

# ONE HEALTH FOCUS

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THE OFFICIAL NEWSLETTER OF  
THE NATIONAL ONE HEALTH  
FORUM OF SOUTH AFRICA

# ONE HEALTH

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*This newsletter aims to share One Health related news and events with all the relevant stakeholders. It is proudly produced by the South African One Health Forum Steering Committee in partnership with the University of Pretoria Future Africa Research Chair in People, Health and Place (One Health).*



# FOREWORD

By Wanda Markotter, University of Pretoria, South Africa

In today's world, we face increased health risks from zoonotic diseases and the growing impacts of climate change which require a holistic understanding of health challenges using a multi- and transdisciplinary approach. One Health - a unifying approach to optimise human, animal, plant and environmental health - recognises that our health is interlinked with the health of the environment.

Our environment - consisting of air, water, soil, and ecosystems (including plants) - provides the foundation for all life, and the way we interact with these systems profoundly affects the health of all. Whether through the contamination of food and water sources, the loss of biodiversity, the disruption of ecosystems, or changes in climatic patterns, environmental changes can directly or indirectly influence the emergence and spread of disease.

For a long time, the One Health conversation has consisted mainly of the animal and human health tracts and very little from the environment. It is not surprising that the One Health Joint Plan of Action (OH JPA), a global commitment by the Quadripartite Organisations (*Food and Agriculture Organization (FAO), United Nations Environment Programme (UNEP), World Health Organization (WHO), World Organization for Animal Health (WOAH)*) to support the implementation of One Health, includes the integration of environmental health as an action track. The interconnections between environmental health, as well as human and animal health, are clear to see. From the degradation of natural habitats that bring humans and wildlife into closer contact, to the global environmental shifts that foster conditions for new diseases to emerge, it is undeniable that



we must take an integrated approach to solving health challenges. In this endeavour, it is vital to acknowledge the value of everyone working together towards a common goal despite their diverse roles in society - indeed this is echoed by the guiding principles of the **One Health Joint Plan of Action (OH JPA)** which call for cooperation and shared responsibility, multisectoral action and partnership, gender equality, and inclusivity and equity.

This edition of the One Health newsletter highlights the importance of environmental health, a critical and often underrepresented part of understanding the broader challenges in animal, plant and human health. The pursuit of safeguarding health for current and future generations requires cross-sectoral collaborative efforts that share responsibility and are intentional with inclusivity, equity and equality. It is the responsibility of humanity to work towards a sustainable and healthy future for all life on the planet. We need to advocate for policies that promote the advancement of solutions to health challenges.

# ROLE OF ENVIRONMENTAL HEALTH IN ONE HEALTH

By Wayne Ramkrishna, Daniel Nkuna, Bono Nemukula, Belinda Makhafola, National Department of Health, South Africa

**A**s One Health promotes an integrated and unifying approach, Environmental Health in all its functions has adapted this approach by the provision of services in all three spheres of government. The Environmental Health division within the National Department of Health plays a leading role in policy development and support of the service across the country. In other spheres, Environmental Health Practitioners (EHPs) are positioned within provincial Departments of Health, district and metropolitan municipalities, and points of entries. Environmental health functions are fragmented between various government departments in the country, therefore cooperation and collaboration with various stakeholders is key in achieving policy objectives and positive health outcomes. The fraternity has taken up the opportunity to strengthen collaborations with other stakeholders such as other government departments, research institutions, academic institutions and NGOs. Since it encompasses aspects of human health, including quality of life that is determined by physical, chemical, biological, social and psychological factors in the environment, services rendered by Environmental Health Practitioners within the One Health framework include monitoring, correction, control and prevention of environmental factors that can adversely affect human health.



## Environmental Health Functions

The following services are rendered as Environmental Health functions as per the Scope of Profession for Environmental Health, R888 of 26 June 1991, as amended, published in terms of the Health Professions Act, 1974 (Act No. 56 of 1974):

- Water Quality Monitoring
- Food Control
- Waste Management and General Hygiene monitoring
- Health Surveillance of Premises
- Surveillance and prevention of communicable diseases, excluding immunisation
- Vector Control Monitoring
- Pollution Control Disposal of the dead
- Chemical Safety
- Noise Pollution Control
- Radiation (Ionising and Non-Ionising) Monitoring and Control
- Port Health
- Malaria Control
- Control and Monitoring of Hazardous Substances
- Climate Change Monitoring
- Occupational Health and Safety
- Environmental Management Investigations.

## Impact of Environmental Health in Communities

Environmental Health is a service that directly affects communities. Environmental Health Practitioners conduct environmental health impact assessments in health care facilities and communities to determine climate resilience of infrastructure that may be impacted during the exposure to drastic climatic events. Health risk assessments and awareness raising are also conducted to ensure adaptation to climate change impacts on health of populations and environment in communities.

Climate conditions such as extreme heat exacerbate health risks e.g. heat stress, increasing the risk of deaths, and the breeding of vectors in the environment, with a risk of vector-borne diseases and the emergence and spread of infectious diseases e.g. malaria, and other noncommunicable diseases e.g. cardiovascular diseases.

The development of the heat and health guidelines raises awareness on the link to climate conditions, health conditions and other environmental risk factors.

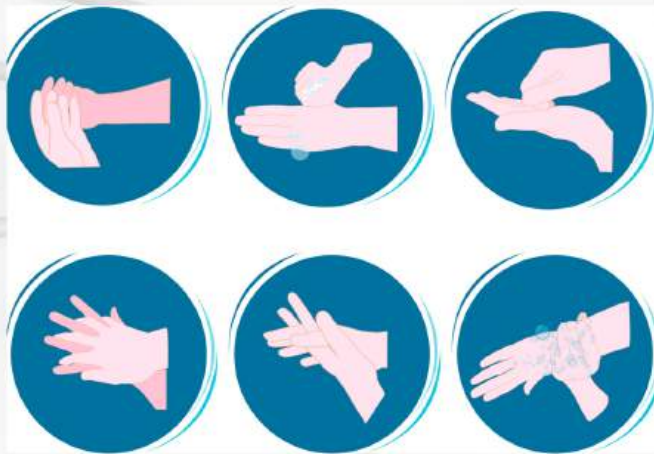
Environmental health leads the development of the Environmental Management Plan and annual reporting process, as one of the Department's monitoring compliances in its various activities in the health sector that may potentially impact negatively on the environment if not properly managed. Such activities include high generation of healthcare waste, use and disposal of hazardous substances, high water and energy consumption amongst others. It is therefore in the interest of the Department as one of the departments and provinces listed in the National Environmental Management Act, 1998 (Act no. 107 of 1998), (NEMA) to carry its mandate to ensure that these services are rendered in line with the principles of NEMA, for promotion of health and protection of the environment. It also oversees numerous significant projects in health care facilities across the country, in contribution to environmental responsibility and continuous improvement of environmental performance, with the implementation of environmental management systems that will ensure greater environmentally friendly technologies. Green initiatives, targeting sustainable energy consumption, sustainable water consumption, eradication of harmful chemicals, green procurement, safe waste management, improved transportation strategies, healthy and sustainable food, green building designs, safe management of pharmaceuticals and sustainable products and materials in health care facilities, are facilitated and championed by Environmental Health Practitioners as a vision to implement mitigation measures. Emission of greenhouse gases in the atmosphere is another area monitored in the

health care facilities through air quality monitoring devices as part of a carbon footprint reduction initiative.

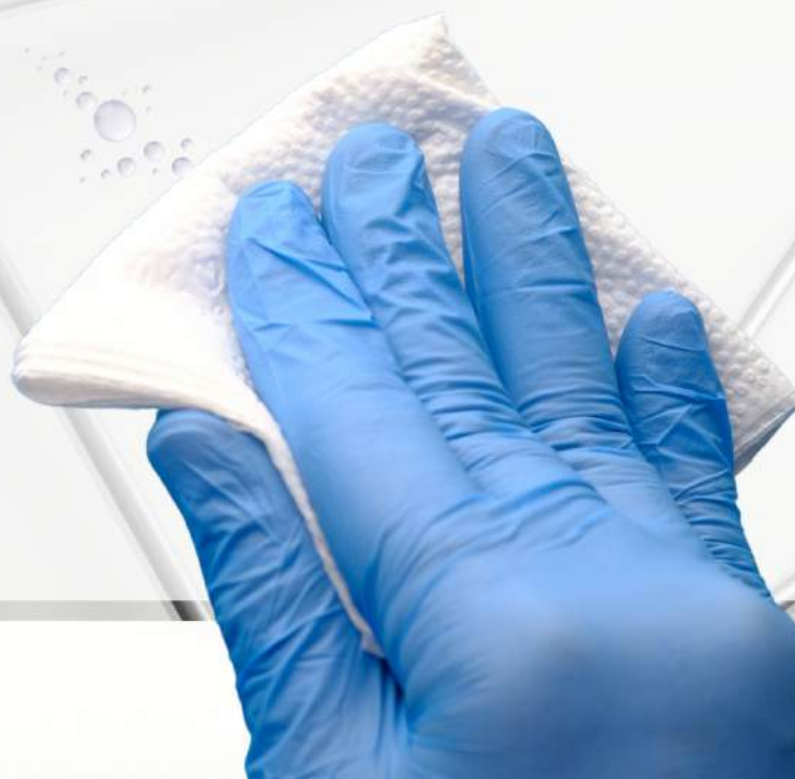


Additionally, Environmental Health facilitates health education on hygiene and effective management of waste in communities, address challenges on disease control and illnesses, enhancing the promotion of disease prevention and eradicates vectors and pests which eliminates the element of high pesticide usages, pesticide and food poisoning. The safe handling and storage of all chemicals regardless of where they are used is monitored as it requires commitment by everyone to follow safe work procedures until its disposal to protect both human health and the environment. Hence the surveillance of the premises in communities is also prioritized as one of the functions. It also focuses on monitoring of drinking water quality in communities to address non-compliance that is identified through water testing and identification of possible sources of contamination. The possible source of contamination is further monitored as part of a risk management approach to ensure effectiveness of interventions. Health care facility records of diarrhoeal cases reported are inspected monthly to monitor trends and possible linkages to water supplies while further monitoring outbreaks in communities and ensuring that the health system is not overburdened during outbreaks.

Environmental Health has also been a driving force behind facilitating the launch of and adapting the WHO (World Health Organization) and UNICEF Water and Sanitation for Health Facility Improvement Tool (WASH FIT) in South Africa, through the National Department of Health since 2022. The WASH FIT is a risk-based management tool for healthcare facilities, covering key aspects of water, sanitation, hand hygiene, environmental cleaning, healthcare waste management and selected aspects of energy, building and facility management. The purpose of the tool is to support healthcare facility staff to incrementally improve and sustain their water, sanitation, hygiene (WASH) and waste management services, build staff capacity and develop or upgrade infrastructure to provide safe reliable infection prevention control services. Environmental Health undertakes risk assessments in health care facilities and in communities to identify WASH related hazards for the improvement of infrastructure to enable hygiene promotion and monitoring of functioning WASH and health care waste management services that are a critical aspect of infection prevention and control (IPC) practices and ensuring patient safety and quality of care. The Limpopo Department of Health was identified as the benchmark province to implement and pilot the tool.



Port Health Service is defined as the first line of defence to protect the citizens of South Africa and visitors against the health risks associated with cross border movement of people, conveyances, baggage, cargo, shipments and other imported consignments. Port Health is an integral part within EH and plays an important role in the protection of human health by preventing the international spread of disease through South African points of entry and monitoring the importation of health-related goods.



# SUCCESSFUL FACILITATION OF COMMEMORATIONS AND AWARENESS OF ENVIRONMENTAL HEALTH

By Wayne Ramkrishna, Daniel Nkuna, Bono Nemukula, Belinda Makhafola, National Department of Health, South Africa

## WORLD ENVIRONMENTAL HEALTH DAY

Environmental Health observes the World Environmental Health Day on the 26th September, through the National Department of Health in collaboration with the Provincial Health Departments and the Municipalities. The South African Environmental Health fraternity has celebrated this day annually since 2012, with the first commemoration held in Queenstown in the Eastern Cape.

This day highlights the continuing threats of environmental risk factors to population health outcomes, and the urgent need to address them. Equally important the day is dedicated to recognising the dedication and hard work of environmental health workers, stakeholders and educators around the world, and their efforts in making a difference towards addressing upstream social determinants to contribute to a long and healthy life. Political leaders form part of this day in order to educate them about the important role Environmental Health plays at local government level and in communities.

The delivery of environmental health functions in the country is fragmented across various government departments. As a result, fostering cooperation and collaboration among stakeholders is essential to achieving policy objectives and positive health outcomes.



To ensure sustained collaboration and synergy in service delivery at all levels, the involvement of key stakeholders is crucial during the commemoration. Key stakeholders include:



## KEY STAKEHOLDERS

- Department of Health programmes, such as Health Promotion, Communicable Disease Control, Nutrition, Communications, and Information Communication Technology.
- Other government departments, including the Department of Agriculture, Department of Basic Education, the Department of Cooperative Governance and Traditional Affairs, the Department of Forestry, Fisheries and the Environment, and the Department of Water and Sanitation, among others.
- Regulatory bodies, such as the Health Professions Council of South Africa (HPCSA).
- Associations, including the South African Local Government Association (SALGA).
- International organisations, such as the World Health Organisation (WHO).
- Academic and research institutions, including institutions of higher learning and other research entities.
- Non-governmental organisations (NGOs) involved in environmental health.
- Border Management Authority specialising in Port Health Services.

Engaging these stakeholders is vital to strengthening partnerships and ensuring effective service delivery across all sectors.

## INTERNATIONAL LEAD POISONING PREVENTION WEEK

The week is observed in October to create awareness on the health impacts of lead exposure, highlighting efforts by countries and partners to prevent childhood lead exposure, and accelerate efforts to phase out the use of lead in paint. This is targeted to communities, which includes households and other organisations.

## GLOBAL HANDWASHING DAY


Environmental Health commemorates Global Handwashing Day on the 15th of October, which is an annual global advocacy day dedicated to increasing awareness and understanding about the importance of washing hands with soap, as an effective and affordable way to prevent the spread of preventable diseases, such as diarrhoea in children. The day provides an opportunity to mobilise individuals, communities, households, schools and health establishments, to join hands and design, test, and replicate creative ways to encourage people to wash their hands with soap at critical times. Build up activities are undertaken in communities during the October month to enhance health campaigns. The Department of Health in collaboration with the Department of Basic Education is championing the commemoration of this day as school learners can be effective advocates to promote messages on the importance of handwashing and influence hygiene behaviour change in communities and within households. Other key stakeholders involved are the private sector, NGOs and other government departments.




## **Environmental Health Challenges**

Environmental Health has experienced capacity constraints, including limited human resources, physical assets, technological infrastructure, and financial resources, which impacts on the effective implementation of certain legislative mandates. It continues to face substantial work in addressing existing challenges while ensuring that future development and planning opportunities are fully leveraged to promote health and prevent disease.


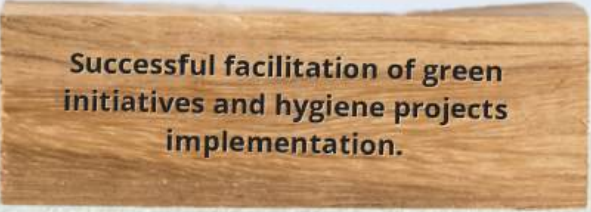
## **Environmental Health Achievements:**



**Effective legislative framework developed for implementation**



**Strengthened collaboration with other government departments research institutions, academic institutions and non-governmental organisations.**



**Successful facilitation of green initiatives and hygiene projects implementation.**

# OPPORTUNITIES TO STRENGTHEN THE MAINSTREAMING OF BIODIVERSITY AND HEALTH INTERLINKAGES THROUGH THE ONE HEALTH APPROACH:

## THE GLOBAL ACTION PLAN ON BIODIVERSITY AND HEALTH

By Mamohale Chaisi, South African National Biodiversity Institute, South Africa

## THE ROLE OF SANBI

The South African National Biodiversity Institute (SANBI) was established in terms of the National Environmental Management: Biodiversity Act of 2004 (No. 10 of 2004). It is the leading national authority on the conservation, restoration and sustainable management of biodiversity and ecological infrastructure. SANBI contributes to South Africa's sustainable development by facilitating access to biodiversity data; generating, synthesising, and coordinating scientific information required to support policies; building capacity; and managing a network of national botanical and zoological gardens for conservation, research, recreation, education and awareness ([www.sanbi.org.za](http://www.sanbi.org.za)). The gardens offer opportunities for exercise, stress reduction and a connection to nature and therefore contribute to improving human health and well-being, including physical and mental health.

SANBI's work starts with a strong foundation on surveillance, classification and mapping South Africa's ecosystems and species across all realms (Figure 1).

The foundational science information is synthesised to assess the state of biodiversity and generate evidence to inform decision-making, as well as producing tools for mainstreaming biodiversity into policy, mobilising resources for ecosystem-based adaptation, job creation and poverty alleviation, and improved human well-being. SANBI's human capital development efforts through internship programmes and postgraduate studies contribute towards the development of the next generation of biodiversity professionals to strengthen internal skills capacity, and for the biodiversity sector broadly.

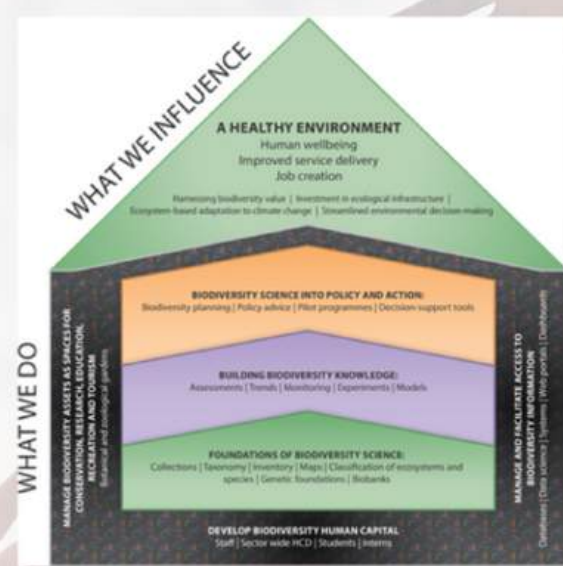


Figure 1. SANBI Science Value Chain ([www.sanbi.org/biodiversity](http://www.sanbi.org/biodiversity))

## Wildlife Disease Surveillance

- Surveillance of wildlife diseases and their causes through a One Health approach is a cost-effective way of addressing the impacts of zoonoses (WOAH). It is a key tool towards achieving the [Kunming-Montreal Global Biodiversity Framework's](#) outcomes and the success of specific targets that address disease, health, species extinctions and ecosystem services. It is particularly relevant to Target 4, "Halt species extinction, protect genetic diversity, and manage human-wildlife conflicts"; Target 5, "Ensure sustainable, safe and legal harvesting and trade of wild species"; and Target 11, "Restore, maintain and enhance nature's contributions to people" (IUCN).
- It is estimated that 60% of emerging pathogens are zoonotic. Human activities can lead to habitat loss and degradation, which along with climate change and unsustainable wildlife use and trade increases the risks of pathogen spillover from wildlife to livestock and humans. SANBI's research programme on One Health and Molecular Epidemiology focuses on disease surveillance in captive and free-ranging populations of wildlife (particularly those that are threatened in the wild), livestock and the environment, with a focus on vectors and vector-borne diseases, and neglected zoonoses. Infectious diseases may threaten human and animal health. Together with collaborators from academia and research institutions, SANBI carries out field surveys of vectors (ticks, fleas, snails, mites, insects) from different hosts and the environment and studies different aspects of their biology, including their diversity, epidemiology, taxonomy and systematics, and ecology in a changing world. This foundational information is key in identifying emerging pathogens, monitoring trends in the distribution and pathogens and hosts, developing atlases of vectors and diseases, and identifying possible areas for disease emergence and re-emergence. These foundational biodiversity data are crucial in national biodiversity assessments and assessing how climate and land-use changes, invasive alien species, wildlife trade and unsustainable agricultural practices drive the emergence of infectious diseases.

## Research Facilities and Human Capital Development

SANBI's zoological and botanical living collections are valuable resources for studying animal and plant health. Additionally, SANBI hosts a Wildlife Biobank which is a depository of different biomaterials for research and supporting conservation efforts. SANBI's molecular biology research laboratories are fully equipped with state-of-the-art equipment for genetics and genomics research. These facilities are also used for training interns, postgraduate students and postdoctoral fellows. Additionally, SANBI has a Genetic Services Unit that provides high-quality molecular genetic and diagnostic services to promote conservation, management of wildlife populations, enforcement of legislation and compliance that includes legal and illegal wildlife trade, and potential for wildlife disease diagnostics.

**SANBI plays a leadership role in generating, coordinating, capacity development, collating and interpreting scientific knowledge and evidence required to support policies and decision-making.**

# ONE HEALTH FOR MARINE WILDLIFE (OUTBREAK) MANAGEMENT



By Alicia Cloete, Department of Agriculture, Land Reform and Rural Development, South Africa and Matshidiso Malatji, Abednego Baker, Thato Mogapi, Mduduzi Seakamela, Azwianewi Makhado & Gcobani Popose, Department of Forestry, Fisheries, and Environment, South Africa

Throughout history, people have had close relationships with wildlife and the environment for spiritual and cultural reasons as well as for harvesting food. However, the thought of visiting, interacting and observing marine wildlife and landscapes, for recreational and leisure purposes, as a tourist attraction, is a fairly recent phenomenon. Thus, South Africa's marine biodiversity is recognized to contribute to an array of ecosystem services including tourism, research and food security in order to help realize the objective of the National Development Plan, 2030, for a "decent standard of living" for all South Africans. However, in the recent years, South Africa has witnessed outbreak events of highly pathogenic avian influenza virus and the deadly zoonotic rabies virus that affect endangered seabirds and cape fur seals, respectively. In both these events, widespread unprecedented mortalities have been observed along the coastal areas, having negative impact on the populations of these endangered species. More so, these outbreaks continue to affect the various livelihoods and human-wellbeing benefits derived from the species and our surrounding ecosystems.



Image credit: CapeNature

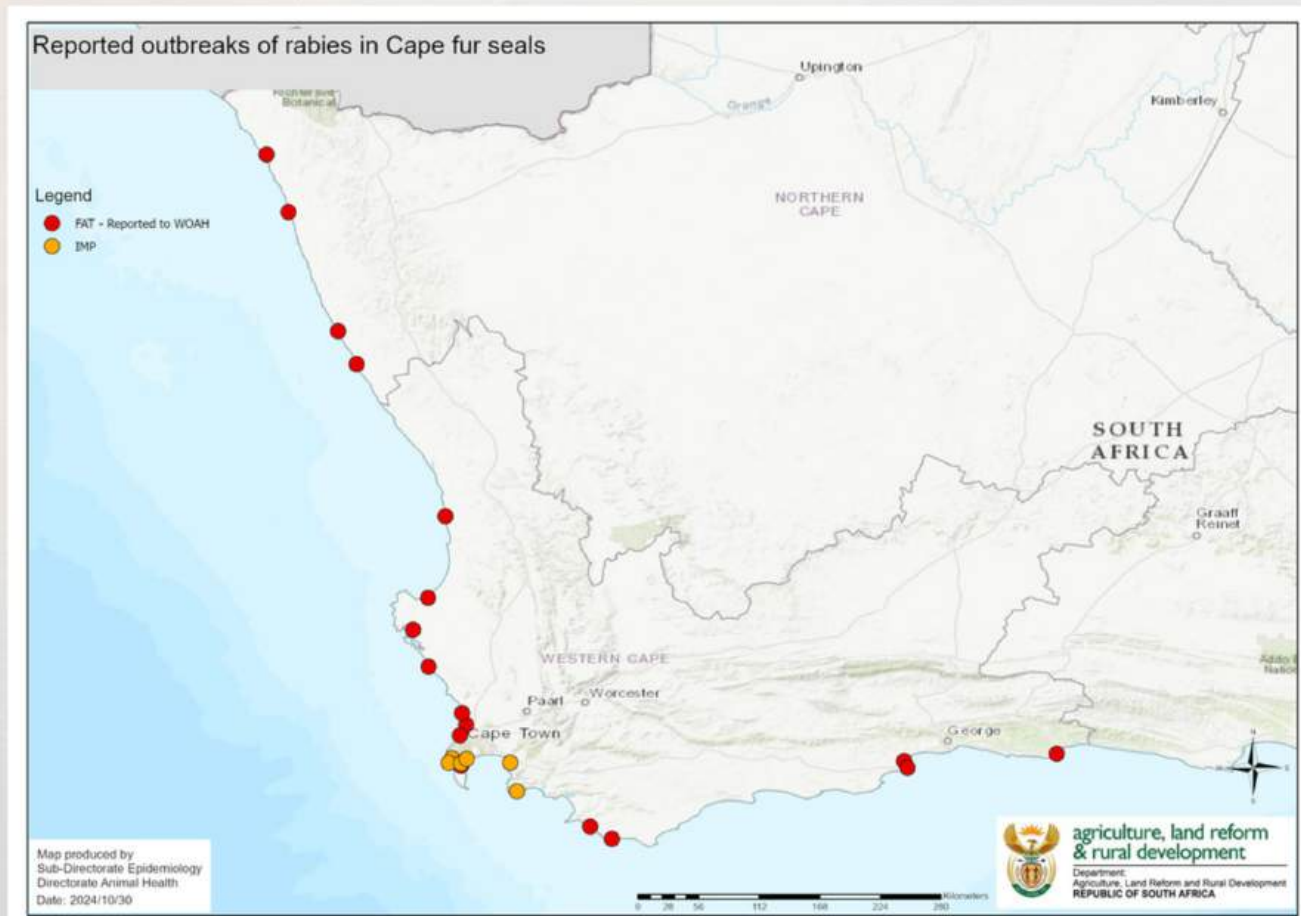
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The emergence of these outbreaks previously observed to affect mainly terrestrial animals; necessitate and emphasize the need to promote a One Health approach to the management of coastal and ocean ecosystems associated with marine wildlife. Leveraging the principles of One Health and its effort to manage these recent outbreak events and the unexplained mortalities seen in the marine wildlife; South Africa, through cooperation of the various government departments, municipalities, protected areas management authorities and non-governmental organisations, undertook the following:

- **Surveillance, Monitoring and Reporting**

Acknowledging that avian influenza can manifest with various clinical signs such as respiratory, nervous system abnormalities or sudden death, and rabies can manifest as behavioural changes, progressive neurological signs and death; surveillance and monitoring is undertaken to collect data on each incident of suspect and confirmed cases of these diseases. Working with the relevant veterinary services and wildlife rescue centres, samples collected in the field are submitted for testing. In the case of rabies disease phylogenetic analysis of the virus obtained from various Cape fur seals indicated a single source infection, likely from a black-backed jackal, with confirmation of seal to seal transmission. This rabies outbreak investigation and its findings was made possible through good stakeholder collaboration and communication. In the case of avian influenza, collaborative efforts detected Highly Pathogenic Avian Influenza (HPAI) at multiple sites in the Western and Eastern Cape provinces.

Through these collaborations, a reporting system to gather data on each incident has been established and is housed in the Department of Forestry, Fisheries & the Environment ([Marine and Coastal Animal Mortality and Disease Reporting Tool](#)). Detailed information on the respective marine wildlife outbreak events may be accessed through the World Animal Health Information System (WAHIS) or the national Department of Agriculture's disease database (<http://webapps1.daff.gov.za/VetWeb/diseaseDatabase.do>). Fundamentally, surveillance, monitoring and reporting of marine wildlife events assist with identifying early spillover, and management of wildlife populations and possible human-wildlife conflicts with the objective of advancing human well-being.



Seal rabies distribution map up to 30 Oct 2024 -Image credit: DoA, Directorate Animal Health, sub-directorate Epidemiology

- **Communication and Awareness**

Recognising marine wildlife's magnetic effect on tourism activities and playing an essential role in the lives of coastal communities, communications efforts during marine wildlife events are largely focused on informing the public about the disease outbreaks. Appropriate protocols (e.g. for biosecurity and safety) are developed in collaboration with operators and wildlife rescue centres, to manage and reduce the risk of possible transmission of pathogens during coastal and in-water expeditions. Regarding rabies in seals, various engagements have been held by Government departments and sector role players (including the divers association) to share information on the extent of conflict between Cape fur seals, as well as to help transition from a reactive and panic-stricken response to a more practical approach, particularly recognizing the importance of ecosystem services for health and well-being.

- **Research**

Various research detailing descriptive epidemiology of, and responses to the highly pathogenic avian influenza epidemic affecting endangered coastal seabirds has recently been concluded; consolidating and sharing vital information on the subject including developing contingency plans (Roberts et al., 2023: <https://doi.org/10.1155/2023/2708458>; Abolnik et al., 2024; <http://dx.doi.org/10.3390/v16060896>).

Regarding rabies virus, due to its novel nature in marine mammals including Cape fur seals; very little is known about the transfer of the virus in the marine environment. There is limited knowledge of the effectiveness of existing registered parenteral rabies vaccines in Cape fur seals and bait vaccination is not considered a feasible option due to seal feeding behaviours and the size and extent of the populations. Research projects are in progress on parenteral rabies vaccination of captive and habituated Cape fur seals to generate information that may support an approach that minimizes disease transmission between wildlife and humans.

Marine wildlife events and ecosystem health share many common drivers and is essential to address these common drivers in a holistic manner. The One Health concept evidently provides a unifying approach to maximize ecosystem benefits (interactions of human, animal and the environment) and minimize risk of interaction with nature. However, much can still be done to manage marine wildlife events and outbreaks more efficiently including regular capacity building and training of sector role-players, availability of funding resources for rapid response and efficient collaborations that considers and involves local communities.

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