INTRODUCTION

During benthos studies made as part of a survey of the Saint John River estuary (Maclellan & Sprague, 1966; Gillis, 1974), Cyathura polita (Stimpson, 1855) was collected from two locations. Further collections and a study of the specimens obtained established that this Canadian estuary contains a viable, reproducing population of C. polita. This is the most northern location (45°20'N 66°20'W) for the species along the Atlantic coast. The most northern habitats previously reported were in Maine in a tributary of the Sheepscot River (Miller & Burbanck, 1961) and in a salt marsh tributary of the Penobscot River (Haefner et al., 1969). Searches along the coasts of Nova Scotia and the Gulf of Saint Lawrence have been unsuccessful (Burbanck, 1962). To the south, populations of C. polita have been reported in estuaries along the entire eastern coast of the United States and in the eastern part of the Gulf of Mexico (Burbanck, 1959, 1962, 1967). This new locality record represents a northeastward extension of the range of C. polita by 180 km.

OBSERVATIONS

The Saint John River estuary has several physical peculiarities. The reversing falls at the mouth of the estuary, caused by a sill above Saint John Harbour, result in an unusual tidal exchange with upstream intrusion of salt water being strongly influenced by fluvial outflow (Metcalf et al., 1976). Although tidal effects may be noted as far inland as the dam above Fredericton (fig. 1), saline water (>0.10/o0) has been reported only as far upstream as Gagetown. During normal runoff periods, salt water penetrates upstream as far as Evandale with salinity increasing to 170/o0 and occasionally to 210/o0 between Public Landing and Grand Bay, in a typical estuarine salt wedge lying below a predominantly fresh layer. At times of high flow in the spring, the whole estuary becomes fresh. A summary of substrate and physicochemical data for the major stations where sampling was carried out is given in table I.
The restriction of tidal inflow allows the estuary to reach higher temperatures in summer than are found in the Bay of Fundy (Metcalfe et al., 1976). The composition of the fauna in the estuary as a whole is more Virginian in nature than Boreal and includes such southern species as Corophium lacustre Vanhöffen and Acipenser brevirostrum which are endemic to this location in Canada (Leim & Day, 1959; Bousfield & Thomas, 1975).

The estuary from Evandale to Grand Bay is 1 to 3 km wide with a decided but not swift current. The river bed is irregular with a mean depth of 12 m but may exceed 30 m. Parts of the bottom are rocky and bottom sediments of sand, silt, and clay occur in varying proportions. The central part of the Long Reach area has a clay bottom with some sandy areas upstream, while the nearshore areas of the estuary are frequently of a sand-clay mixture (table I).