



Southern Gulf Stimpson's Surf Clam

Background

The Stimpson's surf clam is a deep water bivalve mollusc that can be found in the northern North Pacific and the northwestern North Atlantic oceans. This mollusc has a relatively slow growth rate and has a life span of 30 to 40 years.

The distribution of the Stimpson's surf clam is restricted to benthic substrates with medium to large grain sediments and where water temperatures are less than 15°C. In the Gulf of St. Lawrence, the major beds have only been located since 1990 and are found on the northeastern coast of the Magdalen Islands and the lower north shore of Québec. The 1990/91 exploratory fishery from two N.B. fishers showed that various concentrations of Stimpson's surf clams were present throughout the lower north shore of Quebec, on the eastern coast of Magdalen Islands, the north shore of Miscou Island, the Gaspé coast, the western coast of Cape-Breton and the northern coast of PEI.

The Stimpson's clam fishery in the southern Gulf started in 1990 with two exploratory or developmental permits. Several beds were located during the 1990/91 exploratory activities, of which four beds were selected on the basis of clam density and data availability to conduct a developmental fishery over the next 3-4 years. Since then, only one new high concentration was located in the Baie Comeau area.

The experimental sites were evaluated in 1992 and preliminary quotas were established for each of these beds in the zones identified on the map. The objective of the experimental fishery was to collect information on fishing activities over a 3-4 year period to monitor the impact of fishing pressure on the population.

The number of participants in this fishery has gone from 2 in 1990 to over 12 in 1995.

In 1995, the TAC for the Gulf of St.-Lawrence Stimpson's surf clam fishery was set at 898 mt, with 295 mt for N.B. fishers and 602 mt for the Quebec fishers. The fishing activities are no longer restricted to the 4 experimental sites and have since been distributed in 6 fishing zones.

The Fishery

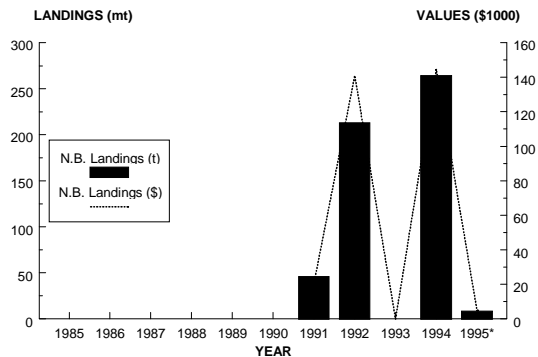
Management: The Gulf Stimpson's surf clam fishery is still in its developmental phase and is mainly managed as a limited entry fishery with a TAC established for each of the zones. In 1992, 4 zones (Miscou, Magdalen, Natashquan, Sheldrake) were established for the 4 experimental fishing sites for which a biomass had been estimated. In 1995, two additional zones were added in the St. Lawrence Estuary while others were subdivided for management reasons. The fishing zones created were for management purposes only and not based on biological rationale.

Landings: The landing data for the Gulf Stimpson's clam fishery have fluctuated greatly over its 4 year history and probably due to markets. In NB, the landings during the first two years increased during the initial developmental phase of the fishery and the marketing activity. There was no active fishing in 1993 due to difficulties in securing a reliable market for the product but the situation was subsequently corrected in 1994.

Stimpson's surf clam TAC and landings (mt) by fishing zones: 1 Haute Cote Nord, 2 Pointe-des-Monts, 3 Sheldrake, 4 Natashquan, 5 Magdalen, 6 Miscou.

ZONE		NB			Québec		
		93	94	95	93	94	95
1	TAC						113
	Catch						3
2	TAC						23
	Catch						0
3	TAC	30	30	30	68	91	91
	Catch	0	32	0	NA	NA	85
4	TAC	136	182	182	170	284	284
	Catch	0	168	0	NA	NA	102
5	TAC	68	68	68	136	136	227
	Catch	0	55	4	NA	NA	55
6	TAC	15	15	15	0	0	0
	Catch	0	13	1	NA	NA	0
Total	TAC	249	295	295	374	511	602
	Catch	0	268	5	NA	NA	242

Stimpson's surf clam landings (mt and \$) for the NB fishery.



Biological data: Data collected from the four experimental sites in 1991 revealed that the average size of Stimpson's clam harvested ranged from 89 mm to 104 mm corresponding to an age range of between 28 and 40 years old.

The fishing gear used in this fishery is the New-England hydraulic dredge which has an efficiency of over 90%. Mortality due to damage of non-harvested clams is evaluated at more than 67% (Lambert and Goudreau, 1995).

Resource Status

Survey estimates of biomasses for the 6 zones were used to establish TAC's. The first TAC was set in 1992 at 633 t or 1.7% of the total fishable biomass estimated from the four experimental sites (Giguere & Landry 1992, Landry *et al.*, 1992). In 1994, the biomass from the Rocher aux Oiseaux bed was estimated at 2 098 mt, and, since then, 4 additional beds have been estimated to bring the total fishable estimated biomass for the Gulf of St. Lawrence at approximately 50 000 mt. The biomass estimates for this fishery were obtained from geostatistical analysis with relatively high confidence intervals mainly due to the patchy distribution of this species as are most endobenthic molluscan species.

Catch rates: CPUE data from the two expeditions in 1995 are 136 kg/set in zone 6 (Miscou) and 183 kg/set in zone 5 (Magdalen Island). The catch rates vary considerably from those observed in 1994 with averages of 76 kg/set in Miscou (6), 441 kg/set in Magdalen Island (5), 198 kg/set in Rocher aux Oiseaux (5), 257 kg/set in Natashquan, 271 kg/set in Sheldrake (3) and 391 kg/set in Mingan (3).

Outlook

Projection: The current TAC for the two NB license holders is set at 295 t which account for 33% of the total TAC for the Gulf of St. Lawrence. Based on the present estimated biomass and exploitation levels, the TAC should remain at its 1995 level.

Given the slow growth of the animal, we propose a new management approach with protection for the broodstock in high density areas. The Gulf Stimpson's surf clam fishery is only in its fifth year and has already gone through several management changes. One of the major considerations that should be evaluated for the management of this fishery is the possibility of establishing a rotational harvesting system. This system would probably have a positive effect on the recruitment rate and population dynamics. It could also be beneficial in reducing the potential of tainted catches resulting from inadvertently retrieving moribund clams from areas recovering from recent harvesting activities.

Management considerations:

Is there a potential to expand this fishery? The initial survey of 1990-91 covered most of the Gulf of St. Lawrence including the coasts of the four Atlantic provinces and Quebec. Biomass estimates from the data collected were only estimated for the four largest concentrations (beds) which were deemed

commercially viable. Only one new concentration in the St. Lawrence estuary has been located since the 1990-91 survey. Consequently, it would not be advisable to expand the present fishing effort.

There are smaller concentrations of Stimpson's clams on the northern coast of PEI and the western coast of Cape Breton, NS which could be considered for a small inshore fishery to complement the traditional bar clam (*Spisula solidissima*) fishery.

Are surf clams part of the food chain? Yes, according to Waiwood (unpublished data), surf clams are highly preyed upon after they are left exposed on the surface of the sediments by the fishing activity. The main predators of surf clams are groundfish and crustaceans.

Have we made an assessment of how reproduction is affected by dredging. Yes, at an estimated rate of about 90% as caused by the indirect fishing mortality of the hydraulic dredge or those clams within the fishing area trench of the dredge.

For More Information

Contact: Thomas Landry
Science Branch, Maritimes Region
Gulf Fisheries Centre
P.O. Box 5030
Moncton, N.B. E1C 9B6

Tel: (506) 851-6219
Fax: (506) 851-2079
E-Mail: landryt@gfc.dfo.ca

References

- Giguere, M. and T. Landry. 1992. L'utilisation de l'hydroacoustique comme outil d'échantillonnage pour les relevés sur les mollusques: Resultats preliminaires. CAFSAC Res Doc. 92/95. 13 p.
- Lambert, J. and P. Goudreau. 1995. Performance de la drague hydraulique de type Nouvelle-Angleterre pour la récolte de la mactre de Stimpson (*Mactromeris polynyma*). Can. Ind. Rep. Fish. Aqua. Sci. 235: 28 p.
- Landry, T., E. Wade and M. Giguere. 1992. Evaluation de gisements de mactre de stimpson, *Mactromeris polynyma*, dans le golfe du Saint-Laurent: Resultats preliminaires. CAFSAC Res. Doc. 92/86. 29 p.
- Roddick, D.L. and E. Kenchington. 1990. A review of the Banquereau Bank fishery for *Mactromeris*

polynyma for the 1986 to 1989 period. CAFSAC Res. Doc. 90/14. 27p.