sea bed. If the line parted this would render the tackle beyond repair. | 1:30 (1 bass per 30 hooks) |
| 100m | 60 | | | Snoods fitted with lamb's rings. Hooks whipped not tied. Prior to this maximum fish size landed was 3 kg, after modification maximum fish size landed 5.5kg | 1.25 |
| 200m | 60 | Floats placed between end weights and centre weight | End weights and 1 central weight | With the size of the tidal range only sight slackening of the line would lead to chaffing on the sea bed If the line parted this would render the tackle beyond repair. | 1:25 |
| 200m | 60 | Floats and weights placed at same fixture point along line every 30m | Weights fixed to same point as float | If the line was not shot exactly the line between weight/float would hang and chaff. Having slack line also limited the number of fish retained. | 1:25 |
| 400m | 100 | Floats and weights staggered every 10 hook I.e. 5 hooks, float, 5 hooks, weight etc. | Weights every 10 hooks | This was found to be very effective in keeping the line taut and off the seabed. Fig:1 If a section did part it did not affect the rest of the line. | 1:12 |
| 400m | 100 | **Alternative to above**. Pot buoy floats at every 10 hooks. | No weights | This is a variation on the above see **fig:2** This system allowed for fishing when fish fed higher in the water. | 1:12 |

 

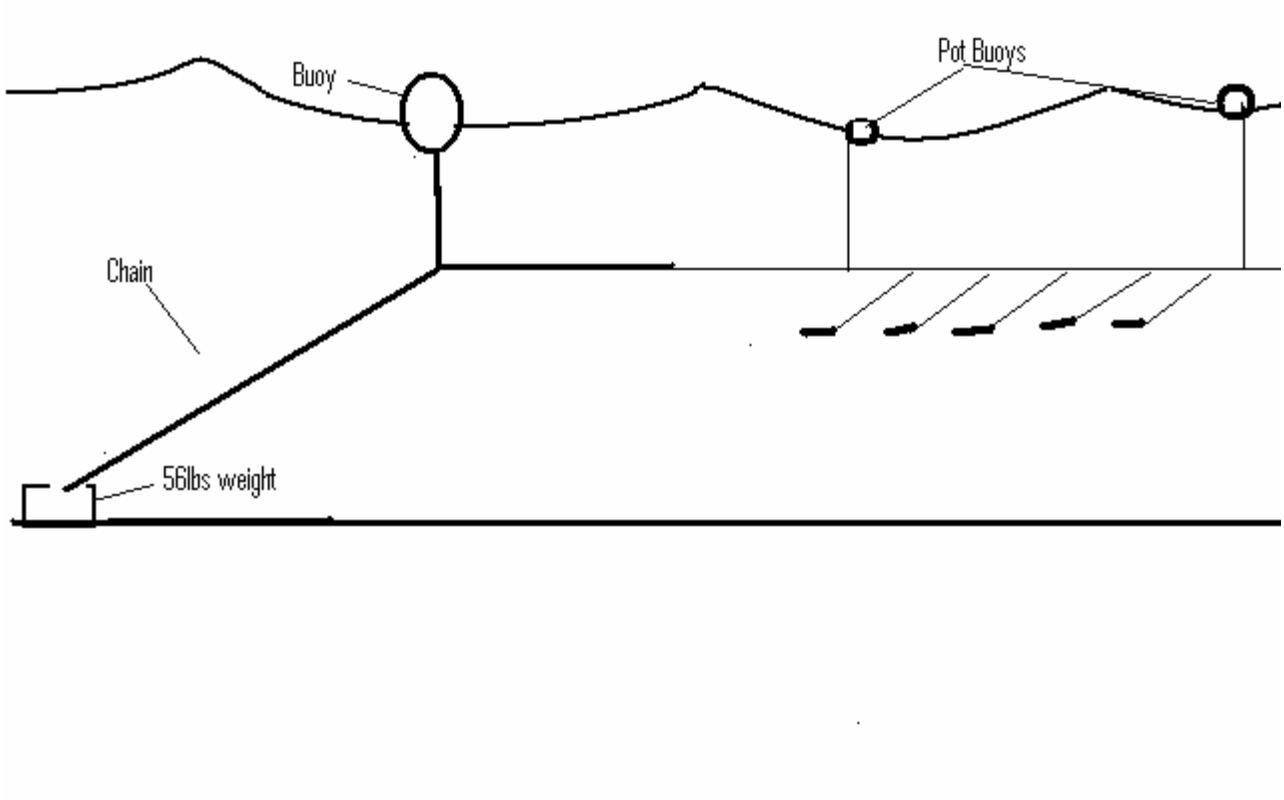


**Figure 2**

## 6. Catch Rates

The catch data was based on number of retained bass per number of hooks hauled each day.

The first part of the project was fished with a nominal number of hooks, (60 – 180 hooks). This was whilst the lines were modified to eliminate problems.

It must be noted that as the lines were modified and the catch ratio to hook increased, a degree of this must be attributed to the increase of fish in the water as the season progressed.

| | Lines | Hooks per Fish | Average Price per Kg | Average weight | Average return per hook per hauling |
|---|---|---|---|---|---|
| June/July | Evolving | 1:30 | £12.00 | 1kg | 40p |
| Aug/Sept/Oct | Complete | 1:12 | £9.00 | 1kg | 75p |

## 7. Fishable Quantities

Whilst it takes time to become familiar with any new method of fishing, and establish working practices, it is deemed quiet feasible that a single handed boat could comfortably fish 1000 hooks per day.

 

## 8. By-Catch

By-catch made up a tiny percentage of the overall catch. Pollock made up the majority and along with Cod, were all of marketable quality. Other species were returned in most cases alive.

During the initial trials of 2007 there had been two incidences of Gannet by-catch and three Herring gulls. With the lines set as described there have been no incidents of bird by-catch. Gannets were seen working in the area during the course of the 2008 trials.

| Species | Condition on Hauling | Total number |
|---|---|---|
| Cod | Dead | 4 |
| Pollock | Dead | 60 |
| Thwait shad | Live | 2 |
| Conger | Live | 8 |
| Mackerel | Dead | 7 |
| Bull Huss | Live | 5 |
| Smooth Hound | Live | 7 |
| Dog Fish | Live | 36 |

## 9. Conclusion

In conclusion, the lured long line system offers many advantages over many existing methods of bass fishing. Most importantly it allows small single handed boats to realise an acceptable return on effort. This system of fishing is currently in it's infancy and has yet to be perfected, however, the work undertaken and described in this report sets out the basis for a fishery appropriate for the forthcoming challenges of the under 10 meter inshore fleet.


On a personal note, the author is looking forward to a profitable and sustainable future, fine tuning the Lured Long Line fishing method over coming seasons.

 