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State of Antarctic Penguins 2020 Report

State of Antarctic Penguins 2020 Report

Information Paper submitted by SCAR

Summary

Oceanites's *State of Antarctic Penguins 2020* report is available at:
<https://oceanites.org/wp-content/uploads/2020/10/SOAP-2020.pdf>

The report summarizes the status — population size and population trends — of Antarctica's five penguin species, continent-wide and in key regions.

Introduction

Oceanites, Inc. is a nonprofit scientific and educational organization founded in 1987 (<https://oceanites.org>). Its mission is to advance science-based conservation and to increase the awareness of climate change, its potential impacts, and climate change adaptation through the lens of Antarctic penguins.

Since 1994, for 27 consecutive field seasons, its Antarctic Site Inventory has been monitoring and analyzing penguin and seabird population changes across the entirety of the vastly warmed Antarctic Peninsula, and is focused on distinguishing the direct and interactive effects of climate change, fishing, tourism, and other human activities on the Antarctic Peninsula ecosystem.

In 2016, the Mapping Application for Penguin Populations and Projected Dynamics (MAPPPD) launched (<http://www.penguinmap.com>). MAPPPD is an open access, decision-support tool developed for Oceanites that assembles Antarctic penguin population data and makes such data easily and publicly available. MAPPPD integrates expert biological field surveys, satellite imagery analyses, and citizen science and, over the past five years, has quickly become a key research tool used throughout the Antarctic community and a primary resource for scientific and other information about Antarctic penguins.

This continent-wide penguin population database is continually being updated and is utilized by Oceanites to generate its annual *State of Antarctic Penguins* reports. As in previous reports, this most recent report encourages those who have not yet contributed data to do so.

State of Antarctic Penguins Report 2020

The latest *State of Antarctic Penguins 2020* report ("*SOAP 2020*") comprehensively summarizes the present status — population size and population trends — of Antarctica's five penguin species, outlining the population size and trends for the continent and in key regions that have been the focus of conservation management efforts by CCAMLR — the Antarctic Peninsula (CCAMLR Areas 48.1, 48.2 and 48.5), the Ross Sea (CCAMLR Areas 88.1 and 88.2), and Eastern Antarctica (CCAMLR Areas 58.4.1 and 58.4.2).¹

SOAP 2020 uses the most current scientific data in the Antarctic continent-wide penguin MAPPPD database that Oceanites maintains, which now contains 4,010 records from 130 data sources of on-the-ground colony counts and satellite photo analyses. This year, the number of records in MAPPPD has increased by 7% and the number of data sources by 12%.

The report and its underlying database provide evidence to assist all Antarctic stakeholders in their deliberations and activities: decision-makers and governments, scientists, NGOs, the private sector including fishing and tourism operators, and concerned citizens throughout the world. The goal is to make available the latest, most accurate population data about Antarctic penguins; both continent-wide and regionally, and of the latest trends in such numbers.

¹ Naveen R., Humphries G.R.W, and Robbins, A.M.C. 2020. *State of Antarctic Penguins Report 2020*. Oceanites, Inc., Chevy Chase, MD, USA.

This most recent report and previous reports may be accessed via the Oceanites website (<https://oceanites.org/future-of-antarctica/penguin-conservation/state-of-antarctic-penguins-reports/>), either online or through mobile devices.

Key Report Findings

The report notes population declines in two Antarctic penguin species, with new and critical data documenting a further chinstrap penguin population decline in the Antarctic Peninsula (specifically, at Elephant Island).

Per data available of October 2020, the five Antarctic penguin species totalled 5.77 million breeding pairs nesting at 698 sites across the entire Antarctic continent. Oceanites greatly appreciates the growing use of our open-sourced, publicly available data repository by the entire Antarctic community — and again, those who have not yet contributed to, or utilized MAPPPD, are encouraged to do so. These totals will be updated when the next *State of Antarctic Penguins* report is released in October 2021.

For these reports, per the Antarctic Treaty, Antarctica is defined as all of the land and ice shelves south of 60°S latitude, which excludes penguins nesting in the south Atlantic Ocean and the South Sandwich Islands. Also, note that in the table below, “N” refers to the number of nesting pairs.

<u>ANTARCTICA N TOTALS</u>	<u>N Oct 2020</u>	<u>N 2019</u>	<u>N CHANGE</u>	<u>% CHANGE</u>
EMPE (Emperor)	238,340	238,000	340	0.14%
ADPE (Adélie)	4,001,631	4,211,530	-209,899	-4.98%
CHPE (Chinstrap)	1,395,774	1,563,119	-167,345	-10.71%
GEPE (Gentoo)	122,549	116,083	6,466	+5.57%
MCPE (Macaroni)	13,249	13,249	0 ²	0.00%
TOTAL	5,771,543	6,141,981	-370,438	-6.03%

Oceanites continues to closely track the significant changes in the Antarctic Peninsula, where Adélie (*Pygoscelis adeliae*) and chinstrap (*P. antarctica*) penguins have declined and gentoo (*P. papua*) penguins have increased.

Oceanites’ 2016 Future of Antarctica Forum noted the key roles of Antarctic science, management, and diplomacy in addressing climate change; and specific concern about overall changes across the Antarctic and Southern Oceans, the notable warming trend that has recently occurred in the western Antarctic Peninsula, and its implications for the Antarctic ecosystem (<https://oceanites.org/wp-content/uploads/2021/03/FOA-Forum-REPORT.pdf>).

The recent, comprehensive survey work at the Elephant Island and Low Island vicinity of the Antarctic Peninsula have filled some critical gaps for chinstrap penguins, but a number of key, under-surveyed areas should be considered high priorities for future data collection; for example, large chinstrap colonies in the South Orkney Islands, and Cape Garry (Low Island). With regard to Adélie penguins, it would be helpful to have updated census data from Marguerite Bay south to the Red Rock Ridge and the Rhyolite Islands, which would further inform the differences in trends we have noticed north and south of Marguerite Bay.

Oceanites collaborators, as well as many other researchers, are focused on distinguishing the interactive effects of climate change vis-à-vis human activities and other causes that might definitively explain penguin population changes.

These analyses continue and are examining a suite of potential causal factors, including: a potentially shifting or shrinking krill stock; the amount of krill fishing and higher exposure to fishing interference during the penguin breeding season; competition for krill with whales and seals; penguins’ winter foraging ranges and other nonbreeding season impacts; and rising temperatures and retreating sea ice due to global warming.

² Insufficient recent survey data to allow for an updated trend assessment.

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