



# Arctic Report Card: Update for 2011

Tracking recent environmental changes

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### What's new in 2011?

**Persistent warming has caused dramatic changes in the Arctic Ocean and the ecosystem it supports.**

Ocean changes include reduced sea ice and freshening of the upper ocean, and impacts such as increased biological productivity at the base of the food chain and loss of habitat for walrus and polar bears.



### 2011 by Chapter

#### Atmosphere ●

Higher temperatures in the Arctic and unusually lower temperatures in some low latitude regions are linked to global shifts in atmospheric wind patterns.

#### Marine Ecosystems ●

Since 1998, biological productivity at the base of the food chain has increased by 20%. Polar bears and walrus continue to lose habitat in Alaskan waters.

#### Hydrology & Terrestrial Cryosphere ●

Continued dramatic loss of ice sheet and glacier mass, reduced snow extent and duration, and increasing permafrost temperatures are linked to higher Arctic air temperatures.

#### Sea Ice & Ocean ●

A shift in the Arctic Ocean system since 2007 is indicated by the decline in ice age and summer extent, and the warmer, fresher upper ocean.

#### Terrestrial Ecosystems ●

Increased "greenness" of tundra vegetation in Eurasia and North America linked to increase in open water and warmer land temperatures in coastal regions.

#### Status

● Significant change  
● Some change  
● Little or no change



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