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Update on High Pathogenicity Avian Influenza in Antarctica

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Working Paper submitted by SCAR, COMNAP, IAATO and CCAMLR

Summary

This paper provides an update on the current status, known impacts and community actions in response to High Pathogenicity Avian Influenza (HPAI H5N1), also known as 'bird flu', in Antarctica. The first confirmed cases in the Antarctic Treaty Area were jointly reported by the national Antarctic programmes of Argentina and Spain on 24 February 2024. There are clear indications that the virus was brought to the Antarctic through natural migration and not through direct human activity or interactions with wildlife. Heightened vigilance of operators, encompassing national Antarctic programmes and tourism operators, looking for signs of the presence of HPAI in wildlife facilitated the reporting of suspected cases during the 2023/24 Antarctic summer season. At the time of writing (April 2024), confirmed cases have been recorded at seven sites, and suspected cases recorded at a further seven sites in the Antarctic Treaty Area. With HPAI confirmed in the northern Antarctic Peninsula region, the risk remains high for intra-regional spread, infection to multiple species, and continuing impact to Antarctic wildlife. SCAR, COMNAP and IAATO recommend that the Parties:

1. Ensure that biosecurity guidelines and procedures are robustly implemented, to eliminate or mitigate the risk to humans, as well as the risk of spreading the disease within Antarctica through human activities;
2. Encourage continued vigilance and monitoring, as well as sample collection and testing where necessary expertise is available and permitted;
3. Continue to report and share information on suspected and confirmed cases (including through the SCAR Antarctic Wildlife Health Network (AWHN) HPAI Monitoring Project), to support collaboration, inform decision-making, and to improve scientific understanding of the spread and impact of the disease.

Background

In 2022, ahead of the 2022/23 Antarctic season, the SCAR AWHN confirmed that HPAI was likely to arrive in the Antarctic region by way of migrating species and could have a significant impact on local wildlife. In response to the heightened risk, COMNAP and IAATO developed guidance for the 2022/23 season (ATCM XLV, IP101). While no cases of HPAI were suspected or confirmed during that season, SCAR, IAATO and COMNAP informed the CEP in 2023 that the risk of the virus arriving for the first time in the Antarctic Treaty Area remained high for the 2023/24 season (ATCM XLV, IP101).

SCAR was requested to provide updates to the CEP and the ATCM on the potential impacts of HPAI to native birds and mammals in Antarctica. Parties were encouraged to share information on suspected and confirmed cases of HPAI in Antarctica, and welcomed ongoing advice from SCAR, COMNAP and IAATO on preventing the introduction and spread of the disease (ATCM XLV Report, paragraphs 96 and 97).

HPAI H5N1 has caused high levels of mortality in wild bird and mammal populations worldwide, particularly affecting seabirds in the northern hemisphere, around the Atlantic and Pacific Oceans and southern Africa since 2022. Many seabird colonies have experienced significant losses with up to 50–60% mortality rates (e.g. great skua and gannets). In 2023, cases were detected in South America, including in penguins, sea lions and elephant seals.

Oceania (Australia and New Zealand) and Antarctica were the only continents free of the disease. In October 2023, the first case was confirmed in the Subantarctic (Bird Island).

Summary of Community Actions to Date

The response to the heightened risk was a community effort with actions taken by SCAR (see SCAR ATCM XLVI IP165 *SCAR response to risk of High Pathogenicity Avian Influenza in Antarctica*), COMNAP (see COMNAP ATCM XLVI IP004 *Actions in Response to Heightened Risk of High Pathogenicity Avian Influenza (HPAI) in Antarctica*), IAATO (see ATCM XLVI IP150 *IAATO Operator High Pathogenicity Avian Influenza Response*) and CCAMLR to inform their memberships. The best available science was used to jointly develop and implement protocols to ensure biosecurity procedures were sufficiently robust to minimise the inadvertent spread of the disease by human activity and to protect human life. This partnership continues to inform the development of practical guidance for the 2024/25 Antarctic season.

An Expert Workshop was convened by the SCAR AWHN at the SCAR Biology Symposium 2023 (31 July–4 August, Christchurch, New Zealand), and attended by many members of the community including representatives from SCAR, COMNAP and IAATO. The workshop was an important opportunity to share information with the community on the risk assessment conducted by SCAR AWHN and to discuss recommendations for the upcoming season.

In anticipation of the 2023/24 Antarctic summer season, COMNAP and IAATO each prepared guidance for their memberships, and an HPAI Monitoring Project was established through the SCAR AWHN to collate detailed scientific information on suspected and confirmed cases.

To facilitate rapid communication, WhatsApp chat groups were administered by IAATO, including one for the Antarctic Peninsula region, as a means to share information on suspected cases with anyone that wished to join the group. A high-level HPAI Forum group was also established where representatives from CCAMLR, COMNAP, IAATO, SCAR and from the Joint (COMNAP/SCAR) Expert Group on Human Biology & Medicine (JEGHBM) could meet (virtually) regularly and as required under urgency as the situation began to develop and as new information was received. This allowed for real-time review of procedures and protocols and enabled drafting of joint communiques for the community, media and public.

The JEGHBM undertook an infectious disease review and presented its findings to the COMNAP Annual General Meeting (AGM) 35 (July 2023). It provided key recommendations in support of preventative steps to stop human infection including that “all stakeholders are recommended to develop a medical response plan and model which is appropriate to the environment in which contact with HPAI could be reasonably expected to occur.”

Impact on Antarctic wildlife

The first cases of HPAI were confirmed by PCR (polymerase chain reaction) test in the Subantarctic on 23 October 2023 (brown skua and southern fulmar). The first suspected cases in Antarctica were recorded at Orcadas Station (Laurie Island) in December 2023, with the first case confirmed by PCR at Primavera Station on 24 February 2024.

At the time of writing (April 2024), confirmed cases have been recorded at seven sites, and suspected cases recorded at a further seven sites in the Antarctic Treaty Area. The reports are likely to be an under-representation of actual cases since the database relies on reports from those operating in the Antarctic, and these operators do not visit all areas with wildlife. There is also no information on the mortality of seabirds and mammals at sea.

Skuas appear to be the most affected species in Antarctica, however individuals of other species including kelp gulls, gentoo and Adélie penguins and Antarctic fur seals have also been observed showing likely signs of the disease. Signs observed in seabirds include lack of balance

and coordination, and seizures. In marine mammals, symptoms include seizures, excessive mucus production and respiratory distress.

The full impact on Antarctic wildlife is not yet understood. Little is currently known about the way the virus affects Antarctic species, and the mechanisms of transmission between species and locations. Data are currently limited because of the recent arrival of the disease, the practical constraints of monitoring across large areas and where there is no human presence, and the limited ability to undertake sampling and testing. Genetic assessment of the virus obtained from the Subantarctic cases indicated spread from South America, likely through movement of migratory birds (Bennison et al., 2023). There are clear indications that the virus was brought to Antarctica through natural migration and not through direct human activity or interactions with wildlife.

Implications for human activities in Antarctica

Visual monitoring is continuing in the Antarctic regions where and when national Antarctic programs and tourism operators are active. To date, sample collection and testing outside of the Antarctic Peninsula region has not indicated that HPAI is present elsewhere in the Antarctic Treaty Area. Globally, there are no sustained cases of human-to-human transmission and the current risk to humans in Antarctica remains low, especially with current biosecurity protocols in place (JEGHBM, 2023).

The SCAR AWHN has developed a practical guide for those interacting with Antarctic wildlife, containing background information and advice on identifying suspected cases, and on reducing additional risk from direct transfer of the virus from human activity in the Antarctic region, for example through further enhancing biosecurity procedures (Dewar et al., 2022).

COMNAP Guidance[1] is available and is regularly reviewed based on circumstances. National Antarctic programs have developed their own protocols based on SCAR and COMNAP guidance, and deployment points to the Antarctic Treaty Area are urged to ensure biosecurity procedures are reviewed and updated in response to the heightened risk HPAI presents.

CCAMLR developed advice[2] for vessel crew and observers for the handling and disposal of live or dead birds landed or discovered on a vessel and encouraged reporting of any suspected cases to national authorities.

In addition to IAATO's robust biosecurity procedures already in place to protect Antarctica from pathogens and non-native species, IAATO continued working with SCAR and COMNAP to enhance its HPAI protocols[3] during the 2023/24 season. These included mandatory pre-landing assessments, cancelling landings at sites where wildlife mortality and/or behaviour indicated avian influenza could be present, and maintaining swift reporting and communication with the broader Antarctic community.

Monitoring and reporting

Monitoring and reporting of suspected and confirmed cases is critical to further understand the impact of HPAI on Antarctic wildlife, how it spreads, mutates, and where it might present next (Banyard et al., 2024).

As part of its HPAI Monitoring Project, the SCAR AWHN established a HPAI database to record information submitted to the AWHN on the spread of HPAI outbreaks in the sub-

[1] https://www.comnap.aq/heightened-risk-of-hpai-in-antarctica
[2] https://www.ccamlr.org/en/document/science/hpai-guidelines-vessels
[3] https://iaato.org/iaato-2022-23-biosecurity-protocols-regarding-avian-influenza/

Antarctic and Antarctica. This is a central reporting database to collate detailed information on all suspected and confirmed outbreaks throughout the Subantarctic and Antarctica and relies on the community to submit reports. Reports are displayed on a GIS-based map available via the SCAR website[4]. This project will continue to be supported for reporting in the 2024/25 Antarctic season. The SCAR AWHN has also provided updates on current cases and recommendations via its website and regular bulletins.

Outlook and Recommendations

In areas where confirmed cases have been recorded, there is a high likelihood that HPAI will remain present in that region of the Antarctic Treaty Area over the coming winter. Now that HPAI has arrived in the Antarctic region the risk of high mortality in Antarctic species is expected as species begin to return to the Peninsula to breed at the start of the 2024/25 austral summer.

SCAR, COMNAP and IAATO recommend that the Parties:

1. Ensure that biosecurity guidelines and procedures are robustly implemented, to eliminate or mitigate the risk to humans, as well as the risk of spreading the disease within Antarctica through human activities;
2. Encourage continued vigilance and monitoring, as well as sample collection and testing where necessary expertise is available and permitted;
3. Continue to report and share information on suspected and confirmed cases (including through the SCAR AWHN HPAI Monitoring Project), to support collaboration, inform decision-making, and to improve scientific understanding of the spread and impact of the disease.

Further information

Follow the **latest information from the SCAR Antarctic Wildlife Health Working Group** at: https://scar.org/library-data/avian-flu.

Follow the **latest information from COMNAP** at: https://www.comnap.aq/heightened-risk-of-hpai-in-antarctica.

Follow the **latest information from IAATO** at: https://iaato.org/iaato-2022-23-biosecurity-protocols-regarding-avian-influenza/

Follow the **latest global information** at: https://www.woah.org/en/disease/avian-influenza/.

References

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[4] https://scar.org/library-data/avian-flu

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