

Scientists: Dramatic sea ice loss by 2050

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Story Highlights

- Models predict Alaskan summer sea ice will likely shrink dramatically by 2050
- Environmentalist: The situation is 'horrifying' for polar bears
- Less sea ice will also impact commercial fishermen and marine mammals

ANCHORAGE, Alaska (AP) -- An analysis of 20 years' worth of real-life observations supports recent U.N. computer predictions that by 2050, summer sea ice off Alaska's north coast will probably shrink to nearly half the area it covered in the 1980s, federal scientists say.

Such a loss could have profound effects on mammals dependent on the sea ice, such as polar bears, now being considered for threatened species status because of changes in habitat due to global warming. It could also threaten the catch of fishermen.

In the 1980s, sea ice receded 30 to 50 miles each summer off the north coast, said James Overland, a Seattle-based oceanographer for the National Oceanic and Atmospheric Administration.

"Now we're talking about 300 to 500 miles north of Alaska," he said of projections for 2050. That's far past the edge of the highly productive waters over the relatively shallow continental shelf, considered important habitat for polar bears and their main prey, ringed seals, as well as other ice-dependent mammals, such as walrus.

The NOAA researchers reviewed 20 computer scenarios of the effects of warming on sea ice, used by the United Nations' Intergovernmental Panel on Climate Change in its assessment report released this year.

The researchers compared those models with observations from 1979 through 1999, Overland said, and concluded that the summer ice in the Beaufort Sea likely will have diminished by 40 percent, compared with its 1980s area.

The same is likely for the East Siberian-Chukchi Sea region off northwest Alaska and Russia. In



AP PHOTO/FILE

The polar bear is being considered for threatened species status because of changes in habitat.

contrast, Canada's Baffin Bay and Labrador showed little predicted change.

There was less confidence for winter ice, but the models also predict a sea ice loss of more than 40 percent for the Bering Sea off Alaska's west coast, the Sea of Okhotsk east of Siberia and the Barents Sea north of Norway.

The research paper by Overland and Muyin Wang, a NOAA meteorologist, will be published Saturday in *Geophysical Research Letters*, a publication of the American Geophysical Union.

The situation is dire for polar bears, said Kassie Siegel of the Center for Biological Diversity, who wrote the petition seeking federal protection for the animals.

"They're going to drown, they're going to starve, they're going to resort to cannibalism, they're going to become extinct," she said.

As ice recedes, many bears will get stuck on land in summer, where they have virtually no sustainable food source, Siegel said. Some will try and fail to swim to sea ice, she said.

Bears that stay on sea ice will find water beyond the continental shelf to be less productive, she said, and females trying to den on land in the fall will face a long swim.

"It's absolutely horrifying from the polar bear perspective," she said.

Less sea ice also will mean a changing ecosystem for commercial fishermen and marine mammals in the Bering Sea, Overland said.

With sea ice present, many of the nutrients produced in the ocean feed simple plankton that bloom and sink to the ocean floor, providing rich habitat for crabs, clams and the mammals that feed on them, including gray whales and walrus.

"If you don't have the ice around, the productivity stays up closer to the surface of the ocean," Overland said. "You actually have a change in the whole ecosystem from one that depends on the animals that live on the bottom to one that depends on the animals that live in the water column. So you have winners and losers."

That could mean short-term gains for salmon and pollock, he said. But it also could mean that fishermen will have to travel farther north to fish in Alaska's productive waters, and warm-water predators might move north.

The contribution to warming by greenhouse gas emissions likely is set, he said. Emissions stay in the atmosphere for 40 to 50 years before the ocean absorbs them. The amount emitted in the past 20 years and the carbon dioxide put out in the next 20 will linger, Overland said.

"I'm afraid to say, a lot of the images we are going to see in the next 30 to 40 years are pretty much already established," he said.