Agreement on the Conservation of Albatrosses and Petrels

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The southward spread of high-pathogenicity H5N1 avian influenza and its implications for ACAP species

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Attachment*:* Uhart, M.; Vanstreels, R.E.T; Serafini, P.P. 2022. Guidelines for working with albatrosses and petrels during the on-going high pathogenicity H5N1 avian influenza outbreak.

https://www.acap.aq/resources/acap-conservation-guidelines/4084-guidelines-for-working-with-albatrosses-and-petrels-during-h5n1-avian-influenza-outbreak/file

SUMMARY

The current outbreak of high-pathogenicity H5N1 avian influenza (HPAI) has raised concern due to its unusual impact on wild seabirds in southern Africa, Europe and North America. The recent southward spread of the virus in the Americas was accompanied by mass mortalities of seabirds and marine mammals across several countries, and now the virus has arrived to Tierra del Fuego, the southern tip of the continent. The rapid spread of HPAI and its unprecedented impacts on seabird populations raise concerns about potential risks for ACAP species. The 2023/2024 austral summer may present the greatest potential for HPAI outbreaks among Procellariiformes populations when most of these birds will congregate to breed at colonies in the Southern Hemisphere. Furthermore, all sites where ACAP species congregate may be at risk of exposure via migratory birds or accidental introduction by human activities (e.g. ringers, researchers and tourism) and should thus be in a state of alertness. This paper aims to increase outreach and to encourage input from PaCSWG to review and update recommendations presented by ACAP in July 2022 regarding guidelines for working with albatrosses and petrels during the on-going high pathogenicity H5N1 avian influenza outbreak. Additionally, the creation of a Task Force within PaCSWG to address HPAI is proposed.

1. UPDATE ON THE CURRENT SPREAD OF HPAI AND ASSOCIATED RISKS FOR ACAP SPECIES

Two Procellariiformes species were reported to have been affected by the current spread of High Pathogenicity Avian Influenza (HPAI), 2016-2023: Manx Shearwater (*Puffinus puffinus*) and Northern Fulmar (*Fulmarus glacialis*).[1] There is no further information available about the number of individuals affected and whether HPAI was implicated as a cause of sickness or death in these birds.

Previously, only Low Pathogenicity Avian Influenza (LPAI) strains had been detected in Procellariiformes birds. Asymptomatic LPAI infections had been documented by studies on Southern Giant Petrel (*Macronectes giganteus*) from the South Shetland Islands[2,3] and the Antarctic Peninsula[4], Wedge-tailed Shearwater (*Ardenna pacifica*) from Australia, Great Shearwater (*Ardenna gravis*) from Canada, and Sooty Shearwater (*Ardenna grisea*) from the USA.[5,6,7,8] Due to the limited Avian Influenza Virus (AIV) surveillance effort for most Procellariiformes (albatrosses, gadfly petrels, fulmars, prions, storm petrels, diving petrels, etc.), the lack of AIV detection in these species does not imply they are not susceptible to infection.

During the austral summer of 2022/2023, the spread of HPAI has caused important impacts on seabird communities in Central and South America. Thus far, the worst impacts to seabird communities occurred in Peru, where an estimated 50,000 to 120,000 seabirds died from November 2022 to March 2023; the most heavily affected species were Peruvian pelicans (*Pelecanus thagus*), Peruvian booby (*Sula variegata*) and Guanay cormorant (*Phalacrocorax bougainvillii*). In Chile, nearly 800 seabird deaths were recorded, with Humboldt penguins (*Spheniscus humboldti*) being most affected. Smaller numbers (hundreds) of brown pelicans (*Pelecanus occidentalis*) were also affected in Honduras, Costa Rica and Venezuela.

HPAI was not reported thus far in the Galapagos Islands, in spite of the detection of the virus in poultry in mainland Ecuador. Thus far there are no reports of unexplained mortalities of Procellariiformes species that breed in Peru and northern/central Chile, namely the Ringed Storm Petrel (*Hydrobates hornbyi*) and the Peruvian Diving Petrel (*Pelecanoides garnotii*), or of Procellariiformes species that breed on the Galapagos Islands, namely the Waved Albatross (*Phoebastria irrorata*, an ACAP species) and the Galápagos Petrel (*Pterodroma phaeopygia*).

HPAI has continued to spread southwards in mainland South America in the first trimester of 2023. On 22 March, Argentinean authorities reported on the detection of the virus in poultry at Rawson (43°18'S 65°06'W), approximately 190 km north-northeast from the Southern Giant Petrel colony at Isla Arce (45°00'S 65°30'W). On 11 April, Chilean authorities reported on the detection of the virus in swans at Tierra del Fuego, the southernmost tip of the continent. The site where the virus was detected, Laguna Santa María (53°23'S 70°20'W), is only 145 km northwest to the Black-browed Albatross (*Thalassarche melanophris*) colony at Isla Albatros (54°27'20"S 69°01'12"W). Furthermore, it is worth highlighting that these reports place the

[1] European Food Safety Authority et al. (2023). EFSA Journal, https://doi.org/10.2903/j.efsa.2023.7917
[2] Petersen et al. (2015). INCT-APA Annual Activity Report 2013, 35–38.
[3] Petersen et al. (2017). Marine Biology, 164, 62.
[4] Baumeister et al. (2004). International Congress Series, 1263, 737–740.
[5] Downie & Laver (1973). Virology, 51, 259–269.
[6] Downie et al. (1977). Australian Journal of Experimental Biology and Medical Science, 55, 635–643.
[7] Wille et al. (2014). Journal of Wildlife Diseases, 50, 98–103.
[8] Lang et al. (2016). Avian Diseases, 60, 378–386.

HPAI virus at a distance of *c.* 650 km from large breeding colonies of albatrosses and petrels at the Falkland Islands/Islas Malvinas, *c.* 1,200 km from the South Shetland Islands and the Antarctic Peninsula, and *c.* 2,150 km from South Georgia[9]. Considering the circumpolar distribution of many Procellariiformes species, the arrival of HPAI to the southern tip of South America is acutely concerning as it implies an imminent risk of the virus spreading to ACAP species populations throughout the Southern Ocean.

2. REQUEST FOR INPUT AND ENDORSEMENT OF THE "GUIDELINES FOR WORKING WITH ALBATROSSES AND PETRELS DURING THE ON-GOING HIGH PATHOGENICITY H5N1 AVIAN INFLUENZA OUTBREAK"

In July 2022, ACAP published a brief document titled "Guidelines for working with albatrosses and petrels during the on-going high pathogenicity H5N1 avian influenza outbreak" (4 pages), which is available at the "Resources" section of the ACAP website and is provided as an attachment to this Information Paper. The document provides recommendations for researchers conducting fieldwork with Procellariiformes birds, aiming to reduce the risk of accidentally spreading the virus among seabird populations. It would be valuable if PaCSWG members could circulate this document among experts of their countries, seeking their input to update and improve on these guidelines, taking advantage from the experience of professionals that were directly involved in the response to H5N1 outbreaks in seabird populations or in the development of national or regional action plans.

3. BENEFITS OF A POTENTIAL HPAI RISK MANAGEMENT TASK FORCE WITHIN PACSWG

A sub-group in PaCSWG formed by invited experts from several countries would be most beneficial at compiling up-to-date information, communicating the risk to decision makers and stakeholders within ACAP, and preparing further documents with specific practical recommendations for risk management. A Task Force could aim to address and release further guidelines to minimize possible impacts of this virus on Procellariiformes and other activities within the scope of ACAP. The group would be formed up by specialists appointed by the PaCSWG. The advantage of forming a group under ACAP scope would be the specific expertise in ecological relationships and epidemiological risks in colonies that have been monitored by ACAP Parties for decades. This group could interact and complement the recommendations of other forums such as those under the World Organisation for Animal Health (WOAH), among others, with specificities for ACAP species. The discussion under PaCSWG could further address topics that have not been discussed in-depth and deal with field management actions that still need guidance. Among those, there is an increasing need to discuss caveats on logistics and legislation for export and transport of samples from remote sites (e.g. Antarctica and Sub-Antarctic islands) to locations where laboratory infrastructure exists.

[9] A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Islas Malvinas), South Georgia and the South Sandwich Islands (Islas Georgias del Sur e Islas Sándwich del Sur) and the surrounding maritime areas

It is also crucial to understand the existing contingency plans among Parties and how HPAI response would be performed within ACAP species colonies, as well as understanding how HPAI might influence monitoring on-board activities and bycatch assessment by Parties. How to cope with restrictions imposed on research and on-board monitoring due to the occurrence of HPAI is of great relevance and a potential issue to be dealt with by this Task Force. Furthermore, understanding the latest procedures and supporting ACAP Parties' decisions on this matter would bring alignment and implications also for topics being addressed within the scope of the Seabird Bycatch Working Group (SBWG).

The Task Force could further develop discussion of best practices and recommendations for euthanasia of sick or moribund animals, destination of carcasses and sick animals, biosecurity measures to disembark on islands and access seabird colonies, if necessary. And how restrictions on colony access would affect these activities, or even impact the research and population monitoring that takes place over the long term for ACAP species.

4. CONCLUSION

The recent spread of high-pathogenicity H5N1 avian influenza has had drastic impacts for seabird communities, and its arrival in South America and continued propagation towards the Southern Ocean and Antarctica is acutely concerning for ACAP species. Although each country has its own regulations, contingency plans and specific recommendations for dealing with HPAI and wild birds in their territories, it may be useful to further collectively discuss within ACAP Parties jurisdictions some practical, grounded recommendations, on how to deal with these epizootic events. A Task Force on this specific matter could strengthen Parties' response and minimize eventual impacts for ACAP species.

Guidelines for working with albatrosses and petrels during the on-going high-pathogenicity H5N1 avian influenza outbreak

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What is avian influenza?

Avian influenza is a disease caused by *Influenza A virus* (AI). AI can infect birds and mammals, including humans, and is transmitted effectively through respiratory aerosols, faeces and bodily fluids, whether directly (host-to-host proximity) or indirectly (contaminated water or objects).

Aquatic birds, especially Anseriformes (ducks, teals, etc.) and Charadriiformes (shorebirds, gulls, terns, skuas, auks, etc.), are considered natural hosts of AI, and most infections are asymptomatic. However, virulent AI strains may occasionally emerge and cause outbreaks with high mortality. AI strains are divided into subtypes based on two surface proteins: hemagglutinin (subtypes H1–H18) and neuraminidase (subtypes N1–N11). Some (but not all) strains of the subtypes H5 and H7 may cause severe disease to poultry and are referred to as High-Pathogenicity Avian Influenza (HPAI), and in some cases these strains can also cause significant disease to wild birds, and potentially also to mammals including humans.

Current knowledge about avian influenza in Procellariiformes

The only ACAP-listed species in which AI infection has been recorded is the Southern Giant Petrel (*Macronectes giganteus*), in which natural exposure to low-pathogenicity AI strains has been demonstrated through virus isolation (subtype H4N7) at the South Shetland Islands[1,2] and antibody detection (subtypes H1 and H3) at the Antarctic Peninsula.[3] All cases were apparently healthy individuals. AI has also been occasionally detected in apparently healthy shearwaters, specifically in Wedge-tailed Shearwater (*Ardenna pacifica*) from Australia, Great

[1] Petersen et al. (2015). INCT-APA Annual Activity Report 2013, 35–38.
[2] Petersen et al. (2017). Marine Biology, 164, 62.
[3] Baumeister et al. (2004). International Congress Series, 1263, 737–740.

Shearwater (*Ardenna gravis*) from Canada, and Sooty Shearwater (*Ardenna grisea*) from the USA.[4,5,6,7] Due to the limited AI surveillance effort for most Procellariiformes (albatrosses, gadfly petrels, fulmars, prions, storm petrels, diving petrels, etc.), the lack of AI detection in these species does not imply they are not susceptible to infection, even though clinical disease is rare in absence of high-pathogenicity strains.

Impacts of the on-going high-pathogenicity H5N1 avian influenza outbreak on wild birds

Although most AI infections are not pathogenic to seabirds, the current outbreak of HPAI strains of the subtype H5N1 has raised concern due to its unusual impact on wild birds, including seabirds. The most recent wave of HPAI spread begun in October 2021, and to date over 1,050 outbreaks have been recorded in the northern hemisphere. The impacts thus far include the deaths of 18,000 cormorants in South Africa (Oct–Dec 2021), 300 cranes in India (Nov 2021), 8,000 geese in the UK (Nov 2021–Jan 2022), hundreds of shorebirds in the Netherlands (Dec 2021), 8,000 cranes in Israel (Jan 2022), 760 pelicans in Senegal (Jan–Feb 2022), 570 pelicans in Greece (Mar 2022), hundreds of cormorants and 1,500 terns in the USA (Apr–Jun 2022), thousands of gannets and hundreds of skuas in the UK (Jun 2022), and thousands of gannets in Canada (Jun 2022). Additionally, there are reports of these H5N1 strains infecting wild mammals such as foxes, otters, and seals, which is relatively unusual.

Although there are no reports of mortality of Procellariiformes attributable to HPAI, the rapid spread of the currently prevalent H5N1 strains in the northern hemisphere and their unprecedented impacts on seabird populations raise the concern of potential risks for ACAP-listed species. The 2022/2023 austral summer may present the greatest potential for AI outbreaks among seabird populations, when most of these birds will congregate to breed at colonies in the southern hemisphere. Notwithstanding, all sites where ACAP-listed species congregate may be at risk of exposure via migratory birds or accidental introduction by human activities (e.g. tourism) and should thus be in a state of alertness.

Recommendations

1) Reporting cases of HPAI is mandatory for all member countries of the World Organisation for Animal Health (WOAH) and is essential to protect affected wild bird species. If there is evidence of birds (any species) with signs suggestive of avian influenza (ocular discharge, ocular swelling, difficulty breathing, lethargy, inability to stand up or walk, seizures, tremors, torticollis) or with unexplained mortality, local animal health and wildlife conservation authorities should be notified immediately to ensure that appropriate investigation is conducted. If HPAI is detected, national authorities will notify WOAH.

2) In preparation for potential outbreaks, scientists, wildlife managers and animal health agencies should work jointly on increasing surveillance efforts (increasing awareness and enabling a reporting mechanism) and preparing an emergency response plan that enables quick investigation and minimizes risk of spread. Coordination with scientists and/or

[4] Downie & Laver (1973). Virology, 51, 259–269.
[5] Downie et al. (1977). Australian Journal of Experimental Biology and Medical Science, 55, 635–643.
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[7] Lang et al. (2016). Avian Diseases, 60, 378–386.

government authorities in neighbouring countries and particularly those that share migratory bird flyways is highly encouraged.

3) There is no benefit to be gained in attempting to control the virus in wild birds through culling or habitat destruction. Instead, measures should be taken to improve surveillance and biosecurity, especially at breeding sites of vulnerable seabirds.

4) Ideally, fieldwork at seabird breeding sites should be avoided in countries/regions where AI outbreaks have been recorded in 2021–2022 (see situation reports at https://www.woah.org/en/disease/avian-influenza/#ui-id-2 and real-time updated information at https://wahis.woah.org/).

5) When fieldwork is essential, for example to retrieve devices for animal welfare reasons, field equipment and gear (scales, weighing bags and straps, tracking devices, clothing, boots, etc.) used elsewhere must be thoroughly disinfected before re-use (see item 6).

6) Disinfection of equipment and gear requires surfaces to be cleaned with soap/detergent and water, followed by soaking or spraying with 10% bleach or 70% ethanol, left to act for a minimum 10 min; 70% isopropyl alcohol is recommended for disinfecting electronic equipment. Note that bleach solution must be made fresh every day. Disinfectants should not be applied to the environment or carcasses.

7) Any person handling ill or dead birds must follow strict health and safety measures. They should be properly trained, wash their hands regularly and wear full Personal Protective Equipment (PPE -N95 face mask, eye cover, gloves).

8) Rehabilitated seabirds should not be released if they tested positive for HPAI infection/exposure at any point during their stay at a rehabilitation facility. If there is suspicion of an on-going HPAI outbreak or unexplained bird mortality event within the same state/province or island group or within a radius of 300 km of a rehabilitation facility, a minimum of one sample obtained less than 10 days (preferably less than 5 days) before release should be tested for each bird with direct (virus isolation or reverse-transcription polymerase chain reaction test from orotracheal and/or cloacal swabs) or indirect methods (haemagglutination inhibition test with subtype H5 antigen).

General best practices for fieldwork at seabird colonies

1) When possible, avoid visiting several different seabird colonies in one continuous outing. If this cannot be avoided, reinforce hygiene precautions before moving between colonies.

2) Whenever possible, wear personal protective equipment, such as gloves, face masks, and eye covers (glasses or goggles). Do not handle different individuals without first washing hands and/or changing gloves.

3) Avoid repeated use of clothing (especially footwear) and equipment (especially items that come into contact with animals such as nets, tissue bags, and hoods) without first cleaning and disinfecting them (wash with soap and water and soak in or spray with 10% bleach for minimum 10 min). When feasible, employ a suite of replacements for each item that can be rotated and cleansed while continuing work.

4) Ideally, have a dedicated set of equipment (callipers, rulers, etc.) for different seabird species and/or sites, which are properly labelled and stored separately.

5) Dispose of used/soiled items such as gloves, facemasks, syringes, and other biohazardous waste in double bags or purpose-made containers (e.g., sharps disposal containers for needles), spray with disinfectant (10% bleach) prior to leaving the work site and discard as medical/pathogenic waste at an appropriate facility (or if not available, incinerate).

6) Before and after working with animals or coming into contact with their secretions, wash hands and arms with plenty of soap and water. Hand sanitizer (gel with 60 to 90% ethanol concentration) can be applied to reinforce disinfection but should not replace proper handwashing. Remember that hand sanitizers only work effectively after the dirt has been removed by handwashing.

7) Whenever possible, wear washable and waterproof footwear (e.g., rubber boots). Clean footwear with a brush, soap, and water upon arrival and prior to departure from colonies (seawater may be used). Consider placing footbaths with 10% bleach or other disinfectants at trailheads or landing sites to improve footwear hygiene.

8) If handling seabirds, wear protective clothing (disposable or washable coveralls). Put on clean clothing upon arrival at the colony and remove soiled clothing prior to departure. Store used/soiled clothing in double bags and wash and disinfect them properly at the base of operations. Avoid using home washing machines if possible. Otherwise, soak clothing in soap and disinfectant for a few hours prior to washing (provided that they are hand-washed before soaking if they are heavily soiled with organic matter).

9) Keep a log of visits to seabird breeding sites. Such information can be key in the investigation of unusual disease or mortality events by allowing investigators to trace back contacts and potential sources of infection, particularly if the disease is detected long after visitors have left.