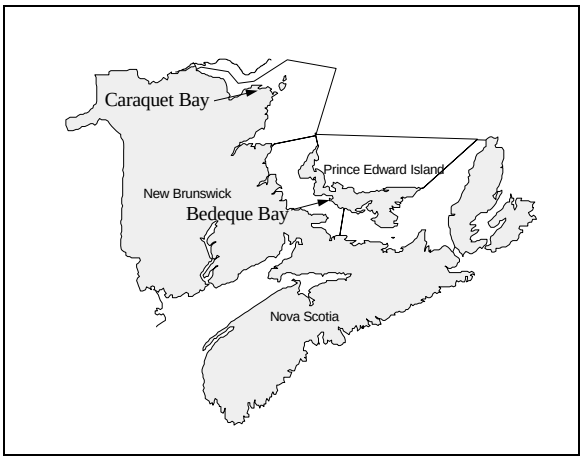


Southern Gulf American Oyster

Background

The American oyster (Crassostrea virginica) is a bivalve mollusc found in shallow water embayments (from mid-intertidal to 20m) from the Gulf of Mexico to its most northern distribution in the southern Gulf of St. Lawrence.

All southern Gulf populations were decimated by Malpeque disease this century (PEI from 1915-1939, NB from 1950-1960) resulting in substantially smaller populations that were all re-established from transplants of disease resistant stocks originating from PEI. Only the Bras d'Or Lake (Cape Breton) populations escaped the epizootic. The sexes are separate but with sex ratios changing with age because oysters are protandric. Sex ratios greater than 1:1 (females:males) in favor of females are observed at lengths > 70mm. Sexual maturity is often reached at lengths > 25mm (Lavoie 1995). Spawning occurs in individuals with ripe gonads at water temperatures greater than 20^{o} C with the external fertilization of eggs. The planktonic larval stage lasts 3-4 weeks followed by metamorphosis and spat settlement onto hard substrates (or cultch) (Booth & Sephton 1993, Lavoie 1995).

The principal public fishing areas are located in Bedeque Bay, PEI and Caraquet Bay, NB with secondary areas in Miramichi Bay and Bouctouche, NB and East and West rivers in PEI. Smaller tertiary beds occur throughout the region. The total area of all public grounds is only about 650 ha. Stock assessments were last conducted on the Bedeque and Caraquet public fishing areas in 1987 with the results compared to the previous assessments conducted in the 1970's.

Cont'd

Oyster fishing has traditionally been considered as a supplemental fishery based on the seasonal (fall-winter) markets which reflects the poor condition of oysters during the summer. This is also reflected in the large number of oyster fishing licenses (3495) held in the Gulf Fisheries region of which only about 15-20% are active commercial fishers. The PEI Shellfish Association represents the largest group of oyster fishers in the Maritimes Region. There is a fall public fishery in NB (Oct.1-Dec.31), PEI (Sept. 15-Nov. 30) and NS (Sept. 15-Nov. 30) while only PEI has an active spring (contaminated) relay public fishery (May 1-July 15) with oysters relayed to private leases (no direct market sales). Leasehold (market) fishing* usually occurs the month prior to the fall fishery. Fishing on public grounds is limited to hand held tongs and rakes (Sephton & Landry 1992) with a minimum legal size limit of 76mm enforced throughout the Maritimes Region. Recreational fishing for oysters only allowed under license. It is known that recruitment into the public fishery generally takes 6-7 years and that it is sporadic and unpredictable from year to year (Sephton & Bryan 1989b).*

Other than the management tools above (season, size, etc.), there have been few attempts to manage fishing effort on the public fishing areas for a variety of reasons but the lack of both a practical dockside monitoring program and a statistical gathering system that captures the point of fishing effort are the two main ones. There is a moratorium on fishing licenses in PEI to try to maintain the effort at its present levels. There also remains a prohibition of the movement (transfer) of oysters originating outside the Bras d'Or Lake to that area to safeguard it from Malpeque disease.

Available from: Maritimes Regional Advisory Process, Department of Fisheries and Oceans, P.O. Box 1006, Stn B105, Dartmouth, Nova Scotia, Canada B2Y 4A2. Telephone: 902-426-8487. E-mail: d_geddes@bionet.bio.dfo.ca

On peut se procurer une version française de ce rapport à l'adresse ci-dessus. October 1996

The Fishery

Management: There are presently 3495 commercial licenses in the southern Gulf (2177 NB, 1078 PEI, 240 Gulf NS) for the fall fishing of public fishing areas. There are also 1078 commercial relay licenses (114 NB, 923 PEI, 41 Gulf NS) for the spring contaminated relay fisheries*. There are no participation clauses to restrict license renewal for non-activity in any year. The current regulations of season (as above), gear type (tongs, rakes) and minimum size limits (> 76mm) are used to manage the fishery. A spring relay fishery is presently being contemplated for the Caraquet Bay public fishing area to help rejuvenate the bed.

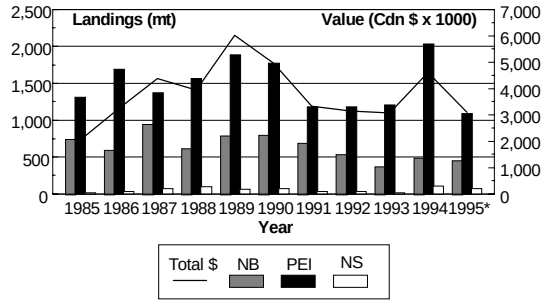
Landings:

American Oyster Landings (mt) for the southern Gulf .

Area	85-89 Avg	1990	1991	1992	1993	1994	1995*
NB	734	792	685	531	363	484	447*
PEI	1565	1774	1181	1176	1205	2034	1089*
NS	54	66	32	29	19	110	66*
Total	2353	2632	1898	1736	1587	2628	1602*

* Preliminary Data

American Oyster Landings for NB, PEI and NS (southern Gulf) from 1985-1995 showing landings (bars) and landed value (line). Data for 1995 are preliminary.



Total landings for 1994 (2628 mt), returned to values observed previously from 1988 to 1990. 1995 data are incomplete but are anticipated to slightly lower than 1994. The decrease observed from 1991 to 1993, predominantly for PEI (1774 mt to 1181 mt), reflects a marketing problem in the traditional marketplace (Québec and Ontario). This was caused by both the poor oyster quality being landed and shipped to markets (commercial grades instead of choice/fancy) and the improper cleaning of shells for polychaete worms. All landing data are from processors sales slips that reflect the combined landings from the public fishery, private leaseholds and aquaculture.

Management Considerations:

What is the status of the wild fisheries and of the principal public fishing areas?

Trends from commercial statistics show that catches have remained relatively stable in recent years but little else is known of the status of the wild resource because landing statistics are not specific to the public fishing areas. Collection of bed specific catch effort information would improve our estimate of the resource status for public fishing areas.

For More Information

Contact: Thomas W. Sephton
Science Branch, Maritimes Region
Gulf Fisheries Centre
P.O. Box 5030
Moncton, NB
E1C 9B6

Tel: (506) 851-2053
Fax: (506)851-2079
E-Mail: sephtont@gfc.dfo.ca

Glossary of Mollusc Fisheries

Public Relay Fishery: The commercial fishery that usually occurs in the spring of the year with licences issued under the Maritimes Region Contaminated Fishing Regulations where shellfish are harvested from marginally contaminated areas and relayed to clean (open) water leases for cleansing. There are no direct sales for human consumption but all product is cleansed (depurated) and processed through federally registered fish processing facilities under the Canadian Shellfish Sanitation Program (National Shellfish Sanitation Program in the USA).

Leasehold Fishery: The commercial harvesting of shellfish (usually oysters) that occurs only on open water registered leases by lease holders for direct market sales. This activity usually precedes one month before (Sept. 1)the open water commercial fall fishery (Oct. 1).

Contaminated Relay Fishery: The commercial harvesting of shellfish in marginally bacterially contaminated areas (as defined by Environment Canada under the Shellfish Harvesting Area Water Classification Program as part of the Canadian Shellfish Sanitation Program) that allows the product to be moved only to designated clean water areas leases) or registered depuration facilities for

cleansing (depuration) prior to marketing for human consumption.

Open Area (Water) Fishery: The commercial harvesting of shellfish in clean water areas that are not contaminated with bacteria (i.e. clean open water) as defined by Environment Canada under the Shellfish Harvesting Area Water Classification Program as part of the Canadian Shellfish Sanitation Program.

Conditionally Approved Area (Water) Fishery: The commercial harvesting of shellfish in areas that are approved on certain environmental conditions being met for access to the area as defined by Environment Canada under the Shellfish Harvesting Area Water Classification Program as part of the Canadian Shellfish Sanitation Program. These areas can be closed at certain times of the year because of bacterial contamination brought on by heavy rainfall, spring runoff or the malfunctioning of a sewage pumping control station. A strictly defined overlay water sampling program must be conducted with the results analyzed by a certified laboratory and reviewed by Environment Canada and DFO Inspection to ascertain that clean water conditions have returned to normal before the area can be re-opened to commercial fishing activities.

Closed Area (Water) Fishery: The harvesting of shellfish under special licence issued under the Maritimes Region Contaminated Fishing Regulations in areas that are closed to all other commercial fishing year-round because of continual bacterial contamination. Contamination originates from both defined and non-point sources. All shellfish are moved in sealed containers from the harvesting site directly to registered depuration facilities for cleansing and health safety inspection prior to marketing for human consumption.

References

Booth, D.A. and T.W. Sephton. 1993. Flushing of oyster larvae in a small tidal bay. Can. Tech. Rep. Fish. Aqua. Sci. 1945: 21pp.

Lavoie, R.E. 1995. Culture of the American oyster, *Crassostrea virginica*. *In:* Cold Water Aquaculture in Atlantic Canada. A.D. Boghen (ed.). Can. Inst. Res. Reg. Develop., Moncton :191-224.

Sephton, T.W. and C.F. Bryan. 1988. Abundance, distribution and dynamics of the American oyster population of the public fishing area of Caraquet Bay, New Brunswick. Can. Tech. Rep. Fish. Aqua. Sci. 1654:18p.

Sephton, T.W. and C.F. Bryan. 1989a. Changes in the abundance and distribution of the American oyster population of the Dunk River public fishing area of Bedeque Bay, Prince Edward Island. Can. Tech. Rep. Fish. Aqua. Sc. 1677: 21p.

Sephton, T.W. and C.F. Bryan. 1989b. Changes in the abundance and distribution of the principal American oyster public fishing grounds in the southern Gulf of St. Lawrence, Canada. J. Shellfish Res. 8:375-385.

Sephton, T.W. and T. Landry. 1992. The effects of different fishing methods on the mortality of eastern oysters (*Crassostrea virginica*). Can. Tech. Rep. Fish. Aqua. Sci. 1862:10p.