

Lincoln Sea and Nares Strait Outlook, August 2012

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As widely published, Petermann Gletscher in northwest Greenland calved on 16 July with a large tabular iceberg – an ice island – having an area of about 130 square kilometer. By the beginning of August it reached the opening of the Petermann Fjord after having moved about 30 km at an average velocity of 1.5 km per day. It is likely to enter the Hall Basin within the next week depending on wind conditions, to begin drifting southwards through the Kennedy Channel.

The maximum dimension of the ice island is 14 km so it is unable to block for ice transport at Hans Island in the same way as it happened in 1964 with the ice island from the Ward Hunt Ice Shelf, WH-5. However, if the ice island passes the 19-km straits on either side of Hans Island together with a large multiyear floe blockage may occur as observed before.

Recent observations indicate an increased activity of Humboldt Gletscher over a distance of about 30 km south of the active northern part of the glacier. This will cause an increase in the number of icebergs and growlers in the Nares Strait by late August as they cross over the Kane Basin towards the Smith Sound. Already by now, the usual great number of icebergs calved from the active part of the glacier are moving in long southwest oriented rows, now freed from sea ice.

The arch-shaped barrier that formed in the southern Kane Basin in early December 2011 broke down during the last days of June and it was expected that the ice that had been stagnant for seven months subject to very low temperatures would begin movement southwards into the North Water. This only happened during the first days, however. In the Smith Sound and the lower Kane Basin the ice canopy changed only gradually from 80% to 30% until present with floes seeping southwards on the Ellesmere Island side of the Smith Sound. Also, from early July the first-year ice that formed between the thicker floes melted so by the beginning of August we are left with large patches of multiyear floes at concentrations between 20 and 50% all along the Nares Strait including the southern part of the Hall Basin. Due to frequent cloud cover tracking has not been possible but undoubtedly the high frequency of southern winds has played a role - in July southern winds were observed in 43% of the time at the Littleton Island with 46% for Hans Island in the middle of the Kennedy Channel.

Observations of the Lincoln Sea have been prevented by clouds in July and only recent shots through the clouds have shown a great number of melt water ponds in an ice canopy that exhibits only few leads. Presently, only a small fraction of the ice has moved into the northern part of the Robeson Channel. It may take another couple of weeks until substantial drift will take place.

On this background we foresee a moderate flow of ice southwards from all Nares Strait and the Lincoln Sea that might increase when the ice in the Lincoln Sea eventually breaks and drifts into the Robeson Channel. The drift will include that of the Petermann Ice Island and by the end of August a great number of smaller icebergs from Humboldt Gletscher. Our

friends onboard CCGS Henry Larsen are likely to have a great deal of troubles on their way northwards in the Nares Strait and we may disappoint the tourists onboard various cruisers approaching the Nares Strait that they most likely will not reach Hans Island as announced in various brochures. They may eventually reach Kap Alexander at the entrance to the Nares Strait.