

In Norton sound the ice remains later, its time of departure varying with the strength and direction of the prevailing spring winds as much as three weeks on different seasons. Southerly and easterly winds clear the sound and westerly winds pile the ice in.

Young ice ceases to form in the vicinity of St. Michaels, May 1. The earliest arrival recorded at St. Michaels is May 25, 1875, when a schooner, commanded by an experienced man, reached that place. Captain M. A. Healy, U. S. R. M., reached St. Michaels during two successive seasons on June 5 and 8, and it is generally expected that vessels will arrive there June 10-15. The Alaska Commercial Company's steamers, which are not fitted for encountering ice, leave Ounalaska on their first northern trip about June 25, and reach St. Michaels safely, only encountering patches of drift ice, through which they can easily pick their way.

In 1880, which was a westerly season, the *Corwin* met heavy ice, June 11, in latitude  $60^{\circ} 50' N.$ , and, on July 9, when 16 miles from St. Michaels, was stopped by heavy ice, which cleared away a few days later.

The heavy ice between St. Lawrence and King's islands remains closely packed much longer than any other ice in Bering sea. It gradually melts and breaks up and sets north toward the straits at about 1 knot an hour, the last of it disappearing from July 5-15.

Fort Clarence being a good harbor, close to the straits and free from ocean swell, is the rendezvous for the vessels of the Pacific Steam Whaling Company's ships to meet the tender which supplies them with coal and provisions, and takes south the results of the spring catch. This bay, being well enclosed, clears of ice much later than the time of the departure of the pack along the shore. In 1885, the bark *Wanderer* anchored in Port Clarence June 25, which is the earliest date that it has been navigable for years. As a general rule, the tender to the whaling fleet arrives there, July 1-5, without encountering any heavy ice.

**Spring movements of the ice in Bering straits.**—The current through Bering straits sets north, and, when not influenced by prevailing winds, its rate is about 2 knots an hour. Protracted northerly gales, lasting a week or more, are sufficient to change its direction southerly, but upon the cessation of these winds it quickly sets north again. Strong southerly winds increase its rate to 3 knots. In the spring the current on the east side of the Diomedes is the strongest, but the west side of the straits, on account of the west shore being cleared by the northeast current to the southward, is the first to clear of ice, and is given the preference by vessels proceeding north.