



Disappearance of Pacific Water in the northwestern Fram Strait

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Nutrient and hydrographic data from four cruises to the area north of the Fram Strait in 1984, 1990, 1997, and 2004 show that substantial changes have occurred lately in the amount of Pacific Water delivered to the Fram Strait and hence further to the Atlantic Ocean. Water of Pacific origin enters the Arctic Ocean through the Bering Strait and exits the Arctic Ocean through the Canadian Archipelago and the Fram Strait. The amount and timing of Pacific Water export through these gates depend on the upper circulation of the Arctic Ocean and react accordingly on changes. The relationship between nitrate and phosphate has been used to distinguish between water of Pacific and Atlantic origin. While the data from 1984, 1990, and 1997 all showed considerable amounts of Pacific Water above the shelf and slope northeast of Greenland, this strong signal had completely vanished in 2004. At present, the Pacific water must therefore either be stored in the Beaufort Gyre and/or drained through the passages of the Canadian Archipelago.