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1139 Bivalve resources in saline creeks of Saurashtra, Gujarat

The coastal areas of Gujarat are characterized by numerous parallel streams from the rivers flowing into the Arabian Sea. The rivers Bhadar, Ozat, Minsar and Sambli forms deltaic zones as the coastal areas are low lying and gets flooded during the monsoon. During high tide the seawater rushes into these areas through small creeks. River water flow is present only for one month during the monsoon; consequently it creates permanent saline condition creek. Thus there is no estuary as such in the region, but numerous small creeks are found all along the coast. It was observed that wherever there is a hard substratum for attachment, some oysters are found, and in some areas of the creek with sandy bottom, clams are observed. They form a good source of food to fisher population, besides serving as an additional income for them in coastal areas of Gujarat, especially during the fishing off season. Except in the Gulf of Kutch area (Okha, Sikka, Dwaraka, Poshitra, Salaya etc), Miani and Navibander there is no commercial exploitation of bivalves. Extensive surveys of these creeks were conducted all along the coast and detailed observations were made of the bivalve resources in Jaleshwar, Chorwad, Sutrapada, Vanakbara. Diu, Porbander, Harshad, Miani, Okha, Sikka, Dwaraka, and Salaya (Fig. 1).

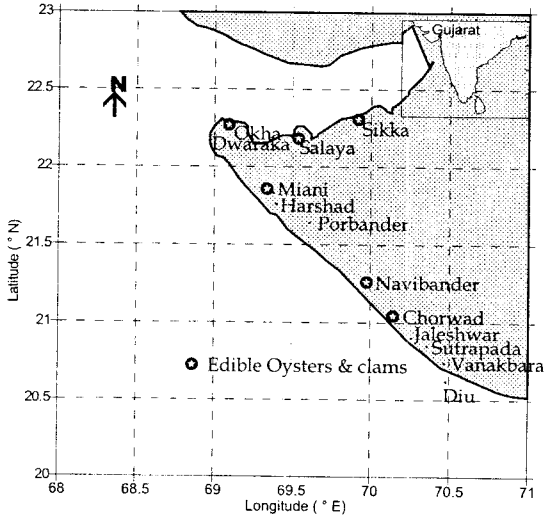

Fig.1 Map of Gujarat showing locations of bivalve resources.

Navibander Creek: Navibander creek is about four hundred meters long and hundred meters broad with one opening to the sea and the other end delimited by a check dam to prevent influx of sea water to the interiors. The tidal fluctuation is about 1.5 m and most of the oyster beds are exposed during low tide. The salinity in the creek ranged from 21 ppt upstream to 34 ppt towards the bar mouth and pH was about 8.1. The soil is clayey in nature with a pH range from 6.9 to 7.2.

The oyster resources observed include *Crassostrea gryphoide* (62%), *C. rivularis* (20%), *C. madrasensis* (4%) and *Saccostrea cucullata* (14%). The length (APL) of *C. gryphoides* ranged from 60 to 70 mm with an average of 75.8 mm and *C. rivularis* from 50to 70 mm. Average raw flesh weight was about 9.4g per oyster. The number of oysters per square meter was 20-

22 towards upstream and large numbers of dead ones were also observed in this area. The reason for the mortality may be the sudden influx of fresh water from the interiors. Towards the bar mouth, about 140-145 oysters per square meter was observed.

The oyster were harvested mostly during April – May. There are about 70 boats operating in this area and almost all these boats are engaged in the harvesting of oysters in this season. Usually in one boat three persons go for oyster picking. An amount of about Rs 15-20/- is realized for 100 –200 g of oyster meat in local market. Towards the bar mouth of this creek, about 150 – 300 clams (*Meretrix sp.*) were found per square meter area. The dorsoventral length ranged from 20 to 33 mm, with shell on weight ranged from 14 to 27 g. However there is no fishery for this resource in this creek.

Chorwad Creek: Chorwad creek is about 700 m length, with a maximum depth of 2.5 m. It is about 150 m from the sea. This creek does not have an opening to the sea. Generally the soil is sandy except in a few pockets where the soil is silty with high organic load. The salinity ranged from 39 to 40 ppt. Oysters are found in a few areas where granite and lime stone rocks are present. About 15 – 20 oysters per meter square were observed. Majority of the oysters were represented by *C.gryphoides* (70%) followed by *C. rivularis* (20%), *C.madrasensis* (6%) and *S.cucullata* (4%). The length of *C.gryphoides* ranged from 60.2 to 81.4 mm. The average shell on weight was about 80.4 g with a flesh weight of 8.4g.

Medha Creek: Medha creek in Miani is about 100 m in length, upstream portion is delimited by an irrigation project shutter to prevent saline intrusion upstream. The saline condition persists throughout the year and abundant biomass of edible oysters and clams are observed.

The edible oysters were represented by *C.gryphoides* (69%), *C. rivularis* (11%), *C.madrasensis* (8%) and *S. cucullata* (12%) in the order of abundance. There is no regular organized fishery as such for oysters but it is usually harvested in December – January for local consumption. The average depth of the creek is about 2 m and good attachments of oysters (81 mm) was noticed . The fishermen go to the oyster beds by canoe during low tide and the oysters are detached from the rocks with a chisel.

Towards the bar mouth where the substratum is sandy, the yellow shelled clams *Marcia opima*, locally called 'Dabla' are found. It remains buried almost 5 cm deep in the porous sand and usually occurs in pairs. At present it is not exploited commercially. Information regarding the growth, spat settlement and spawning period of bivalves are lacking from these creeks. Once the information regarding the same is obtained there is ample scope for the exploitation and rack and ren farming in the saline creeks of Saurashtra.

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