

this difference in the time of slack water with ten miles more offing from Brier island. Or again, if entering at half tide, the strength of either flood or ebb would be found just double as great at the offing of five miles as at fifteen miles off.

A vessel, coming inward past Cape Sable about the end of the flood, may find slack water extending westward from the cape for 16 miles as far as Station H; but at Station B, only 11 miles further on, a strong flood would be met, which would run for $1\frac{1}{2}$ hours longer.

In passing Lurcher shoal, at the end of the flood the current slacks simultaneously on the shoal itself and for some distance on each side; but after the ebb, it slacks on the shoal half an hour before it is slack midway between the shoal and the mainland (at Station P), and a full hour before slack water occurs at an offing of ten miles westward (at Station C).

The characteristics thus described are clearly shown in the tabulated results, given in Tables I and II, and also in the form of a Current chart, from which the relative strength and direction of the current and the time of slack water at the various stations will be readily understood. A little consideration will also show many ways in which slack water may be taken advantage of, and the stronger currents made use of or avoided as occasion may require. The positions of the stations are given accurately in Table I, to enable any navigator to plot them on his own chart, if desired for reference.

TEMPERATURE OF THE WATER.

The temperature of the water was taken while at anchor and on the runs made, with two objects in view: to trace any general movement of the water; and from any difference in the temperature of the flood and ebb, to infer any general displacement of the water. Deep temperatures were also taken at the stations, as far down as 30 fathoms; and owing to the strength of the current these could only be taken at slack water, which thus gave a valuable comparison of the temperatures at the end of the flood and ebb, when the greatest difference was to be expected if the water came in from one direction and went out in another. The indications given by these observations were not sufficiently distinct to be of value for the main objects in view; but the results deserve to be noted. On the other hand they show distinctly the change in temperature with the progress of the season. The values are in degrees Fahrenheit throughout.

Relative temperatures of flood and ebb.—The temperature of the surface water was taken every two hours while at anchor; and the average temperature of the flood and ebb was thus found for the period of two to six days or more, during which the station was occupied. With the exception of Stations F and G off Cape Sable, these averages seldom differ more than a fraction of a degree at any of the stations in the region.

The advantage of determinations below the surface for this purpose, deserves to be noted; for if there is a difference in the temperature in the two directions, it is more distinct at 10 or 15 fathoms than on the surface; while at 30 and 50 fathoms the temperature is again more uniform, as it usually is at such depths. The most definite indication was at Station A, at the mouth of the Bay of Fundy, where the depth is over 100 fathoms. The following average results at the depths indicated, are from