

Off the Gaspé coast from Cape Chatte to Cape Gaspé; on 22 trips reported, the current was found to run *sixteen times* in the outward direction from the N.W. with a velocity of one to three knots; *four times* from the S.E. or E.S.E. with a velocity less than one and a half knots; and *twice* the current ran off or on shore, or in unusual directions.

Between Gaspé and the Magdalen Islands; on 14 trips reported, the current was found to run *nine times* in the outward direction from the N.W. or N. with velocities which average one knot; and *five times* from the S.E. or E. with velocities from one-half to one knot.

Between the Magdalen Islands and Cape North; on 13 trips reported, the current was found to run *eight times* in the outward direction, from the N.W. the W. or the S.W. with a velocity of one-half to one knot; and *twice* from the S.E. or the S. with a velocity of half a knot. Also *three times* there was no current appreciable. It is also noted by Captain Gould, that in the vicinity of Cape North during easterly winds, the current appears to divide; and to the westward of that cape a current is found which runs from the N.N.E. as if it were a branch from the main current past the cape.

*Conclusions as to the character of the general current across the Gulf area.* In reviewing the information as above detailed, the practically constant character of the currents in the Gaspé region and the vicinity of Cape North is fully endorsed; when their liability to displacement by the wind is taken into account. The general connection between the currents is also clear from the density charts; which show the water of lower density to be continuous from one region to the other, on the south-western side of the Gulf, and to be limited approximately by a line from South-west Point, Anticosti, to St. Paul Island. It is therefore along the south-western side of the Gulf that the water must find its way from the Gaspé region to Cape Breton. The current measurements, and the steamship reports of the direction of the current, also accord with a general movement of the water from the north-west towards the south-east; as this is the more usual direction, and the one in which the velocity is the greatest. The contrary directions, and the currents which are found at times to run across this prevailing direction, are to be attributed to the influence of the tides and the wind.

In the region between Gaspé and the Magdalen Islands, the effect of the tide from the Bay des Chaleurs was felt as far as 30 miles out from Miscou Island at the mouth of the Bay; and this may therefore occasion an apparent cross current in that vicinity at times; and thus account for some of the irregularities there met with.

In the region lying around the Magdalen Islands and extending to Cape North, the effects of the disturbance of the wind have already been referred to. The tide also at both ends of these islands, flows in the two directions, and only the difference in flow can be taken to represent the movement towards the south-east. In reply to the inquiry as to what direction the water comes from which flows to the south-eastward around Cape North, it seems fair however to conclude from the evidence furnished by the density observations, that the greater proportion finds its way eastward between the Magdalen Islands and Prince Edward Island; while a certain amount may also pass north of the Magdalen Islands, on the line from Bird Rocks to St. Paul Island. That some water passes round both ends of the Magdalen Islands on its way to Cape North is also confirmed by the steamship reports in that region, as the currents from the north-west and south-west correspond with these two routes respectively. It is probable also that some of the water may come from Northumberland Strait, as the water there is also low in its density.

It can hardly be doubted that the low density of the water in the Gaspé current is to be attributed to the outflow of the St. Lawrence River; and we are thus able to trace the influence of this water as far as Cape Breton, where it finally mingles with the water of the ocean. The volume discharged by the St. Lawrence has been measured immediately above Lake St. Peter at different seasons; and with the addition of the Richelieu, St. Maurice, Saguenay, and other tributaries along its estuary, the total volume of fresh water discharge would probably amount in all to 340,000 cubic feet per second. This volume of fresh water will mingle with sea water for which we may assume a density of 1.0245; as this may be taken to represent either the mean density

of Atlantic coast water in the Gulf itself. Under sufficient to furnish and 84 feet deep, to represent the average motion to its average to illustrate that themselves were no

A further explanation next the Gaspé coast side of the Gulf, and instead of spreading low density lies also over the surface until Lower St. Lawrence out-flowing water of in the open Gulf however, which is extended further out that the positions in rotation of the earth north; and the movement eastern shore; while towards the ocean western coast of the appreciable effect; as

It may not be indicating as above selves throughout the factory explanation:

There is one point the relation of the volume of fresh water dilute the sea water ing current flowing volume of water which water which it receives must therefore be already made show the Strait of Belle side of Cabot Strait loss to the Gulf are along the west coast the neighbouring Area there is any return

In these circumstances that such currents velocity which is as

It may be stated Gaspé coast, flowing, Chatte to Cape Ros Current. It occupies inshore current is