

## **The General Bernardo O'Higgins Station (BAE) and its role in the prevention of highly pathogenic avian influenza (HPAI H5N1)**

Submitted by INACH

### **Summary**

In the four (4) permanent Antarctic bases, stations and refuges that Chile manages, some facilities are located in areas with a large number of migratory seabirds with nesting, allowing contact with the people who work in these facilities, as well as the pinnipeds and cetaceans that are endemic to the area. As a precaution, the Ministry of Health (MINSAL) alerted specialized national study centers (specifically, the University of Chile - UCh) to analyze and investigate the level of risk in the event of the presence of the highly pathogenic avian influenza virus (HPAI H5N1), since, through migratory cycles, human and animal health can be affected throughout the national territory and in the Antarctic. The main risk of this disease is for the endowments of the Base "General O'Higgins" (BAE), operated by the Chilean Army and the neighboring German Satellite Station GARS-O'Higgins, to which Chile contributes in some aspects of its operation. Through fieldwork carried out in the summer of 2023, it was concluded with the elaboration of a protocol to prevent and apply control measures.

### **Background**

BAE Station was inaugurated on February 18, 1948 on the Isabel Riquelme Islet (63° 32' S - 57° 89' W), coast of the Bellingshausen Sea, O'Higgins Land. From its beginnings it supported the development of science and human knowledge, being fundamental its contribution during the third international geophysical year (III AGI 1957-1958). Together with its refuges (General Boonen, coast of the Weddell Sea), it contributes through logistical support actions to scientific, technological research and international cooperation with the scientific programs of Germany and the Czech Republic fundamentally, in certain investigations with Spain, USA, as well as permanent bilateral cooperation with Argentina (COCOANTAR, "Esperanza Station"), sharing activities of practice, development, cooperation and training of the "Relief and Rescue Combined Antarctic Argentine-Chilean Patrol" (PARACACH), in support of exploration and any other eventuality that occurs in the northern territory of the Peninsula, between the coasts of the seas of Bellingshausen and Weddel.

The aptitude and quality of the science coordinated and carried out by the Chilean Antarctic Institute (INACH), determined that the BAE was rebuilt in the 2002-2003 season for that purpose. It is operated by 21 people, who maintain the infrastructure, means of production and its laboratories. Technical support is provided to field work, through the available terrestrial capacities that operate together with aero-maritime means, which contribute to research together

with other collaborators and international associates, encouraging the development of scientific, technological and innovation activity, being in the last two decades, the second most important national center of contribution to the scientific production of Chile in Antarctica (information, INACH).

Avian influenza is an infectious disease that mainly affects birds and is caused by a virus of the Orthomyxoviridae family, which according to its subtype, can be classified as low pathogenicity and cause mild disease, or high pathogenicity and cause severe disease. The highly pathogenic avian influenza H5N1 that currently causes outbreaks worldwide, can spread rapidly producing high mortality rates in different species, maintaining an important zoonotic potential, which in other latitudes has caused infections to people. It affects poultry and seabirds in a deadly way, as well as marine mammals, causing a latent biological risk worldwide, with negative effects on economic, food and public health, due to its high transmissibility.

In Antarctica, to date, the HPAI H5N1 virus has not been investigated in birds or marine mammals, so it will be necessary to maintain the health alert promulgated by MINSAL, monitoring the health and presence of the virus in the populations of birds and mammals of the place (through INACH, with the cooperation of the BAE) and generating emergency protocols in case of observing the picture in the Antarctic continent. with personnel who gather the skills to anticipate and participate in the control of this new type of potential Pandemic, which could involve an international collaborative effort.

In the Chilean coastal Antarctic bases, especially in the BAE, there is a large colony of migratory seabirds, with nesting areas that present potential contact with the people who work in this place, as well as the pinnipeds and cetaceans that are endemic to the area. Faced with this situation, MINSAL alerted the specialized study centers (University of Chile - UCh), to analyze and investigate the level of risk of this disease, through sampling, staff training, safe work procedures (sanitization), use of personal protection elements (PPE), among others, which concluded with the development of a "Protocol for the Presence and Control of High Pathogenic Avian Influenza Virus (HPAI) H5N1, in Antarctica", as it affects animal health and, if no major action is taken, it will affect human health.

INACH coordinated work to address this pathology in its area of Antarctic administrative responsibility, being the Army Health Directorate (DSE), with its Departments of Health Authority and Veterinary Advice, the organism designated for contacts with the technical authorities (INACH, Agricultural Livestock Service (SAG), National Fisheries Service (SERNAPESCA), etc.), regarding the sanitary protocols that can be applied to protect human and animal health.

To date, the actions consist of preliminary studies to:

1. Publish biological safety protocols for Avian Influenza, distributed in the units and barracks of the national territory, including the BAE; participate in working groups set up by INACH to establish disease control measures with specialized agencies, universities, the National Service for Disaster Prevention and Response (SENAPRED), under the Ministry of the Interior, etc.
2. Generate specific health protocols; define contingency activities (detection, monitoring, censuses, sampling, statistics, control, mitigation, final disposal, etc.). It will contribute to the above, observation and / or eventual studies of changes in the life cycle of fauna (migration, reproduction, birth rates, evolution and death) and the possible consequences of virulence and / or infection.
3. Specifically, ASVE is appointing a Veterinary Officer as Health and Environment Advisor at the Army Antarctic Affairs Center (CAAE, in Punta Arenas) and a Veterinary Technical Nurse Warrant Officer as a member of the next annual Antarctic endowment (at General Base. O'Higgins), with related competencies and specializations to support scientists (e.g. environmental hygiene, risk prevention, informatics, etc.), contributing to the requirements and mandates of the bodies designated to study the presence of the HPAI H5N1 virus, in the areas close to the BAE and its personnel.
4. If necessary, through INACH, agree on how to transfer the protocols and experiences to the rest of the bases and national and international stations that require it.