CANADA/NEWFOUNDLAND COOPERATION AGREEMENT
FOR FISHING INDUSTRY DEVELOPMENT (CAFID)

# PROJECT SUMMARY

## *Utilization of Seal as Bait for Lobster and Crab Fisheries: A Test Fishery*

**CAFID #7** **1995**




## *BACKGROUND*

During the past four years the abundance of groundfish stocks in the area immediately adjacent to the coast of Newfoundland has declined dramatically. The latest estimate of the seal population in 1994 was 4.8 million, confirming that the seal population is continuing to grow. It is estimated that these seals are feeding on 6.9 million tonnes of fish and other prey a year.

In 1995, 60,000 seals out of a total allowable catch of 186,000 were harvested. One of the major constraints to the development of the sealing industry is the identification/development of markets for seal meat products which are economically viable.

The province has a very lucrative lobster and crab fishery which has a significant requirement for bait. At present, herring, mackerel, and squid are being used in various areas and each of the fisheries. To a large degree the crab fishery is relying on squid which is primarily imported and could cost up to $0.80/lb FOB St. John's. In addition mackerel has been imported to Newfoundland from Europe at times when our mackerel fishery has not produced the required landings.

There is a significant requirement for bait and a significant amount of seal meat available during the sealing season, if acceptable, could potentially be used for bait.

The Industry Development Division of the Department of Fisheries and Oceans requested and received funding assistance from the Cooperation Agreement for Fishing Industry Development (CAFID) to carry out a test fishery to determine the potential of using seal as bait in both lobster and crab fisheries.

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## OBJECTIVES

The objectives of the project were:

- to determine whether seal could be used as an alternative to traditional baits in crab and lobster fisheries;
- taste panel evaluation to determine if there are any negative impacts on the organoleptic characteristics of the lobster or crab harvested using seal meat;
- if results from test fishery were positive, determine costs associated with using seal as bait.

## METHODOLOGY

Two vessels, one of each licensed to fish lobster and crab in 3L were selected by a public tendering process. Each vessel was to use 100 standard pots and fish them for 20 days in their traditional fishing grounds. A variety of traditional baits such as herring, mackerel, and squid were to be used in addition to seal to determine the effect on catch.

Each vessel had a monitor on-board who was responsible for data collection. The test fisheries were carried out in the fall when there was no directed fishery ongoing for the respective species. This time was proposed as commercial fishers would be reluctant to use this bait during a commercial fishery. Using an unproven bait could disrupt potential landings and as a result, impact negatively on revenues.

## THE PROJECT

### *Snow Crab*

The 44' 11" Muddy Shag, owned and operated by Wilbert Legge of Twillingate, was chartered to carry out the snow crab fishing activity. Fishing activity was carried out off Twillingate from November 9 to December 4, 1995 in water depths ranging from 50 to 180 fathoms (see Figure 1). 100 traditional snow crab pots (Figure 2) were set in 4 fleets of 25 pots per fleet. Each fleet consisted of a 480 fathom groundline with each pot spaced 20 fathoms apart. Fleets were marked with a highflyer and a 24" buoy. Squid, mackerel, herring, seal meat and blubber were the bait types used.

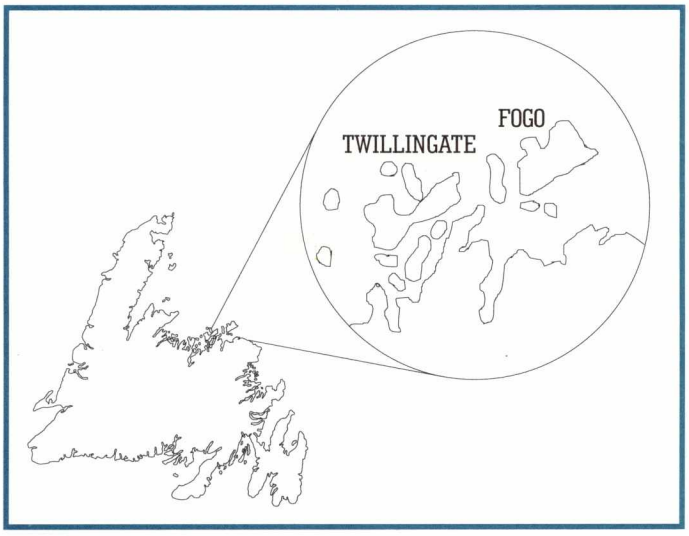


*Figure 1: Map of snow crab fishing area.*

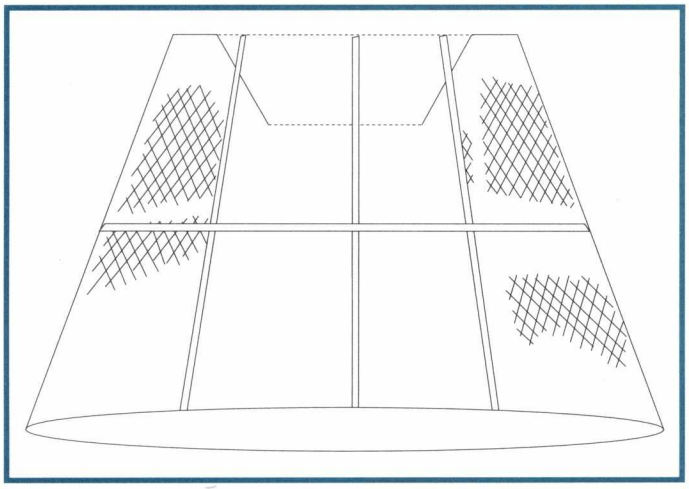

*Figure 2: Traditional snow crab pot.*

Two fishing strategies were carried out:

- The first strategy tested different baits in the same area on 6 different days (pots within a fleet contained the same bait type). This strategy was abandoned as it was difficult to set the pots in the exact same location and the catches were reduced in the area with each haul of the pots.
- The second strategy tested seal with other bait types in the same fleet. Pots were set in fleets of 25 with 13 pots baited with seal and 12 with another bait type (alternating baits within a fleet).

Soak time of pots ranged from 19 to 96 hours, however the average was 24 hours.

Results

There were a total of 1803 pots hauled throughout the project. As can be seen from Figure 3, overall, seal yielded a catch of 11.1 lbs of snow crab per pot/haul in comparison to other bait types such as squid 31.6, mackerel 22.9, and herring 20.5 lbs/pot/haul.

There was a small by-catch of toad crab in all water depths from all bait types. As can be seen from Figure 4, seal meat had a catch of 1.3 lbs toad crab/pot/haul in comparison to mackerel 1.9, herring 1.2 and squid .7 lbs/pot/haul. These results do not reflect the full potential of using seal as bait for toad crab fishing as the vessel was not directing for this species.

All crab harvested were returned to the water alive with the exception of samples to DFO for testing.

During the fall of 1995, a vessel on the southern shore directing for toad crab used a number of bait types including seal meat. Figure 5 summarizes the results. As can be seen, no major differences in catch were reported when seal was used as bait 10 lbs/pot in comparison to other baits such as mackerel 11.2, blackback 11.3, and combinations of squid/mackerel 9.9 and mackerel/ blackback 10.7.

## *Lobster*

A 21' vessel owned and operated by Raymond Cuff of Musgrave Harbour was chartered to carry out the lobster fishing activity.

100 standard lobster pots were used to fish in traditional lobster fishing grounds. Pots were baited with seal meat, blubber, herring and mackerel and set individually.

Pots were left to soak for 24 hours with the exception of the last fishing day whereby 100 pots were left to soak for 96 hours.

Results

From November 9-29, 1995 a total of 1,825 pots were set in water depths ranging from 6-7 fathoms. Over the period of the project a total of 938 lobsters were harvested.

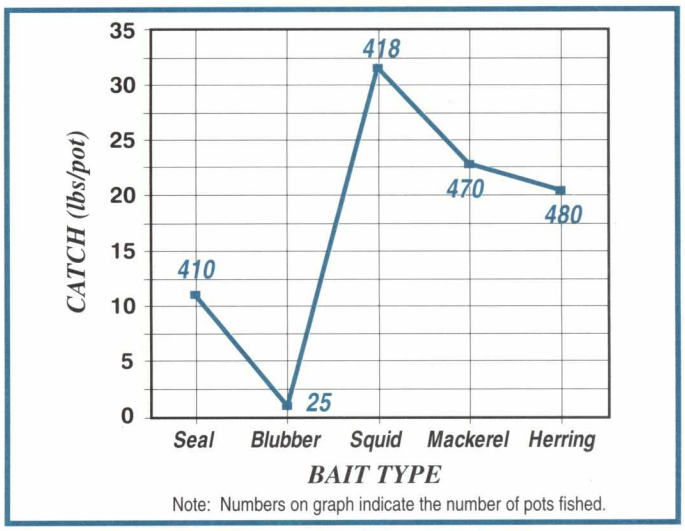


*Figure 3: Snow crab catch versus bait type.*

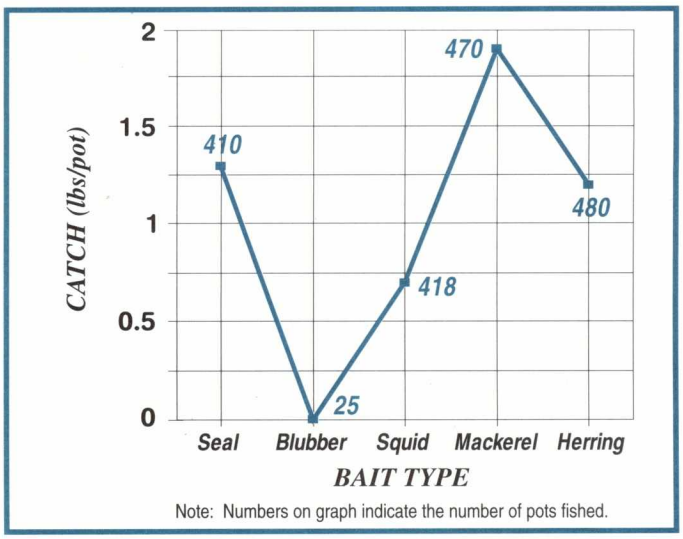


*Figure 4: Toad crab by-catch versus bait type.*

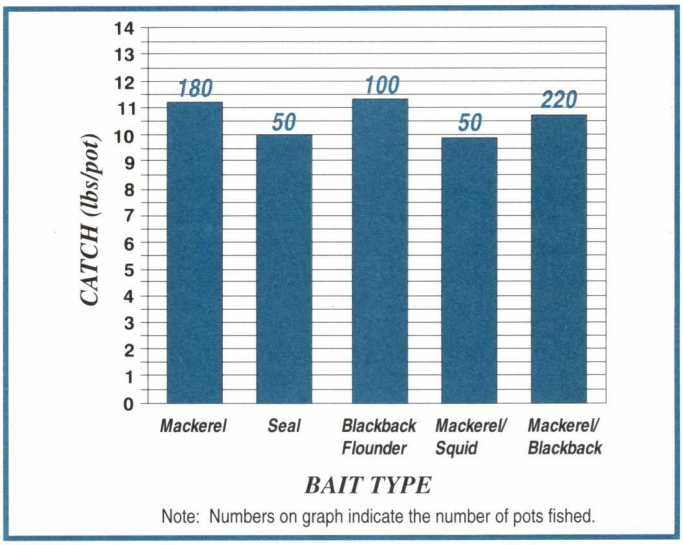


*Figure 5: Directed toad crab fishing - Southern Shore.*

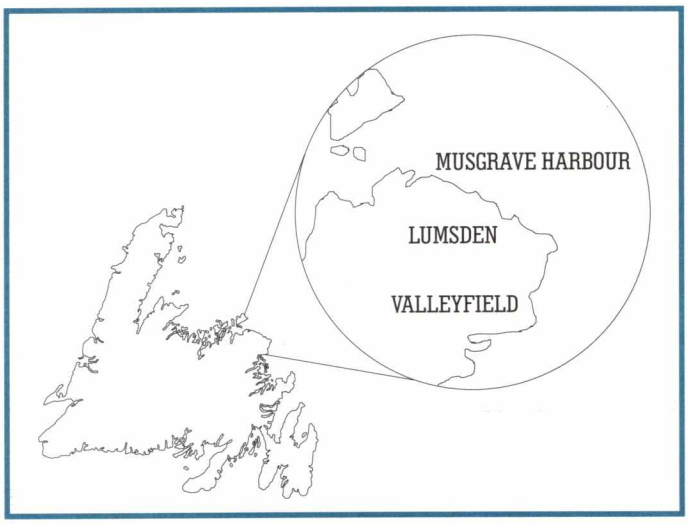


*Figure 6: Map of lobster fishing area.*

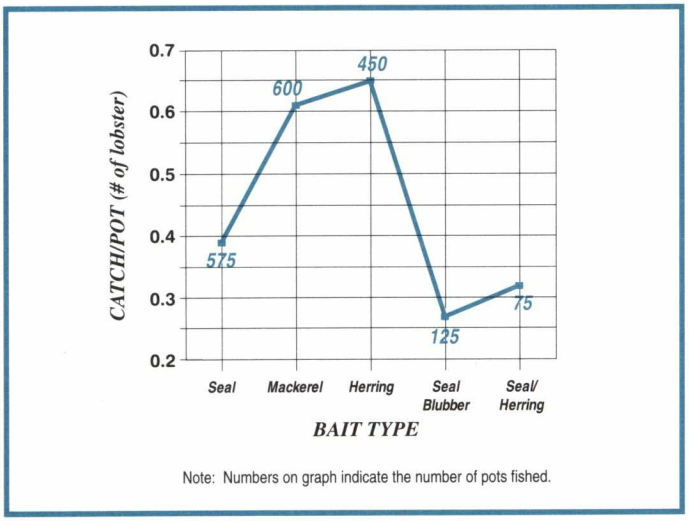


*Figure 7: Graph of catch versus bait - lobster fishing.*

Figure 7 shows results of fishing activity comparing the average catch per pot using the various bait types. As can be seen, average catch using seal (.39 lbs/pot) was significantly less than the more traditional baits such as mackerel (.61 lbs/pot) and herring (.65 lbs/pot)

As can be seen from the graph, when seal blubber was used for bait, catch was lower again. Attempts to use a combination of seal meat and herring to determine the effect on catch showed an average catch of .32 lbs/pot.

All lobster were returned to the water alive.

## DISCUSSION/CONCLUSION

The results obtained using seal meat as bait in snow crab and lobster fishing is not encouraging and do not require any further consideration.

The preliminary results from using seal to harvest toad crab look interesting and may warrant further investigation. While these results are based on a relatively small amount of effort, there appears to be no negative reaction from the toad crab to seal bait and catch is comparable to other baits.

Herring or mackerel bait have in the past been purchased locally at a cost of .17/lb from the Newfoundland Bait Service. However these prices are expected to increase. Prices received for seal carcus have ranged from $0.16 to $0.18/lb.

Given the comparable costs for seal and mackerel/herring bait, and the corresponding catch, there may be some opportunity to use seal as bait in this fishery.

Samples of snow crab caught using seal as bait and squid were provided to the Inspection Branch to carry out taste panel evaluation to determine if there was any detectable difference between the two. At the time of printing the results were not available.

## THE CAFID PROGRAM

The Cooperation Agreement for Fishing Industry Development (CAFID) is a multi-year development agreement jointly administered and delivered through the Federal Department of Fisheries and Oceans (DFO) and the Provincial Department of Fisheries (DOF). The objective of the Agreement is to assist the Newfoundland fishing industry to be self sustainable and viable in the present resource short environment.

**FOR FURTHER INFORMATION ON THIS PROJECT CONTACT:**

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