Library 1

R. V. CORELLA

Report on Cruise I, 1967

Aims

1. To practice trawling with the simplest bottom trawl, the V-D modified and bobbin-rigged bottom trawl, the Dutch herring trawl, and the Engel pelagic trawl with Süberkrüb otter boards; to determine the best rig for ease of handling each trawl; and to make a first assessment of trawling performance using one or both engines.

2. To learn how to operate the purse-seine from this ship.

3. To make hydrographic trials and develop current meter handling procedure.

4. To test tin tow net handling arrangements and methods.

Narrative

The acceptance trial trawling tests on 17th and 21st March 1967 had shown up deficiencies in the winches and their hydraulic drive systems which would require considerable time to be remedied. As the trawl winches were not ready before the latest period of availability of our purse-seine instructor, it was decided to proceed with Aim 2 - Purse-seining before the trawling, accepting that even for this the main winch would be only on half power and that the stern winch would not be usable.

Part 1

Staff: A. R. Margetts
J. P. Bridger
I. L. Davies
B. C. Mumford
M. Magnusson (Instructor)

Duration: April 20-28th, 1967.

CORELLA left Lowestoft 1715 B.S.T. April 20th and steamed to North Shields, to arrive there at 1700 April 21st and pick up the bos boat (skiff) which had recently been delivered there from Norway. En route CORELLA encountered strong headwinds and rough sea which she came through quite well with speed (still full ahead on the engines) reduced to $7\frac{1}{2}$ knots. Repairs to a port light were made in Shields while unsuitable weather prevented purse-seining on April 22nd.

CORELLA left North Shields at 0200 April 23rd and practiced shooting and hauling the purse-seine at Farne Deeps through the four days April 23-26th in which thirteen shots were made. CORELLA returned to Lowestoft on April 28th, the latest date for Skipper Magnusson, berthing at 1130.

The purse-seine trials were very satisfactory. The ship, in general, proved suitable for the job and her turning circle and manoeuvrability were good. But the limitations of the winches accepted earlier, together with winch defects soon revealed (brake failure, no free-running and unsuitable whipping drums) were a great handicap. However, the crew learned their new jobs quite well and no gear was lost. A list of items to be attended to before any further purse-seining is done has been prepared separately; the major items are: (a) the provision of proper boat davits, (b) the reshaping of the bunt end of the present net, (c) bigger blocks to be fitted to take running gear, and (d) all hull obstructions, e.g. cathodic protection, to be smoothed off.

A. R. M.

Part 2

Staff: A. R. Margetts
J. G. Cattley
I. L. Davies

Duration: May 11-13th, 1967

Winch repairs and modifications and some engine room servicing at the builders' yard took from May 1 to May 8 inclusive. CORELLA returned to North Quay, Lowestoft, on May 9 and warps and trawl gear were shipped.

After swinging compasses, CORELLA left Lowestoft 1000 May 11. Two electricians of Belling-Lee Ltd. and S. G. Brown Ltd. completed their tests and were put ashore by boat at Gorleston the same day. CORELLA steamed to the Brown Ridges area where trawling trials were made with a simple light rig of otter trawl. At first the winch brakes were not properly effective but after considerable treatment of the discs to remove all scale and corrosion they were made to work properly. After completing eight hauls the winch barrels were running out tolerably freely. Getting the cod-end to and from the fish pound was fraught with complications and operating the main winch clutch was neither quick nor easy, but the first trawl fishing was completed satisfactorily. CORELLA returned to Lowestoft 1130 May 13.

Part 3

A. R. M.

Staff: A. R. Margetts
J. P. Bridger
A. Jones
I. L. Davies
B. C. Mumford

Duration: May 15-19th, 1967

CORELLA left Lowestoft 1315 May 15 and trawling commenced that evening off Mablethorpe. Gear handling trials were combined with fishing for brill. In seven inshore hauls, minor modifications were made in trawl handling, 50 brill were tagged, and 13 stored live in the fish tank room for transport to the aquarium at Lowestoft.

Trawling was continued, using bobbins, 15 fm bridles and a tickler between dan lenos, at Flamboro Off Ground May 17. The way of handling this gear which was developed, emptying the codend into a pound on the port side aft, was completely satisfactory. CORELLA can tow this gear using one motor only in perfect weather conditions; when there is appreciable wind or swell two motors must be used. Throughout the trip the winch brake did not work properly and all efforts to make it do so met with limited success, so all trawl shooting was done with clutches in and power on. Blood samples from 18 plaice and 74 cod were collected for Dr. Jamieson. A move was then made to the Hospital Ground in order to fish for turbot, but strong winds prevented this. On May 18 three hauls were made at the south end of Broken Bank, but no turbot ware caught. CORELLA berthed in Lowestoft 0600 May 19. By then, of the 13 live brill carried, two had died and the remaining 11 were in fair condition.

Part 4

A. R. M.

Staff: A. R. Margetts
B. C. Mumford
B. Partridge (Honeywell Ltd.)

Duration: May 23-25th, 1967

After being delayed overnight by bad weather, CORELLA left Lowestoft 0900 May 23. Work in the deep water to the south-east of Lowestoft was limited by weather to two periods in the evenings of May 23 and 24. In that time the 800 mesh Engel trawl was suitably rigged and modified so as to be conveniently usable aboard this vessel. Tests of towing loads and net opening had to be omitted as did operation of the headline transducer, but a scheme for operation of the latter from the temporary winch was arranged. CORELLA berthed at Lowestoft 1130 May 25.

A. R. M.

As the time available before the scheduled start of Cruise 2 was insufficient for trials with the Dutch Herring trawl, these were postponed to become an essential preliminary to the next herring trawling cruise. After completion of Part 4 of this cruise, mechanical modifications and adjustments took longer than anticipated and so Part 5, the hydrographic and tin tow net trials, were transferred to the beginning of Cruise 2.

A. R. Margetts
25.5.67.

Seen in draft: W. C. (Master)
A. H. B. (Fishing Skipper)

Initialled: A. J. L.

Distribution:

Dr. Cole
Mr. Lee
Captain Aldiss
Dr. Cushing
Mr. Burd
Mr. Garrod
Mr. Bolster
Mr. Cattley
Mr. Corlett
Dr. Harden Jones
Mr. Margetts
Mr. Trout
Mr. Iles
Mr. Holden
Dr. Jamieson
Dr. Purdom
Mr. Bridger
Mr. Mitson
Mr. Tungate
Mr. Williams
Mr. Wood
Mr. Adams
Mr. Mills
Mr. Cutler
Mr. Kay
Admin. Section
Mr. A. Jones
Miss Conolly
General Lab.
Lab. Registry
Library (2)
Mr. Simpson
Dr. Reynolds
Mr. Whiting
Chief Inspector
All District Inspectors
Fisheries Registry
Captain Craig
Mr. Revell
Skipper Button
Mr. Wollaston
Mr. Baird, DAFS
Director, Dublin
Mr. Glover
Hydrographic Dept.
Dr. Lucas
Director, NIO
Dr. Peachey
Mr. Shelbourne
WFA
Director, IJmuiden
Mr. Davies
Mr. Mumford

Dr. Cooke

R.V. CORELLA

Cruise 1, parts 2 and 3 - Bottom trawling

Part 2 was devoted to a tentative and gentle handling of a light trawl to test winches and rig handling arrangements. Since Part 1 (Purse-seining), another servicing of the winch by makers had shown that the system was so constructed that the brakes could not operate; a new hydraulics pipe was installed and harbour tests carried out. Part 3 was to develop and practice handling the fully rigged trawl.

1. Generally the hauling and shooting procedure worked out very satisfactorily and by the end of part 3 the trawl with bobbins, bridles and tickler was being shot and hauled with the only manual operations being clipping and unclipping, hooking in and gilson and whipping drum operation. However, such smooth operation is largely dependent upon the fish pound being aft and not in the designed position. Getting the codend to and from the designed pound under the boat deck on the starboard side near the main winch is tedious, fraught with hazards of hitching up and tearing netting on shackles, etc. of the groundrope assembly, involves difficulties in emptying the fish into the pound, is well nigh impossible with a sizeable bag, and is, I submit, quite unnecessary. Use of the space between hatch and mast on the portside aft as a fish pound was very satisfactory and this is to be simply fitted as a pound. I would go further, and suggest that the site for marking tanks should also be aft on the port side, although on many trips they could still be near the winch on the starboard side as they were on this cruise. But in this present position there is room only for small tanks, even then the fish didler and marker is frequently hampered by the proximity of the main winch, the fish-markers and crewmen operating the whipping drum and winch are continually in each others way, (scientific staff cannot work at the tanks when the trawl is being shot or hauled) and there are bights of wire underfoot of persons near the tanks.

2. CORELLA can tow a fully rigged bottom trawl at satisfactory speed using only one motor (which is also driving generators, etc.) but only in calm weather. When there is appreciable wind or swell, both motors must be used. The towing load on each warp at 3 knots is between 2.0 and 2.5 tons, when 100 fm warp is out in 28 fm of water and in fine weather.

3. In part 2 of the cruise, the first few hauls showed the main winch brakes to be not holding at a towing load of 1.5 tons. Operating the winch with brakes on while shooting and hauling the trawl did not settle them in, so the discs were thoroughly rubbed down with emery paper and then the winch run with brakes on for 1½ hours; this got the brakes working properly. But two days later, at the start of part 3, the brakes failed again and the same treatment and such attention to the hydraulics as could be given failed to bring them to proper efficiency again. There was obviously a leakage of hydraulic oil from the system, allowing air in, but locating and remedying this was impossible because the six pipes on the consol manifold are so close together that the majority of their twenty-four joints are inaccessible.

4. While the brakes were not acting (during the first half of part 2 and all of part 3) the trawl was shot with winch clutched-up and driving out, but for the few hauls when the brakes were all right it was shot easily with winch drums unclutched. After the seven hauls of part 2, the winch was running out tolerably freely - one man could just pull out the warp.

5. Strengthening of the guiding-on gear on the main trawl winch is necessary. This bent and distorted too easily when fouled by shackles jamming between the vertical rollers; it was put out of action three times during parts 2 and 3 and finished up badly buckled.

6. The main winch clutch arrangement is a real handicap for trawling. Operation of the clutch is difficult, often requiring two men leaning on or over parts of the winch, the clutch handle moves with the moving barrel, and in trawling for live fish there is considerable consequent delay just when the fish are in the boiling wake of the ship.

7. On the first haul of part 2, the warp length meter developed a fault which could not be traced or rectified. The precaution of paint-marking the last 100 fm of warps was thoroughly justified.

8. Although the warps had been wound on to the winch as tightly as possible, they were not tight enough, so the load of trawling squeezed bights of under layers up through the top layers of warp, thus putting the Lebus spooling out of action. Between 200 and 300 fm of warp was run off with a drogue and heaved back while steaming, but this was still not enough to achieve proper spooling and packing. Somehow the warp has all got to be wound on to the empty winches under heavy loading.

A. R. Margetts
19.5.67.

Distribution:

Dr. Cole
Mr. Lee
All S.O's and S.E.O's
Captain Aldiss
Captain Craig
Mr. Adams
Mr. Mills

Dr. Cole

R.V. CORELLA

Cruise 1, parts 2 and 3 - Defects, comments, suggestions, etc.

(additional to those noted for part 1)

1. A position indicator, visible to the winch operator, to be fitted to main trawl winch guiding-on gear.

2. Guiding-on gear vertical roller mounting to be straightened and strengthened and gap between rollers to be widened.

3. After considerable de-scaling of discs and running-in, the brakes on the trawl winch were operating properly by the end of part 2 of the cruise, but failed again two days later, at the start of part 3, and could not be brought up to proper efficiency again. There was a leakage from the hydraulics system, but the very close together positioning of the six pipes on the consol manifold made attention to the majority of their twenty-four joints impossible.

4. Quick freeze is not quick-freezing, and storage cabinet does not reach required temperature. The deep freeze set for -30°F reaches only +14°F and the cabinet set at 0°F reaches only +18°F.

5. The woodwork constructed in the quick-freezer since part 1 of Cruise 1 is entirely inadequate and shelving is required in this and in the storage cabinet.

6. A basic tool kit is needed in the laboratory.

7. More cleats are required on the after port side mast.

8. In the fish tank room, a vertical ladder extension downwards of the present three steps is needed at each hatch, and an overhead athwartships handrail should be fitted.

9. The wooden partitions and staging in the fish tank room are to be numbered and labelled.

10. Piped radio head-sets are requested for the two double scientists' cabins.

11. Padlocks to be supplied for lab. quick-freezer and cabinet.

12. The water intake for the fish tank room, which is situated in the bows, is not usable in worse than moderate weather as it then is out of the water too much and suction is lost. Can this be re-sited?

13. A marking tank hose, fitted with N.F.S. coupling is required. On Cruise 1 the deck hose was borrowed for supplying marking tanks.

14. Fish pound to be constructed between port side gear store hatch and after mast.

15. Small platforms to be fixed to bulwarks near after gallows.

A. R. Margetts
19.5.67.

Distribution:

Dr. Cole
Mr. Lee
Mr. Trout
Mr. Cattley
Captain Aldiss
Captain Craig
All S.O's and S.E.O's
Mr. Adams
Mr. Mills
Mr. Strowger

R. V. CORELLA

General Summary Report on Purse-seining Trials, April 20th-28th 1967

Introduction

This report is intended to record the main features of the trials. A detailed record of fishing procedure and method is being compiled by Mr. Bridger.

When we went to sea with CORELLA on this purse-seining trial, we did so accepting the limitations of not being able to use the stern winch and of being able to use the main winch only at half power. The aim was simply to train the crew in the handling, shooting and hauling of the gear. It was not intended to catch fish nor was any attempt made to do so.

In all, thirteen hauls were made with the purse-seine under the direction of Skipper M. Magnusson.

Conclusions

1. The ship (not including the winches) was, in general, quite suitable for purse-seining, with the reservation that attention must be given to making sure that the hull is quite "clean". Twice the net came fast on the ship - thought to be due to the attachment of cathodic protection to the hull. The general layout for purse-seining was quite satisfactory and the turning circle and manoeuvrability of the ship was very good. The small boat is going to be useful in purse-seining and has good towing power; but the present boom-lift arrangement for getting the boat in and out of the water is no good and the mast arrangement does not allow improvement, so a proper davit arrangement, temporary but strong, for purse-seine trips will have to be provided. Captain Aldiss has agreed to investigate and make recommendations about this. Two-way portable radio is required between the small boat and the ship.

2. Most of our difficulties with the purse-seining on this trip were traceable to the winches - either to the limitations accepted earlier or to defects and deficiencies experienced during the trip.

(a) The purse-line had to be payed out with power on the clutched-up winch because the unclutched drum would not run freely enough.

(b) The brake on the starboard side drum failed to work and that on the port side drum could not be trusted as it showed signs of not holding properly.

(c) The absence of the stern winch was a much more serious limitation than anticipated, especially in view of point (d) following.

(d) The design of whipping drum was quite wrong for fishing and general purposes. Ropes too easily ride off the ends of the drum, and we were lucky that deck crew were not injured. The deeper, conventionally shaped, trawl winch whipping drums are required to replace the present ones.

(e) The warp-measuring apparatus caused interference when slack bights of warp came off the drum.

Of these, (c) is arranged for, (d) was reported from sea on April 24th as necessitating immediate replacement, and (e) can be dealt with by temporary complete removal of this apparatus prior to any future purse-seining. (a) and (b) are to be subjects of immediate investigation.

3. As known previously, the present net is fragile for a ship of CORELLA's weight, but it withstood the difficult trial period and can still be of use for the future. Any new net would have to be stronger, but, with some modifications, the present net can be re-used. The bunt end of the net, now virtually square to the full depth, is to be tapered off and strengthened. Wider blocks are

required to replace all present snatch-blocks, and forged clip-links of at least 5/8" hard steel are to replace the present links in the running gear. Bunching rings are to be fitted for taking in the bunt to the forward boom and ship's side.

4. Considering the previous total inexperience of the crew and the difficulties (especially with winches) which would have taxed even an experienced purse-seiner crew, these first trials have proved most satisfactory and well worthwhile. The crew of CORELLA have learned quite well. However, with considerable time elapsing before the next scheduled purse-seine cruise (and the probability of there being some crew changes in that time), it is certain that further practice hauls will be necessary shortly before attempting to catch fish. Furthermore, no real training has yet been given in the finer points and tactics of operating the gear and catching fish. This can best, and most economically, be done by our sending Skipper Button together with Mr. John Bridger to accompany commercial fishing trips in Iceland or Norway. Skipper Magnusson is prepared to cooperate in this. I strongly recommend that this be done as an essential preliminary to any purse-seine fishing that might be planned for the future.

Attached is a list of practical points to be attended to before purse-seining again.

A. R. Margetts
28.4.67.

Distribution:

Dr. Cole
Mr. Lee
All S.O. and S.E.O. staff
Captain Aldiss
Captain Craig
Mr. Adams
Mr. Mills

R. V. CORELLA

Modifications required for future purse-seining

1. Winches to be fully operational with correct whipping drums, and stern winch to be operable simultaneously with the main winch.
2. Bunt end of net to be re-shaped.
3. Bunching rings to be fixed on bunt end and adjacent footrope.
4. Three cleats to be provided near pursing gallows.
5. Bigger blocks to be fitted to take running gear and pursing wire.
6. Stronger forged clip links to be incorporated in running gear.
7. Spliced eyes and loops of purse line extension to be adjusted.
8. All hull obstructions, e.g. cathodic protection, to be smoothed off.
9. Boat davits to be provided and rigged.
10. Two-way portable radio to be provided.
11. Ladder to be fixed on port side from boat deck to fishing deck.
12. Talk-back system to be installed between winch and wheelhouse, and power block and wheelhouse.
13. Asdic must be in wheelhouse.
14. Eye to stay forward bunt-end boom.

A. R. Margetts
28.4.67.

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