

7. The actual flow throughout the year, when the influence of the wind is included, appears also on the whole to be greater in the inward direction from the east, than outward from the west.

Current in the eastern end of the Gulf, immediately west of the Strait of Belle Isle, between Rich Point and the Esquimaux Islands.

From observations at three stations in this region, occupied between July 31st and August 3rd immediately after prolonged westerly winds, the current was found to be from the west (magnetic) at the centre and on both sides. The velocity amounted to 0.79 knots per hour at the centre, and 1.19 to 1.37 knots at the sides.

This in the circumstances is likely to be as great a velocity from the west as ever occurs, owing to the wind conditions for the week preceding this direction of the current. From July 24th to 31st there were in all 124 hours of westerly wind, averaging 20 miles per hour, and only 48 hours of easterly wind, averaging 19 miles per hour; or in all 2,530 miles of westerly wind, and 890 miles of easterly wind. The westerly winds also continued during August 1st and 2nd. The layer of water in motion from the west had a thickness of only 5 to 10 fathoms; which tends also to show that its movement was due to the previous direction of the wind.

From the above characteristics of the current in the Strait of Belle Isle, it is clearly possible for a vessel to over-run its reckoning in either direction through the strait. Also, vessels entering through the strait should not assume that the current is necessarily in their favour in making the run westward to round the eastern end of Anticosti; as it is possible that the set in the strait itself and also in the eastern end of the gulf, may be against them.

THE BELLE ISLE CURRENT IN RELATION TO THE GULF IN GENERAL.

On account of the tidal character of the current in the Strait of Belle Isle, it is clear that no great volume of water can enter the Gulf of St. Lawrence from that quarter. During the summer season, the current flows through the strait in both directions with velocities which are nearly equal; and there is only a difference in favour of inward flow from the east, which on the whole does not probably amount to more than a moderate percentage. There is reason to believe that in the early spring the preponderance of inward flow from the east may be proportionally greater than at other seasons. There is some evidence to show that the incoming water may then penetrate the gulf as far as Bonne Bay on the west coast of Newfoundland. But no reasons have been found for supposing that this water passes completely round the west coast of Newfoundland and finds its way out into the Atlantic through Cabot Strait, between Cape North and Cape Ray, in accordance with the theory which has been more or less accepted up to the present time. All the indications are against this theory; and the results of last season's work were already sufficiently conclusive to enable the theory to be considered as disproved. This conclusion is further corroborated by the investigations of the present season; which show that if there is any general current across the extent of the gulf, it must lie in an entirely different direction.

It may be allowable therefore to sum up briefly the reasons for this conclusion, from all the evidence yet obtained, during the two seasons.

The water in the Strait of Belle Isle is exceedingly clear. It is also very cold, and when flowing in the inward direction, its temperature as late as September is below 45° for the average of its depth from surface to bottom. Its density is as high as that of any water found within the gulf being on an average 1.0244 at the surface.

The water in Cabot Strait is quite different from this in its character. The greater part of the width of that strait is occupied by water which has the usual milky-green colour of ordinary seawater. The out-flowing current in Cabot Strait, is on the side next to Cape North, or the further side from Belle Isle. This out-flowing water has also a distinctly brown tinge; its surface temperature ranges from 55° to 65°; and its average density to a depth of ten fathoms from the surface