

The Ice Season 2006-2007

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Key Message

The ice season 2006/2007 was very late, short and mild in terms of ice extent.

The ice season started during November and the ice conditions developed like for a warm winter.

Towards the end of January the weather turned colder and ice began to form in all sea areas. Weather in February continued to be cold with ice forming in the Sea of Bothnia and the Gulf of Finland. **The largest ice cover – 139,000 km² – was reached on the 23rd of February.**

The ice winter was, by the extent of the ice cover, classified as mild (**Figure 1**). The ice breaking up was in most waters about week earlier than normal and the 25th May the Baltic Sea was ice free, approximately as normal.

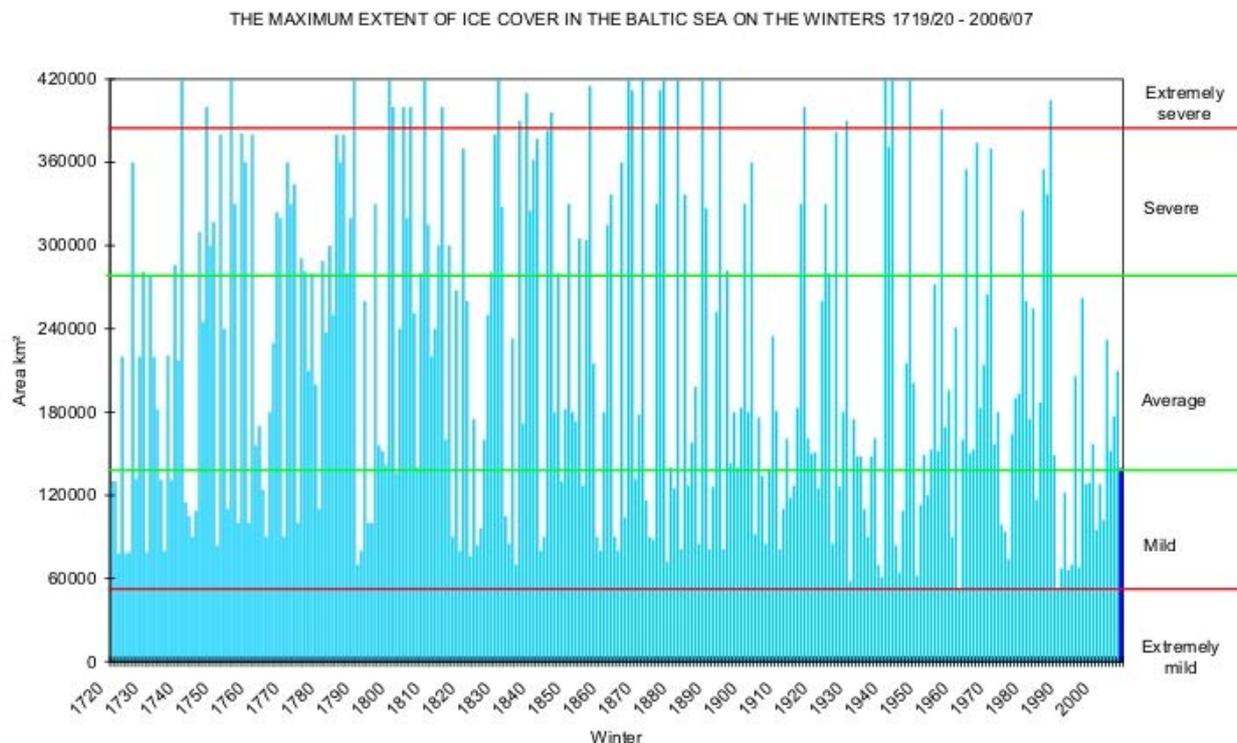


Figure 1. The maximum extents of ice cover in the Baltic Sea on the winters 1719/20 – 2006/07 (Courtesy of FIMR).

Ice formation

Bothnian Bay

Mild and windy weather dominated the first part of the ice season 2006 – 2007. Thin ice formed in the inner archipelagos of northern Bay of Bothnia already in beginning of November at the normal time, but the ice formation then ceased completely. The archipelagos of Bay of Bothnia were not completely ice covered until the middle of December. The ice situation remained very easy with open water at sea until the end of the year.

The first ice at sea in northernmost waters formed around in the middle of January. By the end of the month, new ice formed for the first time in the Quark.

As a result of an outburst of cold air the freezing continued in the beginning of February. The Bay of Bothnia was entirely covered in ice on the 8th February, some three weeks later than average. A day later also the Quark and the coastal waters of northern Sea of Bothnia became completely ice covered. From February 15th, the Archipelago Sea as well as the Swedish archipelagos of northern Baltic Sea was covered by thin level ice or drift ice. Further southwards, along the Swedish east coast to Västervik, there was thin ice only in the harbours and inner parts. The maximum ice extent was reached on February 23rd.

Gulf of Finland

The freezing started along coasts of the Neva Bay and in the Vyborg Bay in the first half of November, about at the normal time. Then ice disappeared.

The ice formation on the Gulf of Finland during the most part of December did not take place. Only December 27th the drift out of shuga from Ladoga Lake. It resulted in of sustainable appearance of the ice in the Neva Bay. It was about month later than normal dates.

During the first and second decades of the January the ice formation in the Gulf of Finland did not take place. This warm ice situation for the second decade of January registered once for the history of Russian ice observations, in 1930.

The ice formation started January 21st and towards the end of January the weather turned colder and ice began to form in the Gulf of Finland approximately one and half month later than on average. In the end of January the Gulf of Finland was covered in ice in the archipelago and in the east up to Motshjnyj.

The freezing continued in the beginning of February and ice forming in the Gulf of Finland. At time of the largest ice cover the ice edge in the Gulf of Finland ran along the line Utö – Mohni. The Gulf of Riga was also mostly ice covered.

The Baltic Proper

The beginning of the ice season was very late in the Baltic Proper. In the Kurshiu Marios (Curonian lagoon) the primary ice forms appeared on 25th of January. The shore ice formed in the end of February. Shore ice melted on 6th of March and finally sea areas were ice free since 10th of March.

The largest ice cover

Towards the end of January the weather turned colder and ice began to form in all sea areas. The freezing continued in the beginning of February and the Bay of Bothnia was entirely covered in ice on 8 February, some three weeks later than average. Weather in February continued to be cold with ice forming in the Sea of Bothnia and the Gulf of Finland. **The largest ice cover – 139,000 km² – was reached on the 23rd of February.** The Bay of Bothnia and the Quark were covered in ice, the Sea of Bothnia was covered off the coast by an ice belt varying by width between 10 to 30 nautical miles, the

Archipelago Sea was frozen and the ice edge in the Gulf of Finland ran along the line Utö – Mohni; the Gulf of Riga was also mostly frozen. Due to the occasional strong winds related to the mild winter areas of ridged ice were formed in the Bay of Bothnia over February, March and April. In the Gulf of Finland the ice was thinner with less ice ridging.

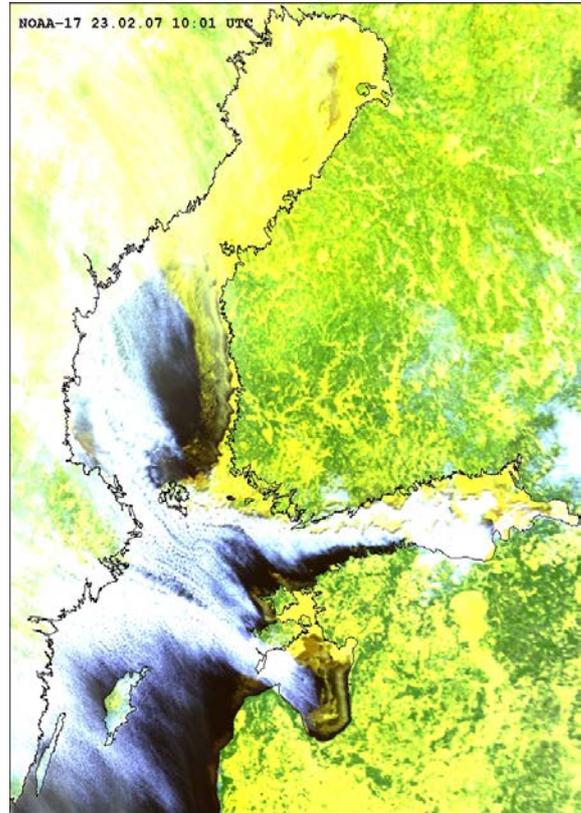


Figure 2. The largest ice cover – 139 000 km² – was reached on the 23rd of February (Courtesy of FIMR). **Figure 3.** Satellite image of the 23rd of February 2007 (Courtesy of BSH).

Ice breaking up

Another short period of ice formation occurred in the beginning of March, thereafter the ice limit rapidly shifted northwards. The ice became rotten in the Archipelago Sea and the Sea of Bothnia.

From the beginning of the March the ice formation stopped and the continuous destruction of the ice started. The fracturing of the fast ice in the Neva Bay along the fairway took place March 11th. It was three weeks earlier than normal dates. Toward the end of month the fracturing of the fast ice in the Neva Bay took place everywhere.

Gulf of Finland was ice free in the beginning of April, almost two weeks earlier than average. Also the eastern parts of the Gulf of Finland were totally ice free at April 19th, half a month earlier than normal. In the Gulf of Finland the duration of the ice winter was one and a half months shorter than average.

In the beginning of April these areas were ice free almost two weeks earlier than average. Same time the heavy ice in central and northern Bay of Bothnia drifted eastwards. A long lead hereby opened between Bjuröklubb and Farstugrunden and the ice conditions on the Swedish side remained very easy throughout the month. Heavy ice pressure against the Finnish coast occurred at times and numerous ridges formed.

Mild weather dominated during the end of April and the ice field gradually became softer. The Quark lost its ice cover towards the end of April approximately one week earlier than normal. Mild weather

resulted in a sudden break-up of ice in the northern archipelagos as well as at sea in off Kemi but some growlers occurred.

In the beginning of May also most of the remaining ice off Raahé melted. The last ice disappeared at the 25th May. A mild ice season hereby had come to an end. In the northern Bay of Bothnia the duration of the ice winter was average, in the southern Bay of Bothnia more than a month and in the Quark almost one and a half months shorter than average. In the Sea of Bothnia, the ice winter was one and a half months shorter than average.

Ice thicknesses

The maximum thickness of the fast ice in the northern Bay of Bothnia was 50 – 75 cm and in the Sea of Bothnia 30 – 45 cm. In the Archipelago Sea the maximum thickness of the fast ice 10 – 30 cm. The thickness of the open sea ice was 20 – 50 cm in the Bay of Bothnia and 5 – 30 cm in the Sea of Bothnia.

The maximum thickness of the fast ice in the Gulf of Finland was 30 – 50 cm. The thickness of the open sea ice was 10 – 35 cm in the Gulf of Finland.

The maximum thickness of the fast ice at Lithuanian coastal areas was 25 cm by Nida.

The southern Baltic Sea

The winter of 2006/2007 was exceptionally mild. The warm weather continued throughout the winter season. The cold spells were very short, with mostly mild frost at the end of January and a few days in February. Under these conditions, water temperatures never dropped low enough for the freezing process to begin. Some new ice lasting a few days was only reported in the inner Schlei waters and in the sheltered Bodden lagoons of Mecklenburg-Vorpommern, close to shore.

Ice did not cause any obstructions to navigation in the winter of 2006/07. The value of the accumulated areal ice volume thus is zero on the German Baltic sea coast. The ranking of the ice winter of 2006/07 in the observation series starting in 1896/97 is shown in Figure 4. Comparable winter seasons in the period from 1897 to 2007, in which none of the 13 climate stations along the German coast except that in the inner Schlei recorded any ice formation, were the ice winters of 1897/98, 1943/44, 1987/88, 1988/90, 1991/92, and 1999/2000.

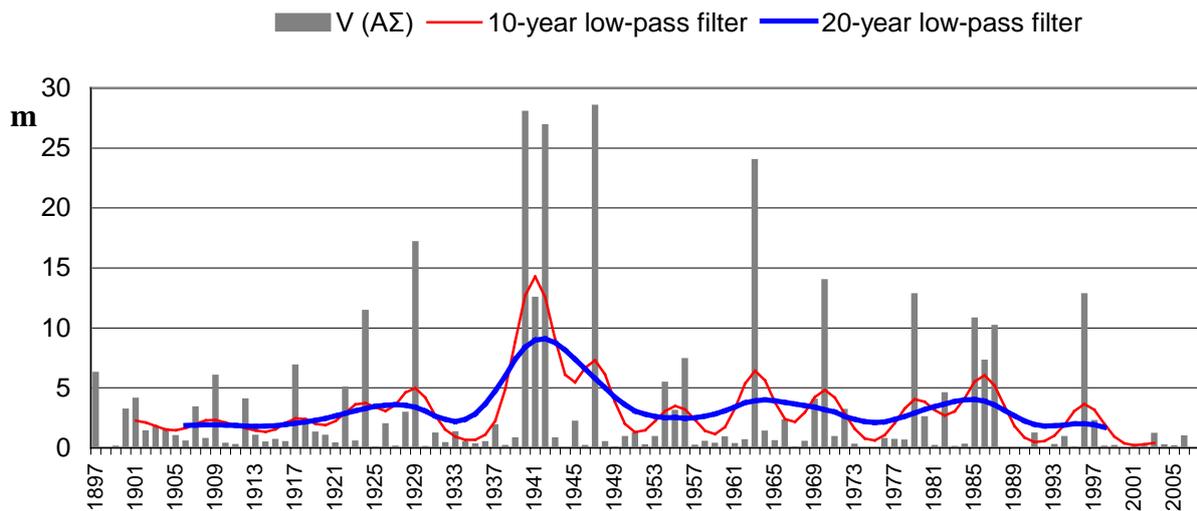


Figure 4. Accumulated areal ice volume for the German Baltic Sea coast in the period 1897 – 2007 (Courtesy of BSH).

In the Danish waters the water temperatures was 2 degrees above the average. In spite of the mild weather, nilas occurs on the 24th and 25th of January inshore at Ringkoebing, Struer and Nakskov.

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