

**Stephen Howell and Claude Duguay**  
**2008 Sea Ice Minimum Summary Report**

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**Sea Ice within the Northwest Passage: What Happened in 2008?**

The Western Parry Channel region of the Northwest Passage did not open this year because it was subject to import of multi-year ice (MYI) from the Queen Elizabeth Islands, predominately via Byam-Martin Channel. This was the fundamental difference between 2007 and 2008.

Pre-conditioning is very important because MYI within this region is cyclical in nature. When this region is dominated by MYI that experiences a slower (sometimes not at all) breakup, this limits the drift of MYI from the QEI into the region. However, when the region contains seasonal first-year ice (FYI) that completely breaks up, this provides an area of open water where MYI then drifts into. This process gradually “fills up” this region of the Northwest Passage with MYI over a period of 3-5 years, only to subsequently re-initialize. In 2007, this region contained appreciable amounts of MYI at the start of the melt season restricting the flow of MYI from the QEI. When warm August temperatures rapidly removed the MYI in 2007, import did occur, just later in the season (mid-September to October). In 2008, the region was predominately FYI which allowed MYI from the QEI to immediately enter the region during breakup. Considerable amounts of MYI have since been flushed into this region of the Northwest Passage which may make its clearing difficult in 2009. One facet that continued in 2008 however, was the lack of FYI surviving the melt season within the region.