

FISHERIES DIVERSIFICATION PROGRAM

Emerging Fisheries Development

Project Summary: FDP 424-7

2002

Rock Shrimp Survey (*Argis dentata*) North Coast, Labrador



Introduction

This project was led by the Department of Fisheries and Aquaculture and funded by the Fisheries Diversification Program. The objectives were to determine an effective gear type to harvest rock shrimp, to document catch rates of this species along the north coast of Labrador, and to confirm species identification, resource abundance and distribution.

In addition, rock shrimp were provided to Torngat Fish Producers' Cooperative Society's processing facility at Makkovik and to the Marine Institute at St. John's for product and market development.

Canada



**Government of
Newfoundland
and Labrador**

Background

Rock Shrimp (*Argis dentata*) occur in many nearshore areas along the Labrador coast. Typically, rock shrimp are much larger than the northern pink shrimp. During a northern shrimp beam trawl exploratory project conducted in 2001 on the north coast of Labrador, a by-catch of 50 pounds of rock shrimp was caught from a 15-minute tow in Kaipokok Bay, outside the community of Postville. Torngat Fish Producers' Cooperative Society Limited expressed interest in pursuing the production of rock shrimp, indicating a strong demand in the market place for similar shrimp.

Methodology

An experienced beam trawl fisher was contracted to conduct tows using his 42' vessel. A modified shrimp beam trawl and various designs of baited shrimp pots were used over 15 fishing days, beginning September 23, 2002. A fisheries observer was contracted through Seawatch Inc. to collect catch and effort data and to conduct random samples on the rock shrimp. During sampling, carapace length and sex were determined. Because other types of shrimp were caught, all samples were identified by species. A food technologist was contracted from the Centre for Aquaculture and Seafood Development of



the Marine Institute. The technologist worked closely with the vessel's crew to ensure that appropriate onboard handling techniques were used to maintain shrimp quality. The technologist also worked with the processor, Torngat Fish Producers, during the production of samples at Makkovik. The company supplied staff and facilities to receive and process the shrimp products. Their marketing consultant/marine biologist made a trip onboard the vessel to study harvesting, evaluated the rock shrimp at the plant for potential product types, assisted in sample production and provided marketing advice.

Results

The survey was conducted in muddy-bottom areas of bays and inlets from just south of Makkovik to just north of Postville in Shrimp Area 5. In order to ensure that a high-quality product was landed, fishing activity was restricted to within four to five hours from Makkovik. According to fishing charts, depth sounder recordings and fishing trials, the amount of smooth, muddy sea bottom available for beam trawl fishing in this area is limited. Therefore, it was very difficult to achieve tows in duration of more than 15 minutes. As a result, most fishing activity took place on the outside portion of Kaipokok Bay, east of Postville. This area, which yielded 50 pounds of rock shrimp from a 15-minute tow in 2001, provided enough smooth, muddy bottom for a 100-minute tow and yielded the best catch rates of rock shrimp. Although the target tow duration was two hours, the average tow duration was 51 minutes due to rough bottom. During the survey, a total of nine different species of shrimp was caught.

Beam Trawl Tow Results

There were 15 days of fishing activity completed during the rock shrimp survey with a total of 45.2 hours of on-bottom fishing time. The water depth fished ranged from 9 to 78 fathoms with an average depth of 44 fathoms. The catch consisted of 682.6 pounds of

rock shrimp and a significant by-catch of 177.5 pounds of sevenline shrimp (*Sabinea septemcarinata*). There were 53 tows conducted, of which 55% (29 tows) took place in the Kaipokok Bay area where there was a smooth bottom for beam trawl towing. The highest catch rate from Kaipokok Bay for a one-hour tow was 42.0 pounds.

Sampling Results

A total of 3,450 individual carapace length measurements was taken from 19 samples. The average count per pound was 61 shrimp, with an average carapace length of 19mm.

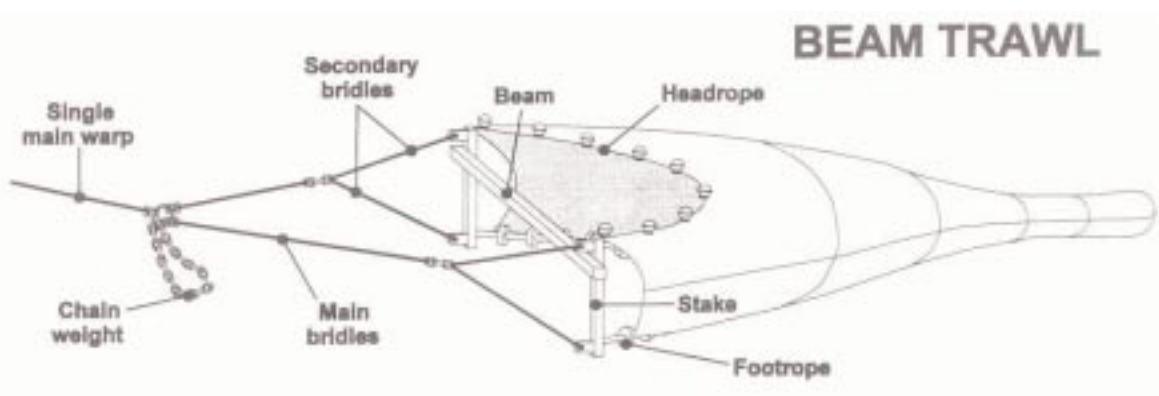
Experimental Pots Results

There were three overnight sets made with two strings of baited experimental pots, 30 pots per string. Experimental pot designs consisted of 15 conical pots, 3 rectangular pots, 5 modified car tires, 6 modified 5-gallon plastic buckets, and one piece of 4" x 4" plastic pipe. Bait consisted of mackerel and squid. None of the pots caught a single shrimp.

Conclusions

Catch rates of rock shrimp were so low from the shrimp beam trawl that it is unlikely that this fishing gear can be used to achieve viable catch rates without major gear modifications.

- Species identification of rock shrimp, as well as eight other shrimp species, were confirmed.
- There was only a small amount of smooth, muddy bottom available for rock shrimp habitat and shrimp beam trawling in the area surveyed.
- Although the objective of landing 5,000 pounds was not achieved, enough rock shrimp were landed to produce samples for market testing.
- When an estimated value of rock shrimp is determined, it will be necessary to conduct research and trials to determine the most viable harvesting techniques.
- This survey was restricted to areas near Makkovik. Exploratory work in other areas along the Labrador Coast may yield higher catch rates.



Complete Beam Trawl Gear (Diagram was scanned from DFO at Sea Observers Program Operations Manuel, p 48)

Kaipokok Bay Area Tows (Unit W 21)							Rock Shrimp		
Tow #	Date	Latitude	Longitude	Course	Depth (ftms)	Duration (min.)	Catch (lbs)	Count per lb.	Lbs per hr
29	30/9/02	550431	592795	NE	60	90	63	69	42
20	27/9/02	550401	592826	NE	49	108	66	61	36.7
15	25/9/02	550482	592778	SW	40	30	18	68	36.0
14	25/9/02	550476	592789	SW	52	17	10	52	35.3
37	3/10/02	550316	592898	E	39	15	8	57	32.0
36	2/10/02	550545	592656	SW	56	159	76	57	28.7
28	30/9/02	550449	592582	SW	65	120	52	66	26.0
18	26/9/02	550413	592830	NE	62	120	47	65	23.5
16	26/9/02	550402	592839	NE	62	60	20	76	20.0
17	26/9/02	550410	592845	NE	62	55	18	66	19.6
44	4/10/2	550951	592125	NE	47	51	16	63	18.8
35	2/10/02	550519	592734	SW	69	120	36	52	18.0
31	1/10/02	550410	592842	NE	60	100	29	67	17.4
19	26/9/02	550416	592829	NE	55	114	25	59	13.2
30	1/10/02	550419	592804	NE	63	88	19	67	13.0
43	4/10/2	550332	592923	NE	46	53	11	57	12.5
40	3/10/02	550705	592544	E	52	37	7	59	11.4
10	24/9/02	550398	592873	SW	58	15	2.5	75	10.0
41	3/10/02	550764	592535	E	54	34	6	58	10.6
39	3/10/02	550608	592739	SE	34	50	8	58	9.6
9	24/9/02	550654	592827	SW	66	15	2	63	8.0
34	2/10/02	550400	592834	NE	65	105	14	78	8.0
21	27/9/02	550408	592826	NE	41	117	14	64	7.2
33	1/10/02	550372	592877	NE	52	105	12	64	6.9
32	1/10/02	550406	592843	NE	49	110	11	61	6.0
42	4/10/2	550308	592940	NE	56	30	2	60	4.0
7	24/9/02	550862	592098	NE	50	15	1	50	4.0
8	24/9/02	550893	592341	N	56	15	1	--	4.0
5	23/9/02	550099	592075	NE	15	15	0	--	0

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The \$10 million Fisheries Diversification Program is part of the \$81.5 million Canada-Newfoundland Agreement Respecting the Economic Development Component of the Canadian Fisheries Adjustment and Restructuring Initiative.