

ages of action on the part of these confluent tidal waves dragging along the sloping beaches, and washing away the resulting debris from the sandstone rocks, of which a large part of this coast line is composed. The ceaseless operation of these forces is thus manifested in the wearing away of the shores most subject to their influences. (See diagram.)

b. THE EDDY FLOOD TIDE IN THE ESTUARY OF THE ST. LAWRENCE.

According to Admiral Bayfield, the flood tide in the estuary of the St. Lawrence, beginning at Anticosti and proceeding some miles above Bic, rushes up the broad Mid Channel as far as Red Islet and Green Island, where part of it, being obstructed by the Islands, turns round and, as an eddy flood tide sweeps along and down the southern coast as far as Gaspé Basin, only a thin and narrow band of flood tide running upwards between the eddy flood and the coast line.

On the days of full and change of the moon, it is high water at noon both at Point de Monts and Cape Chatte, and high water later and later down the coast, so that at Cape Rozier it is 1 hour, 30 minutes before it is high tide there.

In other words, the flood tide rushing up the deep mid channel between Cape Rozier and Anticosti Island, passed up more than an hour and a half before the eddy flood tide returned coastwise to Cape Rozier.

Bayfield states that there is a very narrow flood tide close inshore running westerly along the Gaspé coast inside of the eddy flood. These currents moving so constantly in opposite directions and close inshore, tend to produce the continuous line of eddies which cause the free-swimming food of the mackerel to be found near to the land, and make that portion of the estuary a mackerel ground.

On the north shore of the estuary, between Mingan and Point de Monts, the periods of high water at full change of the moon are altogether different. The tidal wave reaches Mingan Island at 1.30, Seven Islands at 1.40, Cawee Island at 1.50, English Point at 2, and a few miles further on it meets the ebb tide two hours old sweeping past Point de Monts.

The flood tide on the north shore is only about 3 leagues broad. The strength of the stream is greatest inshore, and beyond 3 leagues from the coast it becomes insensible. (1)

The eddies produced in the bays between Moisie and Point de Monts by this inshore flood tide throw in and keep the food near the coast line.

Hence it is that the flood tide on the north shore flowing westerly, and the eddy flood on the south shore flowing easterly, with a thin belt of westerly flowing flood between it and the land, produce inshore eddies, which concentrate the free swimming food of the mackerel, hereafter described, on these coasts.

The strength of the current in deep water offshore, on the south coast of the estuary of the St. Lawrence, is stated to be sufficient to prevent fishing operations there, thus offering a practical difficulty, which is repeated on some parts of the northern shore during high tides.

In the Bay of Chaleurs, where the tides are regular, the mackerel ground of the day depends upon the wind. A southerly wind converts the south side of the Bay into a lee shore, and the fish are found chiefly on that side, especially towards Nepissiguit Bay. When the wind is northerly the Gaspé coast becomes a lee

(1) Sailing directions for the St. Lawrence.