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# Giant Icebergs, Sea Ice Too Much for Antarctic Penguins



Penguins in Antarctica

A combination of massive grounded icebergs and a record amount of sea ice in Antarctica's Ross Sea has blocked entire colonies of penguins who are trying to return from their feeding grounds in the open sea to their breeding areas. The result is expected to be a significant reduction in regional penguin populations; one colony is in danger of extinction.

A NASA remote-sensing instrument aboard the Terra Earth Observing Satellite is capturing the unfolding ecological disaster affecting hundreds of thousands of penguins at Earth's southern tip.

Images from the Multi-angle Imaging SpectroRadiometer (MISR), a unique remote sensor built and managed by NASA's Jet Propulsion Laboratory in Pasadena, Calif., are documenting the movement of the huge icebergs and spreading sea ice in Antarctica's Ross Sea. A barrier formed by two enormous bergs has altered wind and current patterns in the sea, the satellite image series shows.

The frozen continent's most populous Adelie penguin colonies are affected, according to researchers funded by the National Science Foundation (NSF). The National Science Foundation manages the U.S. Antarctic Program, which coordinates almost all U.S. scientific research in Antarctica.

The numbers of Adelie penguins at Cape Crozier, about 130,000 breeding pairs in most years, "are at the low side" of the normal range, said David Ainley of H.T. Harvey & Associates of San Jose, Calif. The Adelie colony at Cape Crozier is the sixth largest

in the world.

A smaller colony of Adelies at Cape Royds will "fail totally" this year, Ainley said. This is the longest-studied penguin colony in Antarctica. Next to it is a hut erected by Ernest Shackleton during his first Antarctic expedition early in the 20th century. The colony has been monitored annually since 1959 by scientists from Landcare Research New Zealand and, most recently, by Ainley's group.

The colony had been increasing in recent years because sea ice had been dissipating. It is the southernmost Adelie penguin colony in the world, and its existence is now in jeopardy.

A small colony of about 1,200 pairs of Emperor penguins at Cape Crozier failed to raise chicks, according to Gerald Kooyman of the Scripps Institution of Oceanography. The Emperor Penguin colony is one of the smallest for that species but was the first discovered. Members of explorer Robert Falcon Scott's expedition first visited the colony at the beginning of the 20th century.

The birds abandoned efforts to breed when the icebergs, pushing southward, destroyed and closed off their usual breeding area, Kooyman believes. Those who did breed and attempted to hatch their eggs or raise their chicks in the area failed during incubation or soon after hatching.

Two massive icebergs, designated B-15A and C-16, broke away from the Ross Ice Shelf in March 2000 and migrated west to a point northeast of McMurdo Sound. Iceberg B-15A is 20 nautical miles wide and 47 nautical miles long. Berg C-16 is roughly 10 nautical miles wide by 30 nautical miles long.

In addition, earlier this season, sea ice in the region of the main U.S. Antarctic facility, McMurdo Station, expanded from its normal distance of 15 to 20 nautical miles north of the base to roughly 80 nautical miles. Recent storms have reduced the extent of this ice so that it now extends 33 nautical miles from McMurdo.

The extensive sea ice has increased the distance between the breeding colonies and food sources in the open sea. The birds must now walk rather than swim to their colonies. Their average walking speed is roughly 0.6 to 1.2 miles per hour. They can swim at an average of 4.3 to 4.9 miles per hour.

Researchers supported by the U.S. Antarctic Program have banded Adelie penguins at Cape Crozier and elsewhere on Ross Island with individual numbers, allowing them to be identified at a later date. The penguins' response to the icebergs will be tracked by scientists alert for new insights into the biology, resolve, and resilience of this species.

No instrument like the Multi-angle Imaging SpectroRadiometer has flown in space before the Terra Earth Observing Satellite was launched Dec. 18, 1999.

Most satellite instruments look only straight down or toward the edge of the planet. But MISR views the sunlit Earth simultaneously at nine widely spaced angles, collecting global images with high spatial detail in four colors at every angle. The change in reflection at different view angles affords the means to distinguish different types of atmospheric particles, cloud forms, and land surface covers.

On Feb. 24, 2000, Terra began collecting what will ultimately become a new, 15-year global data set on which to base scientific investigations about the Earth.

Source: ENN

## **Australia Moves Against Japanese Whalers**

CANBERRA, Australia - Australia has attempted to expel whaling ships from Antarctic waters it claims as Australian, after its resupply ship found the bulk of the Japanese whaling fleet there. The Australian vessel Aurora Australis made the attempt when it found the the chaser Kyo Maru Number One and the factory ship Nisshin Maru off the West Ice Shelf early on New Year's Day.

A third unidentified ship from the five vessel Japanese fleet was sighted about eight nautical miles distant, according to a spokesman for the Australian government's Antarctic Division.

The Japanese vessels were located at around 64.02 south and 82.13 east, the division said. This placed them just inside a 200 nautical mile exclusive economic zone reaching out from the coastline of the Australian Antarctic Territory.



Australian research vessel Aurora Australis (Photo courtesy University

In a series of radio exchanges, Aurora established the whalers were in no difficulty, and then asked them to leave the area, the spokesman said. He was unable to provide any detail on the Japanese response. The incident highlights long standing tensions between the two countries over whaling.

Commercial whaling has been globally banned since 1986 by the International Whaling Commission (IWC). Japan's whaling program that it calls scientific and claims is legal

of Delaware, College of Marine Studies)

under IWC rules, provides for a self-imposed quota of up to 440 minke whale stocks annually,

and every second year it concentrates this effort on the waters of eastern Antarctica. The International Whaling Commission has repeatedly requested that the Japanese government stop this socalled research whaling.

Under Australian law, the killing of whales is forbidden, with heavy penalties for any Australian found to be involved. But its claim of an EEZ in Antarctica is little recognized by the international community.

In 1992 the Australian government lodged a diplomatic protest with Japan when three ships from the fleet came close to the coastline chasing whales near Davis Station in Prydz Bay. Since then, no sightings had been reported by Australian government expeditions in the area.



A minke whale harpooned by Japanese whalers is hauled to the whaling ship. Southern Ocean 2001 (Photo courtesy Greenpeace)

the bay for almost a month. The chance discovery came a fortnight after the Greenpeace vessel Arctic Sunrise lost contact with the Japanese fleet on December 23. Expeditioners from Greenpeace had carried out a series of

The Aurora Australis was

travelling from Casey Station to Prydz Bay when it made the discovery. It is on its way to break free the other Australian supply ship, Polarbird, which has been beset in heavy ice in

actions against the Japanese whaling shortly after they found the fleet 10 days earlier. Greenpeace congratulated the Australian Government for its

stand against the whalers.

Source: ENS

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## **China Blamed For Over-Fishing Errors**

The world's stock of fish may be much lower than previously thought, because of unreliable



Chinese officials vastly overstated their fish catches. Photo: BBC

figures about the number of fish being caught, scientists have warned.

They named China as the culprit, saying officials hoping to impress their political leaders

had inflated the size of catches by Chinese fishermen despite the fact that some of the seas around China had long been classified as over-exploited.

They say analysts using these figures concluded that fish stocks were healthier than they really were and, as a result, had seriously underestimated the effects of over-fishing.

Fish provide a substantial portion of the world's protein needs and the study - by Canadian scientists Reg Watson and Daniel Pauly - says continued over-fishing threatens global food security.

#### Chinese Puzzle

The only authority to keep track of worldwide fishing, the Food and Agriculture Organisation (FAO) of the United Nations, reports that global fish catches amounted to around 80-million tonnes at the start of the 1990s and generally rose throughout the decade.

The scientists, from Canada's University of British Columbia (UBC), constructed a mathematical model that predicts catch size in different ocean regions. Our science reporter, Helen Sewell, says elsewhere in the world the figures produced by the model matched the actual catches fairly well. However, in the case of China, the stated catch figures and the modelled figures were far apart.

## **Promotion Strategy**

The scientists say this means that China could not have been catching as many fish as it claimed. The researchers say this led the FAO to believe that global fish catches had increased, whereas in fact they had actually been dwindling.

A spokesman at the Chinese fisheries department said staff promotions used to be made on the basis of catch figures but the department had ended the practice two years ago. He said the Chinese Government was now paying more attention to the preservation of resources.

Source: BBC

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