

Toad Crab Surveys Conducted

Hyas araneus

Toad crab surveys were conducted in 2001 in outer St. Mary's Bay and St. Pierre Bank Mossy Hole and east areas, supported by the Fisheries Diversification Program (FDP).

Further offshore exploratory fishing for toad crab is not recommended in the reports from these offshore survey areas as the catch rates appear to be too low to support a commercial fishery.

Toad crab appears to be more abundant in coastal, inshore areas.

Toad crab (*Hyas araneus*) has been at the center of small scale fishing activity since 1994.

The species has long been seen as having a potential for further commercial development throughout rural areas of Newfoundland and Labrador.

Longer soak times seem to increase the crab catch but, with overall catch rates of less than one pound per pot, no new survey or development activities are suggested for these two particular areas.



Toad crab

More detailed information on these surveys can be found through the Department of Fisheries and Aquaculture.

The outer St. Mary's Bay and the St. Pierre Bank areas were chosen because these areas were identified by harvesters as areas with high by-catches of toad crab from the groundfish gillnet fishery.

A total of 20 days of fishing activity was completed (10 days per contract) utilizing a standard conical toad crab pot.

TOAD CRAB DATA SUMMARY

Fishing Area: Outer St. Mary's Bay, Fisher: Roy Fleming

Vessel: Robyn Rose Length: 34' Bait Key: CFS - Cod Fish Frames

Date Hauled/Position	# Pots	Depth fm (Avg.)	Soak Time (hr.)	Bait	Toad Crab (lbs.)		By - Catch (lbs.)
					<2¾"	>2¾"	
08 06 46 37 N 53 47 W	100	26 - 32	23	CFS	16	33	30
08 09 46 39 N 53 45 W	100	28 - 32	70	"	24	38	0
08 13 46 40 N 53 47 W	100	39 - 41	93	"	5	62	850
08 15 46 38 N 53 52 W	100	40 - 45	45	"	12	84	792
08 16 46 37 N 53 56 W	100	37 - 40	22	"	11	23	314
08 17 46 39 N 54 00 W	100	32 - 40	22	"	8	40	230
08 20 46 42 N 54 00 W	100	38 - 42	67	"	9	51	600
08 21 46 43 N 54 01 W	100	33 - 35	20	"	21	306	60
08 22 46 45 N 54 00 W	100	35 - 41	23	"	16	154	90
08 23 46 48 N 54 00 W	100	30 - 41	24	"	6	44	0
Totals	1,000				128	835	2,966

Fishing Area : St Pierre Bank Fisher: Paul Harris

Vessel Stephanie and Justin Length: 34' 11" Bait Key: S - squid; C - cods heads; M - mackerel

Date Hauled/Position	# of pots	Depth fm (Avg.)	Soak Time (hr.)	Bait	Toad Crab (lbs.)		By - Catch (lbs.)
					<2¾"	>2¾"	
08 02 46 11 N 55 47 W	100	31 - 33	24	S/C	396	141	2
08 03 46 04 N 55 35 W	100	34 - 35	21	S/C/M	484	121	0
08 04 45 57 N 55 54 W	100	33	19	"	257	101	0
08 05 45 45 N 55 42 W	100	31 - 32	21	"	75	20	0
08 06 45 40 N 55 59 W	100	25 - 27	20	"	11	5	0
08 12 46 10 N 56 39 W	100	31 - 33	148	"	77	35	2
08 13 46 03 N 56 51 W	100	27 - 32	21	C	18	3	42
08 14 46 11 N 56 56 W	100	33 - 40	22	"	62	20	5
08 15 46 16 N 56 53 W	100	18 - 20	22	"	10	1	0
08 16 46 18 N 56 43 W	100	35 - 37	22	"	50	8	15
Totals	1,000				1,440	455	66

Species Description

Toad crab has a shield like carapace (dorsal part of cephalothorax) roughly triangular in shape and about 1 1/3 times longer than wide, narrowing towards the front. The carapace has an uneven surface and a rostrum extending forward between the eyes. They have five pairs of walking legs and a pair of well-developed claws on the front pair of legs. Male toad crabs weigh up to approximately 0.75 kg, with carapace lengths and widths up to 95 and 75 mm. The maximum carapace width of the female is approximately 65 mm. The life cycle usually begins during the warm summer months, when the larvae move to the upper column where they remain as plankton from one to several months. As plankton, the larvae disperse more by oceanic currents and water movement than by their limited swimming ability. The larvae develop through a number of stages before settling on the sea bed. (*Fisheries and Oceans Canada Coastal Zone Species Profile Series No. 3*)

Background

Toad crab was first harvested locally in 1994, when a small scale test fishery was undertaken. Landings in 1995 peaked at 3 million lbs. However, subsequent landings decreased, and, in 1996, there was no activity (see chart this page). A total of 205 exploratory harvesting licences were issued in 2001. In 2000 there were 135 licenses issued, of which 81 met the minimum harvesting requirements.

Prior to 2000, approximately 60% of the fishing activity had been concentrated in the



Toad crab pots

area between White Bay and Bonavista Bay. Fishing activity in certain areas of the province increased in 2000, as evidenced by the higher overall landings and increased numbers of active enterprises. Overall, the development of this fishery has been slow. In order to establish abundance in nearshore areas of the province (25 to 40 miles offshore in 25 to 35 fm of water), survey work was required. Specific areas were identified by harvesters as areas with high by-catches of toad crab from the groundfish gillnet fishery. Furthermore, the toad crab fishery is really an inshore/nearshore fishery suited to vessels < 45' LOA and particularly for those vessels < 35' LOA. This fleet sector, however, has the least financial ability to diversify into new fisheries which, in the case of toad crab, could possibly amount to between \$4,000 and \$5,000 per enterprise, based on figures from the northeast coast. Information on the extent of the resource in southern areas, particularly a catch rate, was found essential, in order for small vessel operators to consider this newer or emerging fishery.

Year	Total Catch	Licensees
1997	143,000 lbs	23
1998	580,000 lbs	103
1999	263,000 lbs	49
2000	1,325,000 lbs	135

Methodology

The standard toad crab pot (as shown on this page) was used to complete the survey, as it has proven to be effective in catching commercial quantities and can be depended upon to give a realistic indication of the abundance of the species. The pot is conical in shape having a 22" top diameter and 40" bottom diameter, is 20" high and covered by 4" mesh-size polyethylene webbing.

A standard fishing pattern of 50 pots in a fleet was used, with a buoy line at each end of the fleet attached to a 30" diameter plastic balloon. Each project vessel fished two 50-pot fleets. The project vessel set the pots at

predetermined sites in the target areas. Pots were baited with, for example, mackerel, herring and squid and were left to soak for 20-24 hours after which time they were hauled. The catch was measured, weighed and returned to the ocean. Data was recorded by an observer who accompanied the project vessel on each trip. A fishing day was defined as a day during which 100 toad crab pots were hauled, moved to a new location and reset. In total, 2,000 pot hauls were made, employing two project vessels for a total of 20 fishing days. Project vessels were selected from the < 35 ft. fleet by a public tender process. The tender required that the vessels be fully rigged and licenced to fish toad crab and that the harvesters would supply the bait and fuel for the project. In addition, the vessel was equipped with all the necessary navigational/hydraulic and mechanical equipment required on a commercial fishing vessel and was in compliance with current Canadian Steamship Inspection regulations.

Results

Ten survey days were completed in the Outer St. Mary's Bay area between August 6 and 23, 2001, (see table) resulting in a total of 963 lbs. (835 lbs. commercial size) of toad crab being harvested. The by-catch totaled 2,936 lbs. (mainly snow crab) during this project. The only bait used were cod frames. Ten survey days were also completed in the St. Pierre Bank area between August 2 and 16, 2001, (see table) resulting in a total of 1,895 lbs. (455 lbs. commercial size) of toad crab being harvested. There were 66 lbs. of whelk and snow crab taken as a by-catch during this project. The baits used were cods heads, squid and mackerel.

Conclusion

Even though the time of year may have been a factor, there does not appear to be any potential for developing a toad crab fishery in the survey areas. Toad crab, for the most part, appears to be more abundant in coastal, inshore areas. No further exploratory fishing for toad crab is proposed for these two areas.



The Robyn Rose



The Stephanie and Justin

Department of Fisheries and Aquaculture Government of Newfoundland and Labrador

P.O. Box 8700, St. John's, NF, A1B 4J6

Call: 709 729-3732 / Fax: 709 729-6082

Web: <http://www.gov.nf.ca/fishaq/FDP>

(Or a DFA Regional Office near you.)

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.