developed and showed no abnormalities. They were not attached to each other at any point on the body; the only mutual attachment was to the yolk sac, a non critical position. The twins may well have survived.

## RESULTS OF DOGFISH COLLECTIONS: FRENCHMAN BAY, 1976

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In connection with studies on the reproductive ecology of the spiny dogfish, *Squalus acanthias*, a tally was made of the sex distribution in catches at selected collecting stations. The stations were selected by the collecting crew as most likely to provide good catches with some preference for the larger (female) specimens required by investigators.

Fish were caught on 100 foot trawl lines set in 30 or 60 feet of water on muddy or sandy bottoms and left for two to three hours. Hooks were spaced 12 inches apart on 2½ foot leaders and baited with aged salted herring. Five to thirty fish were caught per setting, with an average of 10 to 15. During the period June - August, 40 to 50 trips were made with 2 or 3 trawl lines being set. In addition to dogfish, skates (*Raja erinacea*) were frequently caught and conger eels (*Leptocephalus conger*) and sculpin (*Myxocephalus sp.*) occasionally.

Stations surveyed are shown in Figure 1. A summary of the season's results for various periods follows.

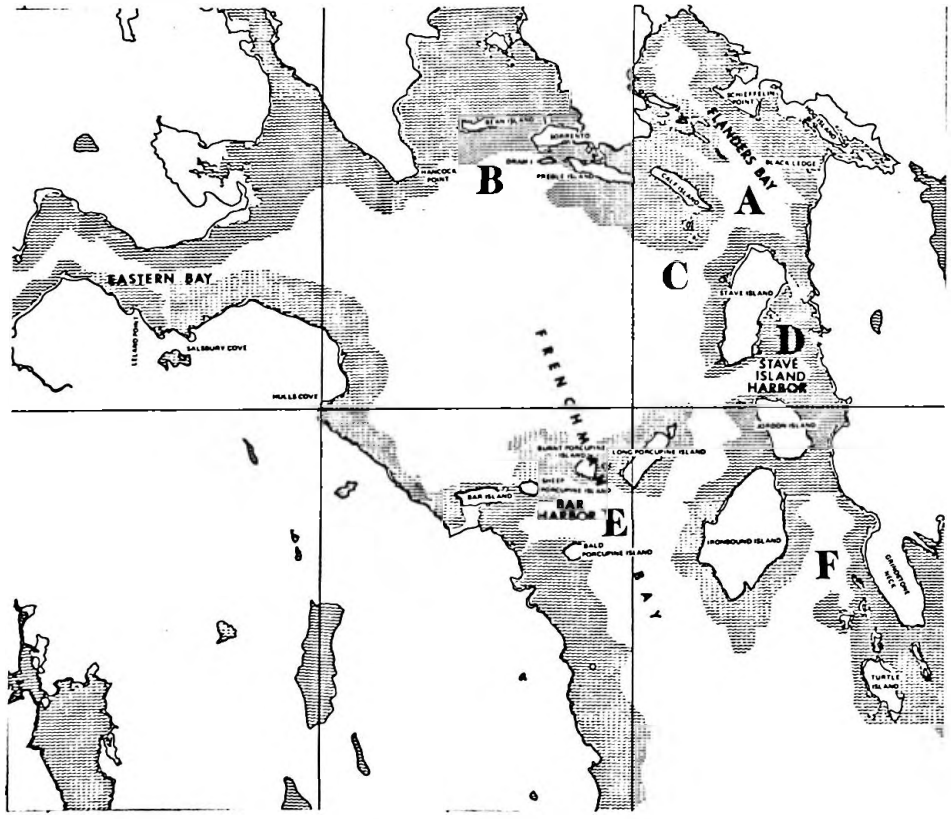


Figure 1. Collecting areas 1976: Frenchman Bay, 68° W. Long. 44° N. Lat.

Early June

Fishing was done in the Flanders Bay area (A) off Calf Island (60' depth) and off Black Ledge and Stave Island (both 30' depth). Fishing was tried in (B) off Hancock Pt. and Dram Island, but with very little success. About 80% of the few fish caught in these places were females.

Late June - early July

Trawls were put down on the open side of Calf and Stave Islands (Area C); 95% were males. Females were available in Stave Island Harbor (Area D). Fishing in Bar Harbor area (Area E) was attempted; only a few males were caught there.

Late July - mid-August

Males became plentiful in Area C and on both sides of Ironbound Island (Area F). Females were still being caught in Flanders Bay (Area A).

Between August 15 - 25

Females were no longer available in Area A. In Area C however, both males and females were caught in equal amounts. Fishing in Bar Harbor improved and mostly males were caught.

August 26

Many females were caught in Flanders Bay (Area A).

These data show a differential movement between the sexes. Large mature females approached the coast first, in early June and formed the bulk of the inshore catch throughout June to late August. Mature males moved into coastal waters later, but remained in separate shoals, generally further offshore than the females.

Migration in unisexual shoals appears to be common in the spiny dogfish and has been reported for populations off the eastern seaboard of Canada and for populations in Europe (Templeman, Res. Bull. Div. Fish. Res., Newfoundld., 15:1944; Holden, Fishery Invest. London, II. 24:1967). In view of a projected fishery for the spiny dogfish in Maine, it would be of interest to have a detailed analysis of their migratory behaviour.

## DETERMINATION OF THE SHORT CIRCUIT CURRENT IN THE RECTAL GLAND OF THE DOGFISH (*Squalus acanthius*) AND THE EFFECTS OF THEOPHYLLINE, DB CYCLIC AMP, AND GLUCOSE

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The isolated perfused rectal gland of the dogfish has been shown to secrete sodium chloride at a slow rate that can be accelerated by the addition of substances that increase the cyclic AMP content of the gland. It is also known that the lumen of the main secretory duct of the gland is electrically negative with respect to the blood. Here we report observations on placing the gland as a membrane in a two compartment chamber prepared ad hoc for the rectal gland, and on detecting potential differences and short circuit currents compatible with previous observations on the perfused gland. The action of the chloride transport inhibitor - furosemide - is also reported here.