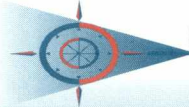


e1

2



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

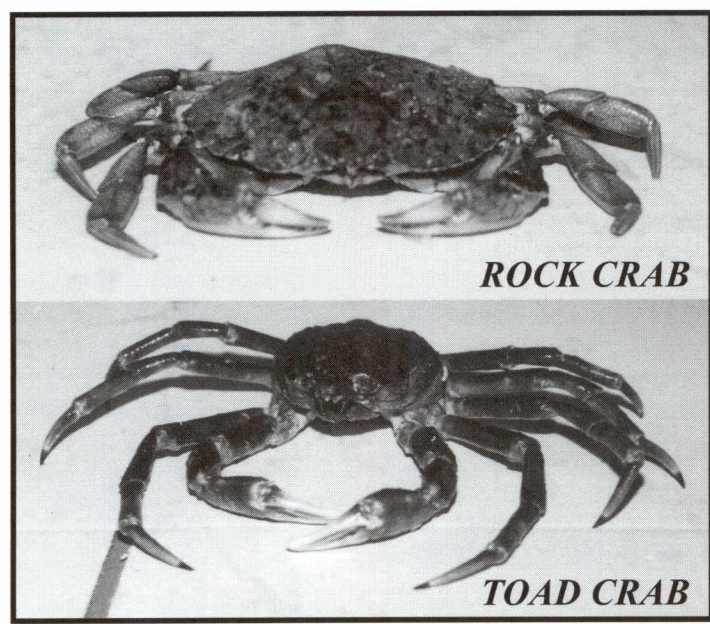
1

PROJECT SUMMARY

Rock/Toad Crab Harvesting

CAFID #3

1995



BACKGROUND

The snow crab (*Chionecetes opilio*) fishery in Newfoundland has become increasingly important especially since the downturn in the northern cod stocks. As the only fully exploited crab species in Newfoundland, it constitutes a major resource in terms of both landings and value. A variety of other crab species exist in Newfoundland and Labrador waters but have remained largely unutilized. With more emphasis being placed on the development of alternative species, the timing was appropriate to investigate the commercial

potential of rock crab (*Cancer irroratus*) and toad crab (*Hyas araneus*). These crab had not previously been fished in Newfoundland although some were caught as a by-catch in the lobster fishery. The overall resource distribution was unknown and suitable harvesting methods were not developed although some work had been done in the Maritimes. Fundamental work related to harvesting methods and resource distribution was undertaken to increase commercial exploitation of the resource. This was accomplished by conducting several experimental rock and toad crab fisheries.

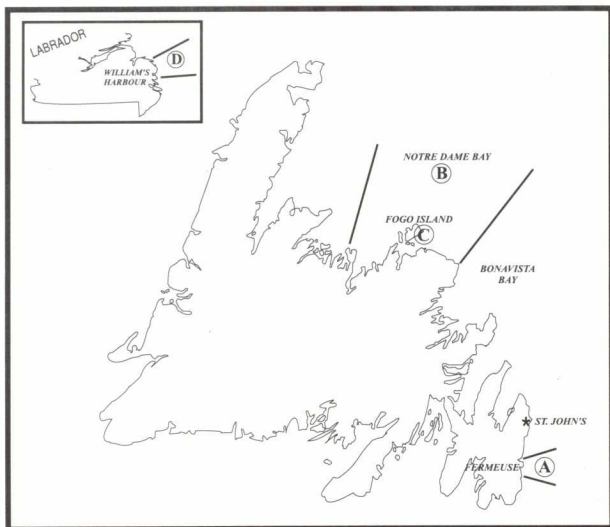


Figure 1: Rock/Toad crab experimental fishing areas.

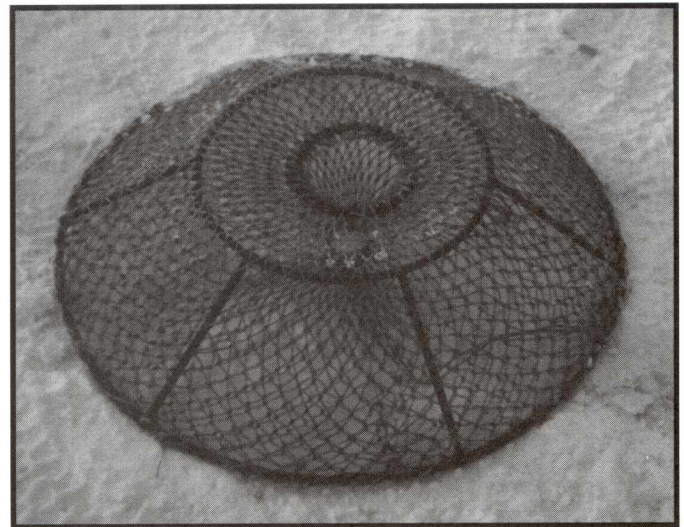


Figure 2: Whelk pot tested for rock and toad crab.

PROJECT DESCRIPTION

In 1994-95 the Canada/ Newfoundland Cooperation Agreement for Fishing Industry Development (CAFID) program approved several experimental rock and toad crab harvesting projects. The projects were cost shared between the company and/or individual involved and the CAFID Program. Catch rates, fishing methods and resource distribution were assessed in order to provide new information required by industry to establish rock and toad crab fisheries.

EXPERIMENTAL HARVESTING

December, 1994

Beothic Fish Processors Limited, Valleyfield, Newfoundland, participated in three experimental

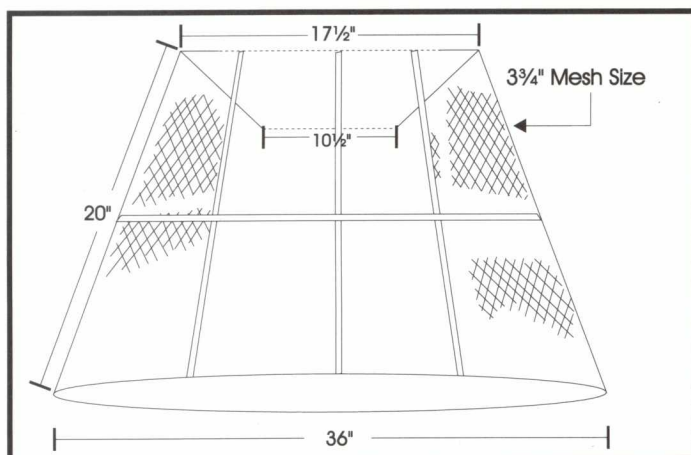


Figure 3: Modified snow crab pot sometimes called a toad crab pot.

fisheries for rock and toad crab in the Bonavista North area. Eight vessels, all less than 35' participated in the Greenspond, Bonavista Bay to Twillingate and Notre Dame Bay areas (Area B, Figure 1). Each vessel had 25 whelk pots (see Figure 2) and 3 snow crab pots. 603 whelk pots set for rock crab were hauled over 5 fishing days. A total of 1428 were caught of which 396 (80 lbs) were of market size (carapace width >4"). The highest catch was 1 lb/pot/day and that was found in depths of 1 to 8 fathoms with the largest catch rate at 2 fathoms. A total of 1820 lbs of toad crab were harvested (i.e. average 1.82 lbs/pot/day). They were found in depths from 20 to 40 fathoms with the largest catch rates at 35 fathoms. There was a 10% by-catch of snow crab while directing for toad crab in water depths greater than 35 fathoms. These were returned unharmed to the ocean. Low temperatures and poor weather hampered the fishing effort.

March, 1995

An experimental fishery, limited to three days due to shifting ice, took place in the Greenspond area using a modified snow crab pot as shown in Figure 3. This pot proved to be more effective than the whelk pot but the overall results, 433 lbs. of toad crab, were inconclusive due to the limited fishing effort. A by-catch of 2 lbs/day of snow crab was caught and released alive into the ocean. Fishermen engaged in this fishery agreed that the whelk pot is not suitable for fishing rock and toad crab. Starting in May, 1995 lobster fishermen were allowed to retain and sell rock/toad crab by-catch.

June-July, 1995

Four experimental rock/toad crab licenses were issued to fishermen in the Bonavista North area (Area B, Figure 1). Table 1 outlines the results of the fishing activity based on each fisherman using 50 modified snow crab pots covered with 3¾" mesh. Overall results from this third and longest test fishery indicate that toad crab were equally distributed in 7 to 54 fathoms of water. Catch rates were in the range of 11 to 18 lbs/day per pot with over 57% of all crab caught larger than the 2¾" minimum size. Catch rates were similar with baits such as herring, squid and blackback flounder. More durable baits such as skate fished longer and yielded higher catch rates. For two weeks around mid July the catch rates dropped by 50% possibly due to crab moulting and other bait (capelin) in the water. A small by-catch of snow crab existed, mostly in water depths greater than 35 fathoms. Any by-catch was released alive into the ocean. Fishermen were paid \$0.50/lb for rock and toad crab but they directed their efforts mainly toward toad crab which they felt were more abundant.

July - September, 1995

The Fogo Island Co-op participated in a rock and toad crab experimental fishery in cooperation with three local fishermen in Area C, Figure 1. Table 2 gives the results obtained from the fishing activity. Depths fished ranged from 6 to 35 fathoms with an overall catch rate of 11.8 lbs./pot/haul. Approximately 60% of the catch was the minimum market size (ie. 2¾" for toad crab and 4" for rock crab). Over 95% of the catch was toad crab, probably due to the fact that rock crab tend to inhabit shallower water (< 7 fathoms) and most of the pots were set beyond this depth. Traps used were a modified snow crab trap covered with mesh sizes ranging from 1½" to 4". Smaller mesh sizes retain more undersize crab which must be returned to the ocean. Bait types included squid, mackerel, herring and fish frames.

October, 1995

Bay Roberts Seafoods Limited participated in a 12 day experimental fishery in Williams Harbour, Labrador (Area D, Figure 1). A local fisherman was provided

Table 1: Toad crab catches from log sheets - June 19 to July 28, 1995 (minimum market size 2¾" carapace).

SURVEY AREA	LICENSE PERIOD	POTS HAULED	FISHING DAYS	WEIGHTS (LBS)		
				KEPT	RETURNED	TOTAL
Greenspond	June 19-July 28, 1995	550	11	2,235	1,420	3,655
Twillingate	June 19-July 28, 1995	1958	31	22,173	12,460	34,633
Lumsden	July 5-July 28, 1995	1250	19	17,546	3,856	21,402
Ladle Cove	July 5-July 28, 1995	1548	17	19,175	3,480	22,655
PROJECT TOTALS		5306	67	61,129	21,216	82,345

Table 2: Toad crab catches from log sheets - July 21 to September 17, 1995 (minimum market size 2¾" carapace).

SURVEY AREA	LICENSE PERIOD	POTS HAULED	FISHING DAYS	WEIGHTS (LBS)		
				KEPT	RETURNED	TOTAL
Fogo Island	July 21 - July 29, 1995	500	8	3,961	2,374	6,335
Wild Cove	August 14 - August 23, 1995	659	6	7,321	6,304	11,055
Shoal Bay	August 29 - September 17, 1995	483	10	4,202	3,734	10,506

with 50 pots. A total of 24 sites were selected and fleets of 25 pots were set at each site. Pots were baited with either herring or rock cod and were set in the area of Georges Cove Run, Williams Harbour, the mouth of Gilbert Bay and along the headlands from Red Island to Fish Rock. Only the Gilbert Bay site proved unproductive with an average of only 5 crab/pot. Modified snow crab pots covered with 3-3/4" mesh were used in depths ranging from 20 to 90 fathoms. Overall catch weights were unavailable but catch rates averaged 40 crab/pot/day with carapace widths in the 2 1/4"-3 1/4" range.

A fisherman in the Newtown, Bonavista Bay area directed for rock crab over a 5 week period in October/November. 1940 pots were hauled; 18,697 lbs of rock crab were caught with an average catch of 9.64 lbs/pot fishing in water depths of 5 to 7 fathoms using modified snow crab pots baited with herring, blackback flounder and rock cod. A second fisherman in the Centreville area using the same gear type and bait caught 3,493 lbs of rock crab in 7 days with an average catch of 12.4 lbs/pot with over 70% marketable size.

A fisherman from Renew, conducted an experimental fishery for rock and toad crab in the general area from Cape Ballard to Bear Cove Point on the southeast Avalon Peninsula (Area A, Figure 1). A total of 50 snow crab pots were used, 25 covered with 4" mesh and 25 with 1 3/4" mesh. Five fleets were set with each fleet consisting of 5 traditional pots and 5 pots covered with 1 3/4" mesh. There was no difference in the baits tested, which included mackerel, black back flounder, squid, cod offal and herring. Some crab shell colour variation, possibly associated with a recent moult was observed. Pots covered with 4" mesh fished poorly in

all water depths primarily due to the mesh size. Table 3

give catch rates for pots covered with 1 3/4" mesh. A total of 8,645 lbs of toad crab and 59 lbs of market size rock crab were caught from 1000 pot hauls. It is likely that very few rock crab were caught because the pots were set in water depths greater than 7 fathoms which is too deep for rock crab.

DISCUSSION

The overall rock and crab resource appears healthy and well distributed around the Newfoundland Labrador coastline based on the experimental fisheries, lobster by-catch and a new directed fishery for rock and toad crab which opened in July, 1995. The overall landings for toad crab in 1995 was approximately three million pounds and 150 thousand pounds of rock crab. A modified snow crab pot with 3-3/4" mesh appears to fish well using a variety of available bait types. Toad crab catch rates were very good in the 35 fathoms range and rock crab in the 1-7 fathom range. Fishers were paid from \$0.20-0.50/lb. for their catch and approximately 60% of all crab caught were of market size.

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, Food and Agriculture (DFFA). The objective of the Agreement is to assist the Newfoundland fishing industry to be self sustainable and viable in the present resource short environment.

Table 3: Catch rates for pots covered with 1 3/4" mesh.

DEPTH (fathoms)	TOAD CRAB CATCH RATE (lbs/pot/day)
< 15	1 - 3
15 - 29	7 - 12
30 - 45	30 - 45

FOR FURTHER INFORMATION ON THIS PROJECT CONTACT:

Canada/Newfoundland Cooperation Agreement
for Fishing Industry Development
P.O. Box 2460, Station "C"
St. John's, Newfoundland, A1C 6E8

Federal (DFO):

Provincial (DFFA):

Tel. (709) 772-2923

Tel. (709) 729-6999

Fax (709) 772-2110

Fax (709) 729-6082

Project Officer: Max Grandy, DFO