

Experimental Fishing Using Large Entrance Spider Pots

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Author: Richard Caslake

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Seafish Industry Authority

Fisheries Development Group



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Summary

This report describes fishing trials undertaken by commercial Shell fishermen based in the SW of England overseen by a Seafish employee based in Newlyn, Cornwall.

This project arose from another Seafish trial, based in the West of Scotland looking at investigation the potential for targeting Deep Sea Red Crab (*Chaceon affinis*). The pots used in this project were originally used as part of the Red Crab project though had subsequently become surplus to requirements. The pots were thought to have potential in the SW spider Crab fishery as a possible alternative to the use of tangle nets.

90 pots were allocated during April/May 2006 to 10 fishermen working from 6 different ports around the SW coast, both on the North and South coasts. All the pots were rigged with a 14" cone entrance and a netted bottom as originally supplied by the manufacturer.

The fishermen were also supplied with a logsheet to record catches in order to assess the effectiveness of these pots compared with a standard Inkwel or parlour pot. . On first inspection, fishermen were generally happy with the overall design of the pots, though the pots produced mixed results. The tendency being that they did not fish as well as standard inkwell pots fitted with 10" buckets. There were a number of reasons why the fishermen thought that these pots were not catching effectively, in the main it was thought that the Spider Crabs could too easily escape from the pots especially when the pots were not lying flat on the bottom due to insufficient weight in the base of the pot. The fishermen were invited to retain the pots and make any alterations they saw fit during the winter months to improve the pots performance.

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1. Introduction

Spider crabs are principally caught inshore during the period April to August along the Southwest coast of England and Wales. Spider crabs are targeted by small boats operating on inshore grounds, using standard inkwell and parlour pots and large mesh tangle nets with a mesh size ranging from 10-14 inches. This project will assess the potential of using larger crab pots as an alternative. These pots differ from those traditionally used by the region's fishermen, featuring a larger 40 inch base and a cone-shaped entrance diameter of 14 inches, compared with a 30" pot with a 10inch diameter bucket-shaped entrance used for brown (edible) crab, spider crab and lobster.

The potential benefits of using a larger pot with a wider 14" entrance are:

- Larger entrances allow the bigger spider crabs to enter the pot
- Reduction in bycatch associated with the use of tangle nets
- Improved quality
- Improved efficiency

These pots were originally constructed for fishing trials for deepwater red crab, which were carried out off the west coast of Scotland last year and are based on a design used in the Canadian snow crab fishery. As a number of these redundant pots were readily available, it was recognised that they provided the perfect opportunity for low-cost trials in a different fishery.

The study will investigate whether these larger diameter entrance pots have the potential for catching the more lucrative bigger crabs and how the catches compare against a standard pot. Also assessing the practicalities of using larger pots on the smaller class of vessels that target this fishery.

2. Background

The large entrance inkwell pots (Supplied by GT Products Ltd.) were originally purchased by Seafish for use during a sea trial investigating a new UK fishery for deep-sea (Red/King) Crabs *Chaceon affinis*. These pots proved unsuccessful in this fishery as they were found to be very difficult to handle and stack in large numbers onboard the sheltered vivier crabber (Our Hazel UL543) used in the trial. Rather than the pots being put to no further use it was thought that they may have an application in the inshore fishery for Spider crabs (*Majo squinado*) in the Southwest of England and Wales. This fishery involved small scale vessels working pots and nets in relatively small numbers close to the shore. The pots were transported from Ullapool to Newlyn and collected/delivered to fishermen during April and May 2006.

3. Materials and Methods

The type of trap used was a plastic coated wire mesh design with a 40" base and a 14" conical entrance. This pots were supplied by GT products Ltd and were based on a design used successfully in American shellfish fisheries. A total of 90 pots were distributed to 10 fishermen from 6 ports around the Southwest Coast. All pots were originally supplied with the 14" cone entrances though subsequently a number of pots were trialled using a standard 10" bucket entrance.



The pots were allocated to fishermen from a range of ports in the Southwest covering both the North and South coasts. The interest generated by a number of press articles about the trial resulted in a further 40 pots being bought from GT products in addition to the 50 pots that were used in the Red Crab trial. The pots were distributed as shown below:

- 15 to 3 fishermen in Newquay
- 5 to a fishermen in Mousehole
- 10 pots to 2 fishermen on the Lizard
- Tier of 10 to an experimental bio-diesel vessel
- Tier of 20 to a Newlyn Skipper
- Tier of 20 to a Dartmouth Crabber
- 5 to a fishermen in Mevagissy
- 5 to a fishermen from Hayle

The vessels used by these fishermen ranged from small single handed boats up to larger crabbers fishing 600+ pots per day with a crew of 3 or 4 men. The tier of 10 pots allocated to the vessel carrying out experimental bio-diesel work allowed more comprehensive data to be collected as this vessel was not constrained by commercial commitments and had more time available to assess catches. It also allowed the pots to be rigged using different methods and performance analysed individually.

A further twenty 14" cone entrances were also purchased and sent to fishermen who had expressed an interest in the project but were generally fishing outside of the Southwest ports. These included fishermen from Stranraer, West Wales, Ireland, Isle of Man and Jersey.

The handling of the pots and methods of fishing of fishing the pots on existing tiers was left up to individual fishermen as handling practices and tier setups vary from vessel to vessel. The main aim of the project was to compare catches of Spiders to those caught in stand pots.

A Sea Fish Industry Authority (Seafish) project to investigate the potential of using large pots to target spider crabs will shortly get underway in the south-west of England.

The market demand for spider crab varies depending on size with the price ranging from 30-80 pence per kilo for small crabs up to £1.40-1.80 per kilo for specimens above one kilo in weight.

The south-west spider crab season runs from April until August and is worked by small boats operating on inshore grounds. One of the aims of the study is to assess the practicalities of using larger pots on this class of vessel.

The trial will commence in April and already two or three fishermen from the Mounts Bay area of Cornwall have indicated their willingness to participate.

Richard Caslake of Seafish said: “The trial will investigate whether this type of pot could prove a viable alternative to using tangle nets for spider crab. The larger entrance and size of the pot could make them effective catchers of spider crab.”

Seafish has about 50 of these pots in total at its disposal and if any other fishermen in the south-west would like take part in the project, then please contact Richard Caslake on 01736 362625, or email r_caslake@seafish.co.uk

There were a number of reasons why the fishermen thought these pots were not catching the main reason being that they felt the spider crabs could easily escape from the pot.

In discussion with fishermen who worked the pots, the poor performance could be due to a number of factors including:-

- Entrances too large and not deep enough allowing the spiders to climb out.
- Crabs finding it difficult to climb or not liking the wire mesh.
- Crabs being able to access the bait from outside of the pot and not needing to commit themselves to entering the pot.
- Sides of the pot being too steep
- New pot theory - new pots sometimes tend not to fish too well in the first year.
- Pots not lying base down on the seabed – not enough weight in the bases.

4. Results

Various alterations where made to the basic pot by fishermen to try and improve their performance these included:-

- Using solid bases in addition to the netted bottom.
- Netting the outside of the pot to enable the crabs to climb more easily.
- Using standard 10-inch bucket entrances.
- Painting the entrance cones different colours.



5. Discussion

Of the changes made by the fishermen the most effective alteration was the use of the standard 10" bucket (seen below). This did improve the retention of the crab but also influenced the size of spider able to enter the pot. Other alterations tried had negligible effects on catch rates.

In discussion with two pot manufactures Roger from GT Products and Rob from Mustang engineering, about possible developments, Roger has received feedback from fishermen who have been working the cone entrance in larger (3ft x 3ft) square net mesh pots with a good deal of success . Rob from Mustang engineering is currently working on a larger inkwell pot with a 35" base and a 12" bucket entrance, which will be available shortly.

6. Conclusions



7. Future Work

Allocated pots will remain with fishermen to enable them to make any alterations they see fit during the winter months to improve the pots performance. Contact will be maintained with fishermen during the course of next seasons Spider fishery. Any alterations resulting in improved performance of these pots will be relayed to all interested parties. It is also intended, using the knowledge gained during this trial and from feedback given by fishermen, to source funding to develop and test a number of innovative designs of spider pot during the course of next season.

8. Acknowledgements

Contact Details

Gus Caslake
Seafish Industry
Authority
4 Gloucester Crescent
Newlyn, Cornwall
TR18 5DR
Tel: (01736) 362625
www.seafish.org

GT Products (Europe) Ltd
Unit 14 Ford Lane Bus. Park.
Ford Lane
Ford
West Sussex
BN18 0UZ
Tel: (01243) 555303

Mustang Engineering
Leaf Mill
Pottery Road
Bovey Tracey
NEWTON ABBOT
Devon
TQ13 9JJ
Tel: (01626) 835467

Appendix 1

Spider Success Story

A further development of the Sea Fish Industry Authority (Seafish) project to investigate the potential of using large pots to target spider crabs has been made by Newquay fisherman Phil Trebilcock (Loyal Partner PZ 30). Having fished with the pots supplied by GT products during last season with mixed results, Phil further developed the pots during the winter months by adding a solid metal base replacing the netting base, giving the pot more weight and stability. The netting base was utilised by attaching it to the wire mesh frame of the pot making it easier for the crabs to climb and enter the pot. The cone entrance was replaced by a 12" bucket entrance mounted to the pot using an old plastic pot base cut to size to accommodate the entrance and fit snugly in the top held tightly by a rope binding.



Both the 12" entrance and metal base were supplied by Mustang Engineering of Bovey Tracy developed as a result of the initial Seafish trials. Phil was also working two tiers of the larger metal framed inkwell pots also developed and supplied by Mustang Engineering.

Improved catches have been seen in both designs of pots with a noticeable increase in the numbers of larger 2+ Kg spiders being caught. The theory being that these larger spiders were trying to enter the smaller 10" necked pots being unable to do so and restricting the entrance to other crabs.



Phil was trialling three larger parlour pots designed by Mustang, these pots had the enlarged 12" entrances and came with a removable parlour opening. The parlour entrance is removed

during the spider season as it restricted the number of crabs able to enter the pot, but is a simple job to clip back in when required.



Phil made the point that they would like to find new markets, particularly for the larger run of Crab, which is literally caught on the beaches with the pots shot at times no more than metres from the shore. However, as soon as the crab hits the quayside it is whisked away in the back of a lorry bound for the plates of the French and Spanish. Such a shame for a product caught in numbers on our doorstep every summer with a meet that is both sweet and succulent and a great alternative to brown crab.

If you would like any further information on the project then please contact Gus Caslake on 01736 362625, or e-mail r_caslake@seafish.co.uk

Contacts

Mustang Engineering
Leaf Mill
Pottery Road
Bovey Tracey
NEWTON ABBOT
Devon
TQ13 9JJ
Tel: (01626) 835467

GT Products (Europe) Ltd
Unit 14 Ford Lane Bus. Park.
Ford Lane
Ford
West Sussex
BN18 0UZ
Tel: (01243) 555303