

REPORT 1

F.I.R.T.A. Project No. 78/49

"Development of the New Purse Seine Method
and Equipment into the Pelagic Fisheries"

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Summary

Following the successes achieved from the 77/78 F.I.R.T.A. project "Design and development of a new purse seining method and equipment" a further grant of \$27,580 was allocated from F.I.R.T.A. to introduce the technique into the pelagic fisheries. As the Mackerel fishery is still in need of development our efforts were aimed at that fishery.

The operation areas that were chosen were Port Phillip Bay and the N.W. coast of Tasmania, the respective ports being Melbourne and Stanley. Further modifications to both the hauling gear and method were necessary in order that the technique could be applied to mackerel fishing.

M This report discusses advantages and disadvantages of alternative hauling schemes as tested in the pilchard fishery and will be followed by a report on catch results and details on project expenditure.

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Introduction

During the 77/78 project the spooling system was tested successfully using a 225 fathom x 32 fathom pilchard and anchovy net. The net was slung with barrel shaped corks of appropriate size. However when the Government owned jack mackerel net (650m x 72m) was used problems occurred. The major set back was that the corkline of the net jammed when being hauled over the side rollers. The larger cylinder shaped corks on the mackerel net (cork size 150mm (6") diam x 100mm (4") length) jammed when coming around the 6" and 12" rollers.

Despite several modifications made to the rollers and to the hauling system, when the net was set again the cork line problem still prevailed. After discussions with DPI Fisheries Officers the project was postponed in Stanley, January 1979 as it was apparent that modifications to the net and/or the turning system was necessary.

As the cost involved in re-corking the net with bullet shaped corks was prohibitive it was agreed both by the applicant and officers of the DPI that alternations had to be made to the spooling system. This was a major set back for the project in attempting to apply the technique to full scale fishing operations at the peak of the Tasmanian mackerel season.

One problem that could not be overcome was the position of the vessel's superstructure with respect to the hauling configuration required. The "LAURUS" wheelhouse and riggings imposed limitations as to where the hauling and turning points could be placed (see diagram 1). To overcome this situation it was decided to transfer the spooling system to the F.V. "ANCHOVETTE" which offered greater deck space with less obstructions forward (diagram 2).

The following major equipment changes were also made:

- 1) A forward mounted power block was used in place of the side roller which eliminated the excessive strain placed on the cork line. A turning block was not required but could be used to keep the net further away from the working area.
- 2) Lowering the upper spool gantry (which supports the net layer) and subsequently the angle of the layer was changed from 60° to the vertical position (see diagram 3). Mounting the layer on the aft side as well as the forward facing side allows the net to be hauled from the stern as well as from the forward position.

- 3) A stern mounted fixed power block positioned approximately 1.5m behind the spool.

During the trial period of working the net over the power blocks and onto the spool it became apparent that there were various methods of hauling the gear. These are as follows:

- 1) hauling the net over the forward power block and onto the spool - a procedure that is outlined in the report on the previous 77/78 project.
- 2) Hauling the net from both ends and bunting in the centre.
- 3) Hauling the net through the aft power block on to the spool.

Results & Discussion on hauling methods

1. Hauling the net over the forward power block.

The method was tested and proved to be very effective both in preventing the cork line problem and reducing the strain on the net as it is layed onto the spool.

Since the forward hauling point varied between 3m and 4m from the pursing david, the problems encountered on the LAURUS (where the forward hauling point was above the pursing david) were also overcome. The net could be hauled independently of the pursing operation ie. before or after pursing had been completed.

2. Hauling the net from both ends and bunting in the centre.

The net is set in the usual fashion either aided by the power skiff or by the quick release gear. When the hook up is made the net is passed through the forward power block, over the layer and onto the spool. The wing (or other end) is passed through the after power block and onto the deck. The net can than be hauled from both ends while pursing is taking place. The after or wing end is stacked ready for setting as the net comes aboard whereas the forward section of the net must be wound off the spool and re-stacked using both power blocks.

Advantages:

- 1) The method of hauling is very fast and the vessel remains square to the net while hauling. The skiff is not required to hold the vessel although it may be necessary for manouvering the vessel.

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Conclusion

1. The stern and forward mounted power blocks assisted net hauling and effectively solved the cork line problem as well as reducing the crushing pressure of the net on the corks when being wound on the spool.
2. Although a skiff was used in preference to a retrieve line either may be used. The one advantage the skiff has is its noise deterring effect in keeping fish away from the gap before the hook-up has been completed.
3. Merit is given to forward hauling although the other methods are equally successful from an operational point of view.

Until market outlets for jack mackerel are further developed it would be unwise to consider large purse seiners and crews in the industry. The spooling system could be of great value where smaller operations can be considered. It is hoped that over the coming 80/81 season that the demand for mackerel increases to enable the "ANCHOVETTE" with its spooling gear to operate from Stanley. I am quite confident that we will be able to produce fish with this equipment at the lowest possible cost. The outlets for the fish would have to be within reasonable proximity to the fishing ground in order to cut fuel costs.

Acknowledgements

During the development of this fishing technique I have received enthusiastic support from the officers of the Fisheries Division, Department of Primary Industry, whose knowledge and interest helped to overcome many obstacles.

Also my thanks to Mr K.J. Hoskins chief engineer I.X.L. Geelong for his assistance in the mechanical and technical applications.

Lastly, my crew who remain willing and enthusiastic.

DIAGRAM 1. Deck Layout of F.V. "LAURUS".

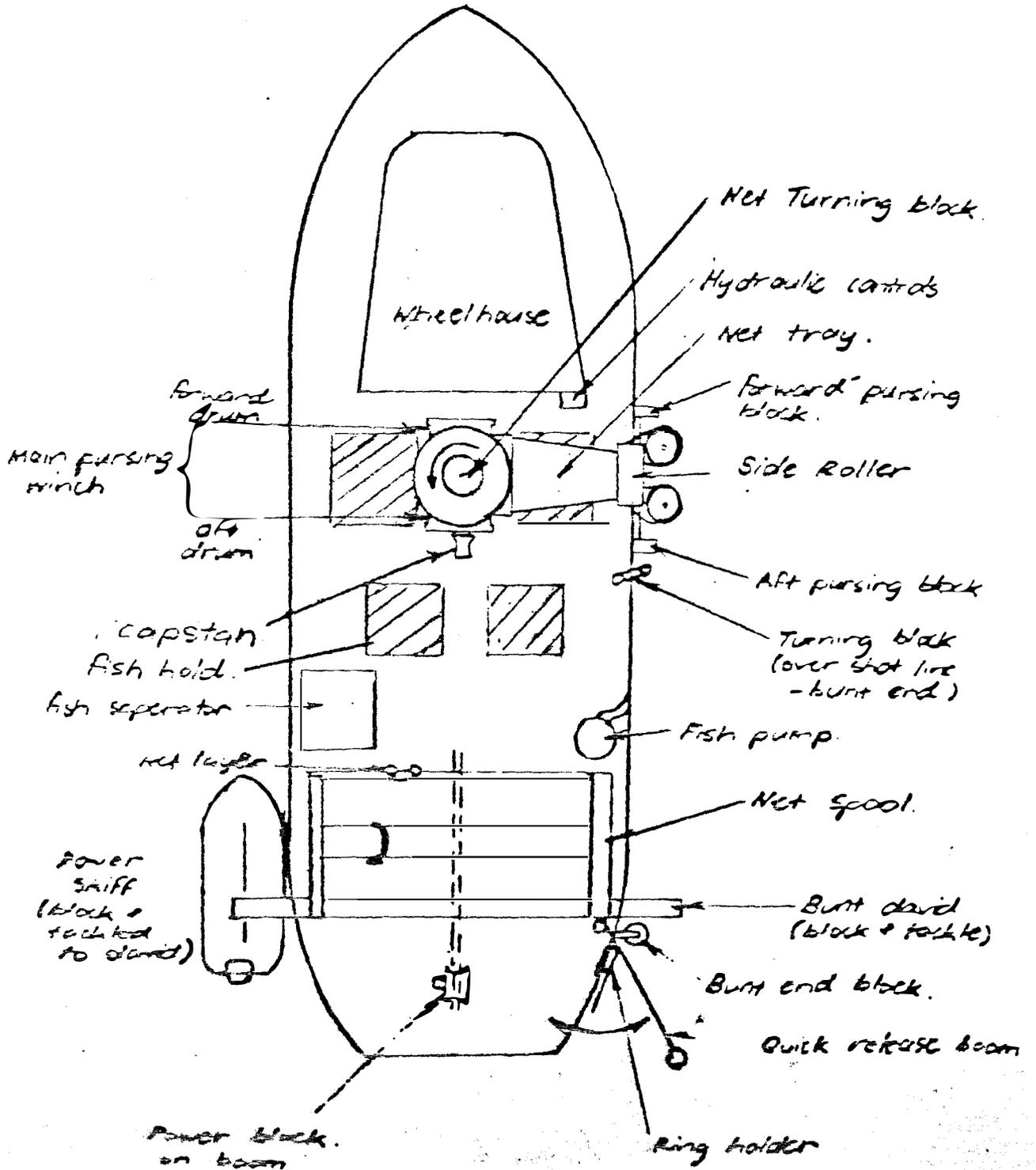


DIAGRAM 2. Deck Layout of F.V. " ANCHOVETTE ".

