Agreement on the Conservation of Albatrosses and Petrels

Seventh Meeting of the Population and Conservation Status Working Group

Edinburgh, United Kingdom, 18 - 19 May 2023

Albatrosses and Petrels as part of the Essential Ocean Variables of the Global Ocean Observing System

Tammy Davies[1], Karen Evans[2], Samantha Simmons[2], Marco Favero[3] and Patricia Pereira Serafini[4]

[1] BirdLife International & GOOS seabird panel rep
[2] GOOS marine mammal panel rep
[3] PaCSWG Co-convenor
[4] PaCSWG Co-convenor & GOOS seabird panel rep

SUMMARY

During the twelfth meeting of the Advisory Committee of ACAP, as registered on AC12 Doc 11, PaCSWG highlighted the importance of adequate monitoring as a key source of robust data about population trends that helps to underpin advocacy for the conservation crisis affecting albatrosses and petrels. To strengthen global monitoring initiatives, this paper explores opportunities for collaboration between PaCSWG and the Global Ocean Observing System (GOOS) expert panel on biology and ecosystems.

The development of an expert panel on Biology and Ecosystems (BioEco) by GOOS under the Intergovernmental Oceanographic Commission (IOC) of UNESCO was initiated in 2012, following the already established Physics and Biogeochemistry panels as part of a Framework for Ocean Observing. Tasked with identifying a set of Essential Ocean Variables (EOVs) observing could be framed around, the BioEco panel identified 13 EOVs that fall under three categories - Functional groups, Habitat state and Ocean pressure. Seabirds are included as a functional group EOV. The GOOS BioEco Panel roadmap (2021-2030) was developed to further develop the set of EOVs, build observing communities around each EOV and increase the readiness level for uptake and implementation of each EOV to build global ocean observing capacity.

Albatrosses and Petrels comprise seabirds that are subject to significant anthropogenic pressures. Understanding the impacts of those pressures on species and implementing effective management that results in addressing threatening processes and achieves positive population-level outcomes requires strengthened mutual collaboration in observing efforts. ACAP (PaCSWG) can play a substantive role in contributing to the

seabird EOV observing network and assisting in ensuring that observing efforts are effective and deliver to management and policy priorities. Here, we present an overview of the seabird EOV and the GOOS Bio Eco Panel, aiming to facilitate a discussion on ongoing and lasting forms of collaboration between ACAP and GOOS BioEco Panel.

RECOMMENDATIONS

1. That PaCSWG acknowledges the seabird Essential Ocean Variable (EOV), as part of the Global Ocean Observing System (GOOS).

2. That PaCSWG acknowledges that capacity building and collaboration on ocean observing initiatives also are in line with the goals of the Agreement, as highlighted in section 7 of the Agreement's Annex 2 (Action Plan) that states: *"7. Implementation: 7.2 The Parties shall collaborate with other countries and organizations involved with albatross and petrel research, monitoring and management for the purpose of exchanging knowledge, skills and techniques to ensure more effective implementation of this Action Plan."*

3. That PaCSWG considers recommending collaboration with the BioEco Panel with the aim of strengthening the network of seabird observations, including albatrosses and petrels, and discuss the development of best practices for this EOV that will facilitate the accessibility, interoperability and expanded use of data sets following FAIR principles.

Albatros y petreles con arreglo a las variables oceánicas esenciales del Sistema Mundial de Observación de los Océanos

RESUMEN

Durante la Duodécima Reunión del Comité Asesor del ACAP, según consta en el documento CA12 Doc 11, el GdTPEC destacó la importancia de hacer un seguimiento adecuado como fuente fiable de datos sólidos sobre las tendencias de la población, que ayudan a sustentar la defensa de la crisis de conservación que afecta a los albatros y petreles. Con el objetivo de reforzar las iniciativas de vigilancia mundial, el presente documento investiga las oportunidades de colaboración entre el GdTPEC y el panel de expertos en biología y ecosistemas del Sistema Mundial de Observación de los Océanos (GOOS).

Tras el establecimiento de los paneles de física y biogeoquímica como parte de un Marco para la observación de los océanos, en 2012, el GOOS inició la creación de un panel de expertos sobre Biología y Ecosistemas (BioEco) en el marco de la Comisión Oceanográfica Intergubernamental (COI) de la UNESCO. Encomendado con la tarea de identificar un conjunto de variables oceánicas esenciales (EOV), el panel BioEco

identificó 13 EOV que se clasifican en tres categorías: grupos funcionales, estado del hábitat y presión oceánica. Es importante destacar que las aves marinas se incluyen como grupo funcional EOV. El plan del trabajo del Panel BioEco del GOOS (2021–2030) se elaboró con el fin de seguir desarrollando el conjunto de EOV, crear comunidades de observación en torno a cada EOV y aumentar el nivel de preparación para la adopción e implementación de cada EOV para crear una capacidad mundial de observación de los océanos.

Los albatros y los petreles son aves marinas sometidas a importantes presiones antropogénicas. El hecho de comprender el impacto de dichas presiones sobre las especies y de implementar una gestión eficiente que encare los procesos amenazadores y que, a su vez, logre resultados positivos a nivel poblacional, exige reforzar la colaboración mutua en los esfuerzos de observación. ACAP (a través del GdTPEC) puede desempeñar un papel fundamental al contrbibuir a la red de observación de aves marinas EOV y al colabrorar que se garantice que los esfuerzos de observación sean eficaces y respondan a las prioridades políticas y de gestión. Con el objetivo de facilitar un debate sobre formas de colaboración continuas y duraderas entre ACAP y el Panel BioEco del GOOS, a continuación presentamos una visión general de los EOV de aves marinas y del Panel BioEco del GOOS.

RECOMENDACIONES

1. Que el GdTPEC reconozca la Variable Oceánica Esencial (EOV) de las aves marinas, como parte del Sistema Mundial de Observación de los Océanos (GOOS).

2. Que el GdTPEC identifique que el desarrollo de capacidades y la colaboración en iniciativas de observación de los océanos también estén en línea con los objetivos del Acuerdo, tal y como se establece en el articulo 7 del Anexo 2 del Acuerdo (Plan de Acción) que establece:“*7. Aplicación: 7.2 Las Partes colaborarán con otros países y organizaciones que se ocupan de la investigación de albatros y petreles y de su seguimiento y gestión a fin de intercambiar conocimientos, experiencia y tecnología para garantizar una aplicación más eficaz de este Plan de Acción*”.

3. Que el GdTPEC considere recomendar la colaboración con el Panel BioEco con el fin de fortalecer la red de observaciones de aves marinas, incluyendo albatros y petreles, al igual que discutir el desarrollo de mejores prácticas para esta EOV que faciliten la accesibilidad, interoperabilidad y uso ampliado de los conjuntos de datos de acuerdo con los principios FAIR (datos encontrables, reproducibles, reutilizables e interoperables).

Les albatros et les pétrels comme constituantes des Variables océaniques essentielles du Système mondial d'observation de l'océan

RÉSUMÉ

Comme précisé dans le CC12 Doc 11, lors de la douzième réunion du Comité consultatif de l'ACAP, le GTSPC a souligné l'importance d'une surveillance adaptée, source clé de données solides sur les tendances des populations permettant d'étayer le plaidoyer relatif à la crise de conservation qui affecte les albatros et les pétrels. Afin de renforcer les initiatives mondiales de surveillance, le présent document explore les possibilités de collaboration entre le GTSPC et le Groupe d'experts sur la biologie et les écosystèmes du Système mondial d'observation de l'océan (GOOS).

La mise en place d'un groupe d'experts sur la biologie et les écosystèmes (BioEco) par le GOOS, sous l'égide de la Commission océanographique intergouvernementale (COI) de l'UNESCO, a été initiée en 2012, après l'établissement des groupes d'experts sur la physique et la biogéochimie en tant que constituantes d'un Cadre d'observation de l'océan. Chargé d'identifier un ensemble de variables océaniques essentielles (EOV) autour desquelles l'observation pourrait s'articuler, le groupe d'experts BioEco en a identifié 13, réparties en trois catégories : Groupes fonctionnels, Statut de l'habitat et Pression océanique. Les oiseaux de mer appartiennent à la catégorie « Groupes fonctionnels » des EOV. La feuille de route du Groupe BioEco du GOOS (2021-2030) a été élaborée afin de développer l'ensemble des EOV, de créer des communautés d'observation autour de chaque EOV et d'augmenter le niveau de préparation pour l'adoption et la mise en œuvre de chaque EOV afin de renforcer la capacité mondiale d'observation de l'océan.

Certaines espèces d'albatros et de pétrels sont soumises à d'importantes pressions anthropiques. Pour comprendre l'impact de ces pressions sur les espèces et mettre en œuvre une gestion efficace, capable de s'attaquer aux processus qui les menacent et d'obtenir des résultats positifs au niveau des populations, il faut renforcer la collaboration mutuelle dans les efforts d'observation. L'ACAP (GTSPC) peut jouer un rôle important en contribuant au réseau d'observation des EOV Oiseaux de mer ainsi qu'en aidant à garantir que les efforts d'observation sont efficaces et répondent aux priorités en matière de politique et de gestion. Nous présentons ici une vue d'ensemble de l'EOV Oiseaux de mer et du groupe BioEco du GOOS, dans le but de faciliter une discussion sur les formes existantes et durables de collaboration entre l'ACAP et le groupe d'experts BioEco du GOOS.

RECOMMANDATIONS

1. Que le GTSPC reconnaisse la variable océanique essentielle (EOV) Oiseaux de mer, dans le cadre du système mondial d'observation de l'océan (GOOS).

2. Que le GTSPC reconnaisse que le renforcement des capacités et la collaboration en matière d'initiatives d'observations de l'océan sont également conformes aux

objectifs de l'Accord, comme le souligne la section 7 de l'annexe 2 de l'Accord (Plan d'action) qui stipule : « *7. Mise en œuvre : 7.2 Les Parties collaborent avec d'autres pays et organisations impliqués dans la recherche sur les albatros et les pétrels, la surveillance et la gestion, en vue d'échanger les connaissances, les compétences et les techniques permettant une mise en œuvre plus efficace du présent Plan d'action.* »

3. Que le GTSPC envisage de recommander une collaboration avec le groupe d'experts BioEco dans le but de renforcer le réseau d'observation des oiseaux de mer, notamment les albatros et les pétrels, et d'aborder le développement des meilleures pratiques pour cet EOV afin d'améliorer l'accessibilité, l'interopérabilité et l'utilisation élargie des jeux de données en suivant les principes FAIR.

1. INTRODUCTION

1.1. Ocean observing is essential for a better understanding of how society and all life on earth is affected by climate change. The information gathered is invaluable to policymakers and individual nations, guiding them to make change at a global, regional and local level. The Global Ocean Observing System (GOOS) was formed in March 1991 by the Intergovernmental Oceanographic Commission (IOC) of UNESCO, and co-sponsored by the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the International Science Council (ISC), in response to calls from the Second World Climate Conference in Geneva, 1990. GOOS' mission is to lead the ocean observing community and create partnerships to grow an integrated, responsive and sustained observing system.

1.2. With oversight from a multinational Steering Committee, GOOS brings together three expert panels in Physics, Biogeochemistry and Biology and Ecosystems, the Observation Coordination Group (OCG), the Expert Team on Operational Ocean Forecast Systems (ETOOFS), GOOS regional alliances and GOOS projects. The Physics and Biogeochemistry Panels monitor data (including sea ice, sea surface height, subsurface currents, nutrients, and dissolved organic carbon), and feed into global monitoring processes such as IPBES. The Biology and Ecosystems (BioEco) panel (established in 2013) has identified a set of EOVs directly relevant to global change, ocean biology, and ecology (including phytoplankton biomass and diversity, fish abundance and distributions, seagrass cover and composition, marine mammal abundance and distribution, and seabird abundance and distribution). These EOVs have strong connections to international conventions, UN agencies and/or intergovernmental organisations as identified in Miloslavich et al. (2018).

1.3. Of the multilateral environmental agreements the EOVs are connected to, many are focused on pressures causing loss of habitat and biodiversity resources, including losses through overfishing. Half of the agreements are focused on pressures caused by climate change and explicitly included impacts on marine life. A smaller number of agreements are

focused on additional pressures: pollution and eutrophication, coastal development, invasive species, solid wastes, ocean acidification, extreme weather events, noise and mining. These drivers and pressures impact the state of marine systems including changes in biodiversity patterns and trends in productivity and biomass including zooplankton, fish, harmful algal blooms and threatened species, among many others. It is the changes in these system properties that the biological EOVs aim to measure.

1.4 Initially 8 EOVs consisting of functional groups including plankton, zooplankton, fish, turtles, birds and mammals, and habitats including corals, macroalgae, seagrass and mangroves were identified by the BioEco panel. The number of EOVs has since expanded to 13 that consist of functional groups, habitats and ocean pressures. The most recently developed EOV is ocean noise, a cross cutting EOV coordinated with the GOOS expert panel on physics.

1.5. The GOOS BioEco panel 10-year roadmap (2021-2030) has been developed by the panel to further develop the set of EOVs, build observing communities around each EOV and increase the readiness level for uptake and implementation of each EOV to build global ocean observing capacity. Over the next 10 years, the roadmap sets out the steps the BioEco panel will take to communicate the value proposition of the EOVs (Goal 1), identify leadership and strengthen partnerships around each EOV (Goal 2), promote best practices and Standard Operating Procedures for each EOV (Goal 3), implement technological developments associated with observing each EOV (Goal 4), expand the network coverage of EOV observations (Goal 5), undertake capacity development in EOV observing (Goal 6), and contribute indicators to policy assessments at national and global levels relevant to policy (Goal 7).

1.6. The identification of changes in ocean systems in response to one or more pressures, is only the first step in making full use of the data collected through the EOVs. Just as important is the translation of scientific observations into formats that are relevant to decision makers that are scientifically valid and globally consistent. Considerable effort is required in engaging with the parties to each Convention to first, raise awareness of the EOVs, second, better understand the utility of the EOVs to each convention and third use the improved information resulting from the establishment of the EOVs. This remains a work in progress with collaborations with global observation and biodiversity data initiatives an essential part of this work. The BioEco Panel works with groups such as Marine Biodiversity Observation Network (MBON) for the Essential Biodiversity Variables, the Ocean Biodiversity Information System (OBIS), and United Nations Environment Program - World Conservation Monitoring Centre (UNEP-WCMC) in identifying data needs and developing data products that can be referred to by decision makers .

1.7. Albatrosses and petrels (Procellariiformes) are among the most threatened vertebrates in the world. Many of these species breed on isolated oceanic islands (Phillips et al. 2016). Because they are top predators, seabirds have the potential to reflect processes that affect their prey at lower trophic levels and are considered sentinels of ocean health (Furness 2003, Cardoso et al. 2014). Hence, they can be useful indicators of altered ecological processes and environmental conditions (Weimerskirch et al. 2003, Parsons et al. 2008, Grimaldi et al. 2014, Phillips et al. 2016. Dias et al 2019). It was these traits, together with consideration of technical and scientific feasibility, the ability of provide key information on

global change in marine ecosystems, relevance to internationally agreed goals that contributed to the identification of an EOV focused on seabirds.

1.8. As with other functional group EOVs, the seabird EOV has a primary focus on observations of abundance and distribution. The detail of each EOV is provided in a specification sheet that identifies the key elements that need to be observed to build an understanding of changes in abundance and distribution and drivers of these changes. Each specification sheet should ideally be adaptable to a broad range of research objectives and sampling methodologies, assisting researchers, resource managers, and policymakers in understanding the state of components of the marine environment (such as seabirds) and informing conservation management efforts, while also supporting consistent data collection and analysis and interdisciplinary research.

1.9. In defining the backbone of the observing system, an important step is to identify existing major well-established networks or communities of practice that are currently measuring the components of an EOV. This included facilities, platforms and/ programs that are already in place, providing essential information on trends in each EOV, and could link/connect regional observations into a global perspective. The BioEco Panel has placed concerted effort into identifying networks around each of its EOVs as part of the efforts identified in its 10 year roadmap (see https://bioeco.goosocean.org/). Many of the organisations that contribute to The Agreement on the Conservation of Albatrosses and Petrels (ACAP) have been identified as important contributors of seabird observations.

1.10. The ACAP Population and Conservation Status Working Group (PaCSWG) provides advice to the Advisory Committee of ACAP and oversees the contribution, collation and maintenance of the most up-to-date information on population size, trends and status, demography, at-sea distribution, management, and effect of land-based threats in the breeding sites of albatrosses and petrels listed on ACAP Annex 1. The other tasks of PaCSWG include overseeing reviews and analyses of information, contributing in the production of assessments, identifying key gaps in knowledge of population size and conservation status, demography, at-sea distribution, land-based threats and the management for each species, identifying populations of ACAP species that are priorities for monitoring, research or conservation actions, determining which species and the threats to those species are priorities for management actions and reviews the effectiveness of those actions identifying internationally important breeding sites for ACAP species; and developing reviewing and maintaining best-practice guidelines for population monitoring and management of land-based threats (WG Terms of Reference).

1.11. Since 2001, the WG review changes to the current population trends of ACAP species, including the level of confidence in trends according to the accuracy and availability of data for different populations. Population trends are periodically updated on the basis of the latest data submitted by Parties and Range States to the ACAP database.

1.12. The ACAP PaCSWG plays a pivotal role in collating and organizing all the existing population monitoring data of ACAP species, and is well-placed to be a leading coordinator of seabird EOV observations for albatross and petrels. Through its work developing, reviewing and maintaining best-practice guidelines for albatross and petrel population

monitoring and management of land-based threats it is also well-placed to contribute valuable guidance on data standards to the seabird EOV community.

2. What are the benefits of a long-term collaboration between ACAP and GOOS?

2.1. The ACAP PaCSWG maintains information on trends in albatross and petrel abundance that are directly relevant to the seabird EOV. Through engagement with the BioEco Panel, these data and the products developed in association can contribute to a broader global observation system that informs multiple international conventions and agreements, thereby expanding and maximizing the impact of these data.

2.2. GOOS' monitoring of all EOVs will assist in understanding how changes are occurring across marine environments at regional and global scales from a whole of ecosystem perspective. They provide for enhanced understanding of phenomena across different spatial and temporal scales. (Satherwaite et al. 2021). This whole of system collection of ocean observations can provide PaCSWG access to important and highly useful information for meeting thePaCSWG's research priorities

2.3. ACAP and GOOS can jointly support FAIR (Findable, Accessible, Interoperable, and Reusable) data principles, and support the development and endorsement of best practices and Standard Operating Procedures for contributing to the international Ocean Best Practice System (OBPS) of the Intergovernmental Oceanographic Commission. Recognition with the OBPS will assist with the promotion and adoption of ACAP's best practices and standard operating practices that advance data interoperability.

2.4. GOOS and ACAP interact with many international conventions, UN agencies and intergovernmental organizations. Mutual collaboration would further extend the reach and networking potential of both GOOS and ACAP.

2.5 Within the IOC, GOOS is linked to the Ocean Best Practices System (OBPS), International Oceanographic Data Exchange (IODE), Ocean Biodiversity Information System (OBIS), thereby extending access of ACAP to international ocean resources and data management systems.