In July 2017, over 10% of the Larsen C ice shelf calved (broke off) from the Antarctic Peninsula, creating a one trillion ton iceberg the size of Delaware and twice the height of the Statue of Liberty.

**Antarctic ice shelves are:**
- Floating freshwater ice, even when intact
- Barriers to the flow of inland ice from land to the ocean
- Extremely sensitive to climate change

**Icebergs calve naturally from floating ice shelves:**
- Their breakup alone does not contribute to sea level rise.
- Loss of ice shelves destabilizes inland ice; inland ice flows to the ocean up to 5 times faster after a complete ice shelf collapse.
- Flow of inland ice to the ocean raises sea level.

The new iceberg from Larsen C will break into smaller pieces and may be a hazard to ship navigation from Antarctica north to South Georgia Island and the Falklands for years to come.

**The current and future status of the Larsen ice shelf:**
- Progressively deteriorating over the last two decades
  - Larsen A complete collapse (1995)
  - Larsen B complete collapse (2002)
  - Larsen C may continue to deteriorate or it may regrow (2017)
- Many smaller, successive ice shelf collapses have occurred close to Larsen A, B, and C.
- The rapid warming of the Antarctic Peninsula since 1950 points to climate change as the driver of previous ice shelf collapses.

**Broader implications and future scenarios:**

Complete collapse of the Larsen ice shelves and eventual loss of their inland ice:
- Is an important, realistic possibility.
- The timing of a potential Larsen collapse is uncertain, but sea levels would rise 2-4 inches due to loss of inland ice above the Larsen ice shelf.
- Other ice shelves in Antarctic constrain the flow of much much larger ice sheets.

**Ice shelf collapse is one of the least understood threats, but one which may play an outsized role in rapid sea level rise.**

Monitoring Antarctica’s ice shelves is critical to prepare for and mitigate climate change risks.
Sources


Impact of Melt on Ice Sheet Dynamics and Stability (Project MIDAS): http://www.projectmidas.org/

