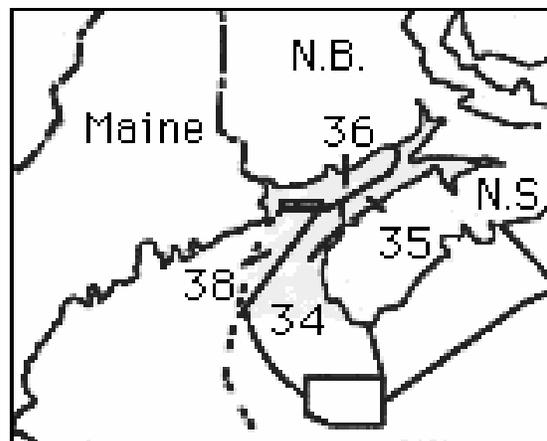


Inshore Gulf of Maine Rock Crab
(*Cancer irroratus*)



Background

Rock crab (*Cancer irroratus*) have a broad, oval carapace with nine smooth "teeth" along the margin of each side. They concentrate in shallow water less than 20 m deep and prefer sandy bottom, although they can be found on all types of substrate. Molting occurs primarily in April and May and earliest maturity is around 25 mm and 40 mm carapace width for females and males respectively. Average maturity occurs between 50 mm and 57 mm for females while average male maturity is between 65 mm and 75 mm. Egg extrusion appears to occur in late October with development of six larval stages occurring the following summer. Males are larger than females with a maximum carapace width of 150 mm and 110 mm respectively. Commercial size is reached in approximately 6 years.

Exploratory crab fisheries, which started in southwestern New Brunswick in 1995, and in Southwest Nova Scotia in 1996, are licensed under combined exploratory rock and Jonah crab permits. Existing activity was mainly concentrated in five areas: off southern Grand Manan (LFA 38); off mainland New Brunswick between Maces Bay and the Mascarene shore in Passamaquoddy Bay (LFA 36); the Annapolis Basin (LFA 35); St. Mary's Bay (LFA 34); and the midshore area situated between 22 and 93 km off the coast of LFA 34.

In 1995, two exploratory crab licenses were issued on Grand Manan and four for mainland New Brunswick. Each licensed fisher had a 100 trap limit, only conical crab traps were allowed, there was no minimum size limit, and all lobster were to be released. Although permitted all year, most of the fishing took place from June until the end of October 1995.

The Fishery

Management: In 1996, all six exploratory crab licenses from southwestern New Brunswick were reissued to the same permit holders as in the previous year. A new maximum trap limit was set at 200, and a minimum size limit of 102 mm CW for rock crab was set. Also introduced was a minimum requirement for 20 fishing trips in order for participants to retain their exploratory fishing licenses. Fishers were also required to fully participate in an approved Docksides Monitoring Program.

In 1996, on the Nova Scotia side of the Bay of Fundy, a draw for 20 new licenses was realized; 10 licenses were made available for LFA 35, 8 for Digby and Yarmouth counties (part of LFA 34), and two for the midshore area off LFA 34. Several distinct regulations were introduced to accommodate this new fishery. The trap limit was restricted to 100; fishers were allowed to use modified lobster traps as well as conical crab traps; and all traps were to be out of the water at least 1 week before and after lobster fishing season. In the midshore area they were restricted to fishing between 22 and 93 km from shore and were given a trap limit of 125.

Introduction of these new licence regulations caused delays in issuing the 1996 crab permits, therefore delaying crab fishing on the New Brunswick side to the third week of July.

It should also be noted that one of the Grand Manan fishers (LFA 38) did not fish, and the other one has directed his effort on Jonah crab only. Thirteen

fishers from Nova Scotia have picked up their licenses, and 10 of these have been actively fishing. In New Brunswick, although trap limits were increased from 100 to 200 in 1996, no fisher invested in additional traps.

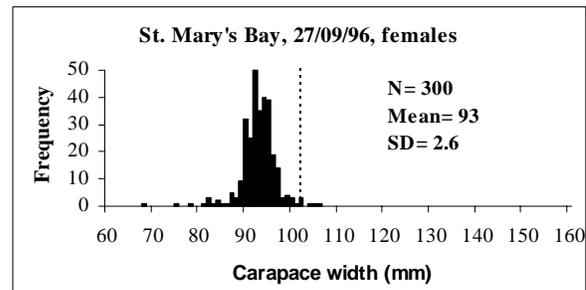
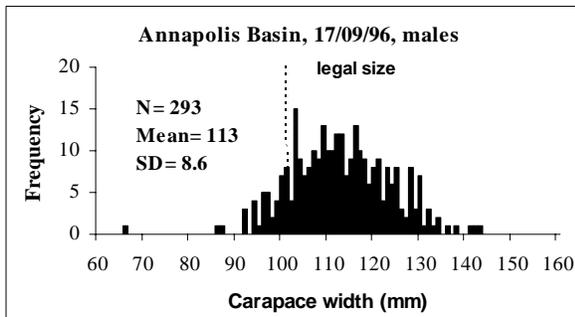
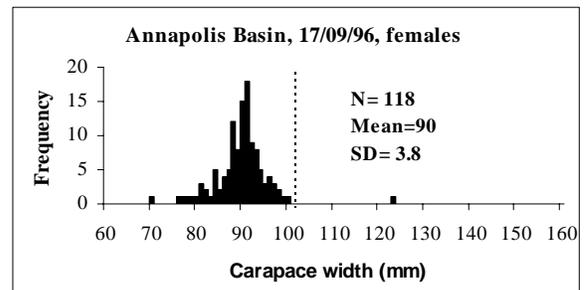
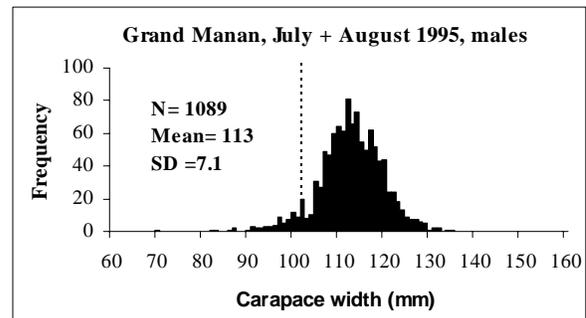
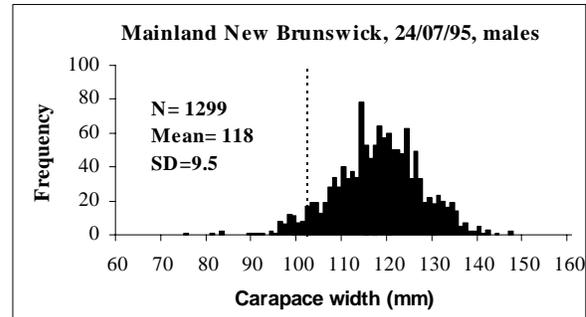
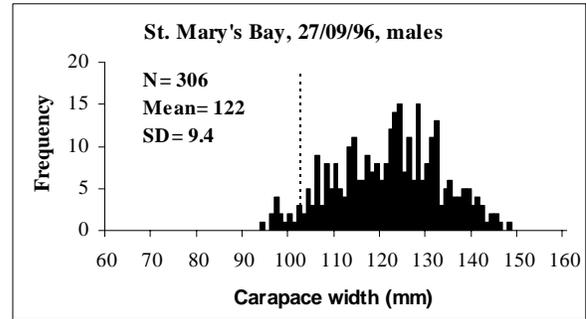
Landings are generally underreported. Rock crab is taken as a by-catch in the lobster fishery. Landings in the by-catch fishery could be much larger than the directed crab fishery. Mostly used as bait, there is no size restriction on male rock crab landed in the by-catch, but all females must be released.

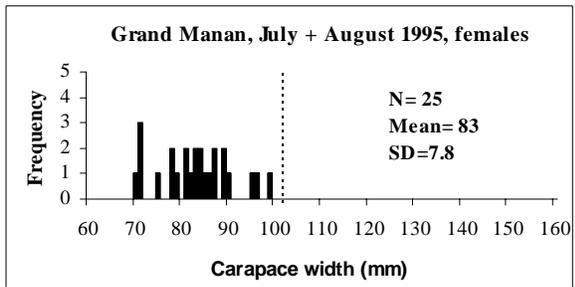
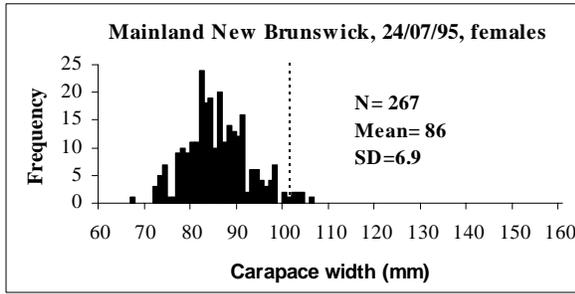
All landings were calculated from fishers' logbooks.

Landings (t) and trap hauls in the directed fishery in 1995 and 1996.

	1995		1996	
	Landings (t)	Traps hauled	Landings (t)	Traps hauled
LFA 34	0	0	33.1	8133
LFA 35	0	0	19.4	2710
LFA 36	22.6	7324	16.2	6063
LFA 38	1.9	2248	0	0

Biological sampling was carried out at-sea during July and August 1995, and September 1996. The average carapace width of rock crab varied by area. In 1996, the mean size of both male and female crabs, were slightly larger in St. Mary's Bay than in Annapolis Basin. Both samples were taken from similar modified lobster traps. They were also larger than rock crab sampled off southwestern New Brunswick in 1995. However, these samples were taken with conical crab traps. In 1996, no biological data on rock crab were collected in southwestern New Brunswick.



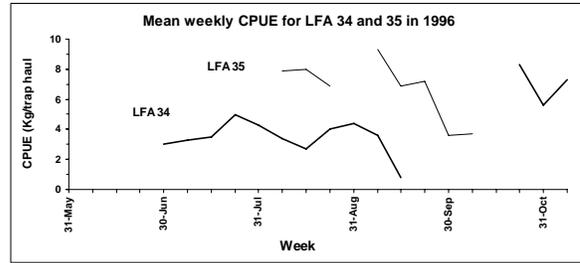
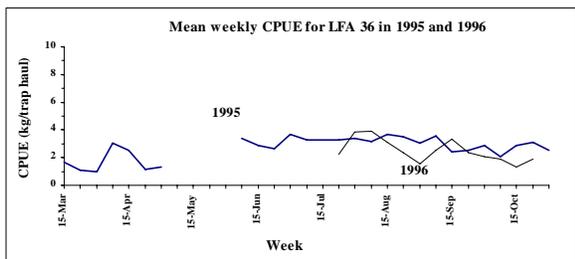


Resource Status

Catch rates were derived from logbook data submitted from all license fishers. In 1995, fishers from mainland New Brunswick (LFA 36) hauled a total of 7324 traps and landed a total of 22.6 t of rock crab. In 1996 the same fishers hauled a total of 6063 traps and landed a total of 16.2 t of rock crab. The overall catch rate for the fishing season was 3.1 kg/TH in 1995 and 2.7 kg/TH in 1996. Caution should be taken in comparing the 1995 catch effort data to the 1996 performance for mainland New Brunswick.

During 1995, only one licensed crab fisher was active off Grand Manan (LFA 38). A total of 2248 traps were hauled, and a total of 1.9 t of rock crab was landed. In 1996, only one fisher was active and has directed his effort solely towards Jonah crab.

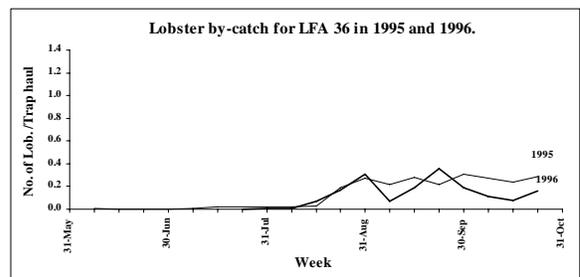
During 1996, exploratory crab fishers from LFA 34 and 35, hauled a total of 8133 and of 2710 traps and landed a total of 33.1 and of 19.4 t of rock crabs, respectively. The overall catch rate in LFA 35 (7.2 Kg/TH) was higher than in LFA 34 (4.1 Kg/TH) and LFA 36 (2.7 Kg/TH). In the midshore area only Jonah crab were landed.

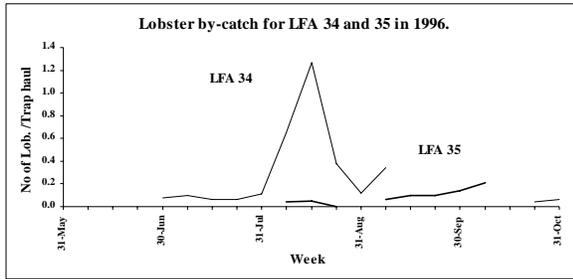


No data are available on the **recruitment** into the fishery.

Exploitation rates are unknown, and assessment of the impact of this directed fishery on the rock crab stock is complicated by the by-catch of crab in the lobster fishery.

Ecosystem considerations: Distribution of lobster and rock crab overlap particularly in coastal areas. Lobsters can occur in crab traps during certain times of the year. Presence of lobster is of concern to most lobster fishers even if crab license holders are not allowed to keep them. Overall the number of lobster per trap haul (lob./TH) was low in 1995 (0.08) and 1996 (0.14) for mainland New Brunswick. In 1995, the highest weekly catch rate for lobster (0.31 lob./TH) occurred during the last week of September. In 1996, the lobster catch rate peaked at 0.31 lob./TH during the last week of August, and peaked a second time at 0.36 lob./TH during the third week of September. Analysis of lobster data from LFA 34 indicates a high incidence of lobster by-catch (up to 1.3 lob./TH) during August. The overall average was 0.31 lob./TH for LFA 34 and 0.08 lob./TH for LFA 35. Some of the crab fishers have complained that the presence of lobster in traps reduces their efficiency in catching crab. Caution should be taken when comparing lobster catch rate between areas because conical crab traps were used in LFA 36 and modified lobster traps were used in LFA's 34 and 35





Outlook

Substantial areas remain to be explored before it can be ascertained where the best prospects are for a sustainable harvest of rock crab in the Gulf of Maine. Since only half of license holders were active, limited information is available on this fishery. Furthermore, the absence of any crab license holders in the upper part of LFA 36 (from Dipper Harbor to Saint Martins) and the upper part of LFA 35 (from Alma to Scott's Bay) precludes any assessment of the rock crab resource in those areas.

Data gathered for this report seems to indicate that the current level of effort is not having a negative impact on the resource. Emphasis should be placed on gathering data on the by-catch of crabs in the lobster fishery, as well as more information on the life cycle of the rock crab specific to the Gulf of Maine.

The bycatch of lobsters needs to be addressed in both conical and modified lobster traps.

For more information

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