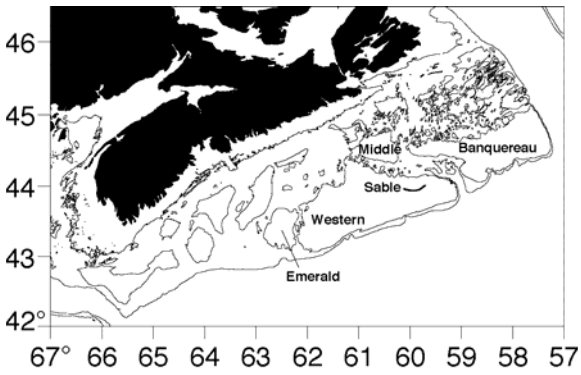
Scotian Shelf
Northern Propellerclam



Background

The northern propellerclam (Cyrtodaria siliqua) is a large cylindrical bivalve (up to 100 mm in length and 1/2 as high). The body cannot retract into the shells; it gapes everywhere but the hinge line, but more so anteriorly where the large siphonal snout projects out about an inch. The outside edges of the mantle are grown together, only leaving openings at either end for the siphons and foot. This fusion of the mantle lobes includes complete fusion of the areas where the colored protein coating for the shell, the periostracum, is produced. This results in a thick periostracum covering the projecting tissue surfaces. The periostracum is light-brown to black, and glossy and smooth where it covers the shells, which are slightly twisted around the length axis, giving it the common name propeller clam.

As this is a deep water species and has not been commercially harvested in the past, little is known about the life history of this species. It has been found at temperatures of -1°C to 5.7°C, and salinities of 32.3 to 34.2.

This species occurs throughout the Gulf of St. Lawrence right up to the Strait of Belle Isle, on the Newfoundland Banks, off Nova Scotia, in the Gulf of Maine, and on the Georges Bank. The southern boundary of its range runs south-west of Cape Cod. They are not found north of the Grand Bank or on the Flemish Cap which is separated from the Grand Bank by a 1200 m deep strait (Nesis, 1965).

It completely buries itself in the sand to a depth of no greater than a few cm. It is thought to be an active burrower, but travels horizontally through the sediment rather than vertically. It is often found in association with the sand dollar Echinarachnius parma. It is not found in the coarse-sand bottom of the shallowest parts of banks. It is a mobile suspension feeder and is in turn preyed upon by cod, haddock, and yellowtail flounder (Nesis, 1965). It is easy prey because of the shallowness it buries itself, the small size of the pallial sinus and the weakness and small size of the foot. The species is usually swallowed whole but sometimes cod bite off only the siphons and the ventral part.

If a directed fishery for this species develops, a sustainable management plan will require knowledge of growth rates and recruitment.

It is caught as a bycatch in the offshore clam fishery, but at present only small amounts have been landed. A limited inshore fishery exists off Lockeport N.S. where it is caught along with the Arctic surfclam and ocean quahog. Most of the propellerclam catch is sold as longline bait, but several commercial interests are attempting to develop markets for this species, mainly in the Far East

The Fishery

There is no directed fishery for this species at the present time. The hardshell clam fishery is managed as a limited entry fishery. The inshore fishery is restricted to waters outside of headlands and deeper than 10 fathoms. The offshore fishery has a Total Allowable Catch (TAC) and Enterprise Allocations (EA's) for Arctic surfclams, a 10% bycatch for ocean quahogs, but no restrictions on northern propellerclams. Both sectors use hydraulic clam dredges.

Resource Status

Data on the resource are available from offshore clam surveys done in the early 1980's and catch records from the existing clam fisheries.

Estimates for some of the offshore Banks from the survey data are:

Bank	Stations	Area(km2)	g/m2	Biomass (t)
Banquereau	35	6,884	5	34,420
Emerald	5	457	1	457
Middle Bank	17	2,304	10	23,040
Western/Sable	87	14,282	8	114,256

Catch rates for this species have been as high as 700 kg/10 minute tow during a 1991 survey. This survey used a commercial dredge with a 3 meter wide blade. In the offshore surfclam fishery, propellerclams are 10-12% of the catch. It is usually the most common species caught in offshore bivalve surveys on the eastern Scotian Shelf, where it can be 45% of the catch at some stations.

Both the inshore and offshore fisheries report a wide size range in the bycatch of propellerclams,

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indicating that recruitment is fairly continuous and not a periodic event.

Outlook

There appears to be a considerable biomass of this species available but little is known about its growth or reproduction. At present its commercial potential will depend on finding a market for this species.

The lack of knowledge about growth and reproduction warrants a cautious management approach if a commercial fishery for this species develops. Because its distribution overlaps that of other regulated clam species fished with the same gear, and its position as an important food source for groundfish, the interaction with current fisheries will have to be addressed.

There has been one period of time when the inshore fishery off Lockeport exceeded the closure limits for Amnesiac Shellfish Poisoning (ASP) in propellerclams. The regular inspection procedures for Paralytic Shellfish Poisoning (PSP) and ASP will have to be followed.

For more information

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