

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Joint Eleventh Meeting of the Seabird Bycatch Working Group and Seventh Meeting of the Population and Conservation Status Working Group <i>Edinburgh, United Kingdom, 18 May 2023</i></p> <p>Offshore Wind Farm infrastructure development in Australia <i>Jonathon HS Barrington, Barry Baker</i></p>
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SUMMARY

Arrangements to manage offshore renewable energy infrastructure in Australia are developing. These arrangements focus presently on Offshore Wind Farms (OWFs). ACAP-listed albatrosses and petrels, and other seabirds, may be adversely affected by OWFs. Such environmental impacts include collision risks, barrier and displacement effects. There is a paucity of data upon which to provide a proper evidentiary basis to resolve the specific threats that ACAP-listed albatrosses and petrels, and other seabirds in the southern hemisphere may encounter within areas that OWF may be located within the marine environment. The potential impacts may vary between OWF technologies: fixed versus floating turbines, and horizontal versus vertical axis designs; and between infrastructure located in nearshore versus offshore waters. Australia is working towards filling data gaps to assist in the environmental approval and regulation of OWFs domestically. Effective understanding of, and responses to interactions with, and the adverse effects of OWFs will require input from across all ACAP Parties.

RECOMMENDATIONS

That the Seabird Bycatch Working Group and Population and Conservation Status Group:

1. Recognise the potential adverse effects that Offshore Wind Farms may have on ACAP-listed albatrosses and petrels, and other seabirds.
2. Highlight the importance of undertaking dedicated research to improve the understanding the potential impacts of Offshore Wind Farms on ACAP-listed albatrosses and petrels, and other seabirds.
3. Encourage Parties to share research findings concerning interactions with, and the adverse effects of Offshore Wind Farms on ACAP-listed albatrosses and petrels, and other seabirds.

Desarrollo de infraestructuras para parques eólicos marinos en Australia

RESUMEN

En Australia se están desarrollando mecanismos para gestionar las infraestructuras de energías renovables en alta mar. Estos se centran actualmente en los parques eólicos marinos. Los albatros y petreles incluidos entre las especies listadas del ACAP, así como otras aves marinas, pueden verse afectados negativamente por dichos parques. Entre esos impactos medioambientales figuran los riesgos de colisión y los efectos de barrera y desplazamiento. Hay una escasez de datos sobre los que proporcionar una base probatoria adecuada para resolver las amenazas específicas que pueden encontrar los albatros y petreles incluidos entre las especies listadas del ACAP, y otras aves marinas del hemisferio sur, en las zonas en las que los parques eólicos pueden estar situados en el medio marino. Los posibles impactos pueden variar entre diferentes tecnologías de parques eólicos marinos: turbinas fijas versus flotantes, diseños de eje horizontal versus vertical y entre infraestructuras situadas en aguas cercanas a la costa versus las situadas mar adentro. Australia está trabajando para subsanar las lagunas de datos para favorecer la aprobación y regulación ambiental de los parques eólicos marinos a nivel nacional. Para comprender eficazmente los parques eólicos marinos, las respuestas a interacciones con ellos y sus efectos adversos será necesaria la aportación de todas las Partes del ACAP.

RECOMENDACIONES

Que el Grupo de Trabajo sobre Captura Secundaria de Aves Marinas y el Grupo de Trabajo sobre Población y Estado de Conservación tomen las siguientes medidas:

1. Reconocer los posibles efectos adversos que los parques eólicos marinos pueden tener sobre los albatros y petreles incluidos entre las especies listadas del ACAP y otras aves marinas.
2. Destacar la importancia de llevar a cabo investigaciones específicas para mejorar la comprensión de los posibles impactos de los parques eólicos marinos sobre los albatros y petreles incluidos entre las especies listadas del ACAP y otras aves marinas.
3. Animar a las Partes a compartir los resultados de las investigaciones sobre las interacciones con los parques eólicos marinos de los albatros y petreles incluidos entre las especies listadas del ACAP y en otras aves marinas, así como sus efectos adversos.

Développement de l'infrastructure des parcs éoliens en mer en Australie

RÉSUMÉ

Les dispositions relatives à la gestion des infrastructures australiennes d'énergie renouvelable en mer sont en cours d'élaboration. Elles se concentrent actuellement sur les parcs éoliens en mer. Les albatros et les pétrels inscrits à l'ACAP, ainsi que d'autres oiseaux de mer, peuvent être affectés négativement par les parcs éoliens en mer. Ces impacts environnementaux comprennent les risques de collision, les effets barrière et l'éloignement. Les informations disponibles ne suffisent pas à élaborer une base de données probante qui permettrait de résoudre les menaces spécifiques pesant sur les albatros et les pétrels inscrits à l'ACAP – ainsi que sur d'autres oiseaux de mer de l'hémisphère sud – dans les zones où un parc éolien peut être situé dans l'environnement marin. Les impacts potentiels peuvent varier selon les technologies éoliennes : turbine posée ou flottante, conception à axe horizontal ou vertical ; et selon que l'infrastructure est située dans des eaux littorales ou dans des eaux extracôtières. L'Australie s'efforce de combler ces lacunes en matière de données afin de faciliter l'approbation environnementale et la réglementation des parcs éoliens en mer au niveau national. Pour comprendre efficacement les interactions avec les parcs éoliens en mer et leurs effets néfastes, mais aussi pour trouver des réponses à ces interactions, la contribution de toutes les Parties à l'ACAP sera nécessaire.

RECOMMANDATIONS

Que le Groupe de travail sur les captures accessoires et le Groupe de travail sur le statut des populations et de la conservation :

1. Reconnaittent les effets négatifs potentiels que les parcs éoliens en mer peuvent avoir sur les albatros et les pétrels inscrits à l'ACAP, ainsi que sur d'autres oiseaux de mer.
2. Soulignent l'importance d'entreprendre des recherches spécifiques afin d'améliorer la compréhension des impacts potentiels des parcs éoliens en mer sur les albatros et les pétrels inscrits à l'ACAP, ainsi que sur d'autres oiseaux de mer.
3. Encouragent les Parties à partager les résultats de recherches concernant les interactions et les effets négatifs des parcs éoliens en mer sur les albatros et les pétrels inscrits à l'ACAP, ainsi que sur d'autres oiseaux de mer.

1. INTRODUCTION

Australia has established domestic arrangements to manage offshore renewable energy infrastructure. Presently, these arrangements are focused on the development of Offshore Wind Farms (OWF). The arrangements also anticipate development of other offshore electrical energy technologies, such as wave and tidal power.

A legislative framework underpins Australia's arrangements—[Offshore Electrical Energy Infrastructure Act 2021](#) and associated [Offshore Electricity Infrastructure Regulations 2022](#). These provide the legal framework for offshore renewable energy infrastructure, and offshore electricity transmission infrastructure. Under the legislation the Department of Climate Change, Energy, the Environment and Water (DCCEEW) remains the primary environmental regulator. The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is designated as the offshore infrastructure regulator.

Under the legislation, areas may be declared as suitable for OWF development. A declaration area (15,000 km² approx.) was established under this legislation in late 2022 for offshore waters in [Bass Strait off Gippsland Victoria](#) (Figure 1) following consultation with existing industries including fishing, offshore oil and gas, other marine users, state and local government representatives, First Nations people and local communities. Additional declaration areas are anticipated in waters adjacent to the other parts of Australia.



Figure 1. Declared area in Bass Strait off Gippsland Victoria.

2. POTENTIAL IMPACTS ON SEABIRDS INCLUDING ALBATROSSES AND PETRELS

ACAP-listed albatrosses and petrels, and other seabird species in Australia's jurisdiction may be adversely affected by OWFs.

Reid et al. (2022) conducted a qualitative ecological risk assessment for the impacts of offshore wind farms on birds in Australia (see **SBWG11 Inf 01** for more details). The marine area of Australia was separated into eight regions, generally matching State and Territory boundaries. Within each region three sub-regions were identified, coastal (from intertidal shoreline to 2 km from the coast), nearshore (2–20 km from the shore), and offshore (farther than 20 km from the shore). This study identified for individual species a productivity risk score, based on conservation status and generation length, and a susceptibility risk score, and based on species' flight height, flight manoeuvrability, and habitat specialisation. The analysis covered 272 taxa including ACAP-listed albatross and petrel species, as well as birds that migrate across marine areas, such as the Bass Strait between Victoria and Tasmania, shorebirds and seabirds.

There are 24 ACAP-listed albatross and petrel species that breed and/or forage within Australia's jurisdiction (see Table 1). These include listed threatened species under the [Environment Protection and Biodiversity Conservation Act 1999](#) (EPBC Act). Reid et al. (2022) identified 20 albatross and petrel species within Australia's jurisdiction that were at a high risk of impacts from OWF infrastructure in at least one region and particularly in the offshore sub-region (Table 1). This includes the endemic threatened *Thalassarche cauta*, Shy Albatross.

Table 1. Albatross and petrel species referred to in the National Recovery Plan for Albatrosses and Petrels.

Nomenclature for albatross and petrel species referred to in the recovery plan		Threatened species listing under EPBC Act and Offshore Wind Farm risk rating	
Species	Common name	Category	Risk
<i>Diomedea amsterdamensis</i>	Amsterdam Albatross	Endangered	High
<i>Diomedea antipodensis</i>	Antipodean Albatross	Vulnerable	High
<i>Diomedea dabbenena</i>	Tristan Albatross	Endangered	–
<i>Diomedea epomophora</i>	Southern Royal Albatross	Vulnerable	High
<i>Diomedea exulans</i>	Wandering Albatross	Vulnerable	High
<i>Diomedea sanfordi</i>	Northern Royal Albatross	Endangered	High
<i>Macronectes giganteus</i>	Southern Giant Petrel	Endangered	High
<i>Macronectes halli</i>	Northern Giant Petrel	Vulnerable	High
<i>Phoebastria fusca</i>	Sooty Albatross	Vulnerable	High
<i>Phoebastria palpebrata</i>	Light-mantled Albatross	Not listed	High
<i>Procellaria aequinoctialis</i>	White-chinned Petrel	Not listed	High

Nomenclature for albatross and petrel species referred to in the recovery plan		Threatened species listing under EPBC Act and Offshore Wind Farm risk rating	
Species	Common name	Category	Risk
<i>Procellaria cinerea</i>	Grey Petrel	Not listed	High
<i>Procellaria parkinsoni</i>	Black Petrel	Not listed	High
<i>Procellaria westlandica</i>	Westland Petrel	Not listed	–
<i>Thalassarche bulleri</i>	Buller's Albatross	Vulnerable	High
<i>Thalassarche carteri</i>	Indian Yellow-nosed Albatross	Vulnerable	High
<i>Thalassarche cauta</i>	Shy Albatross	Endangered	High
<i>Thalassarche chlororhynchos</i>	Atlantic Yellow-nosed Albatross	Not listed	–
<i>Thalassarche chrysostoma</i>	Grey-headed Albatross	Endangered	High
<i>Thalassarche eremita</i>	Chatham Albatross	Endangered	–
<i>Thalassarche impavida</i>	Campbell Albatross	Vulnerable	High
<i>Thalassarche melanophris</i>	Black-browed Albatross	Vulnerable	High
<i>Thalassarche salvini</i>	Salvin's Albatross	Vulnerable	High
<i>Thalassarche steadi</i>	White-capped Albatross	Vulnerable	High

Potential impacts from OWF include collision risks, barrier and displacement effects. There is a paucity of data upon which to provide a proper evidentiary basis to resolve the specific threats that ACAP-listed albatrosses and petrels, and other seabirds in the southern hemisphere may encounter within areas that OWF may be located within the marine environment. The potential impacts may vary between OWF technologies: fixed versus floating turbines, and horizontal versus vertical axis designs; and between infrastructure located in nearshore versus offshore waters.

Australia is working towards filling data gaps to assist in the environmental approval and regulation of OWFs domestically. Current research priorities include, but are not limited to, those outlined in [NOPSEMA Research Strategy 2023-2025](#) (NOPSEMA 2023), which includes, among other things:

- Understanding the spatial and temporal variability in relative densities of seabird populations, in particular threatened species with foraging habitats and migration pathways within declared and proposed declaration areas for offshore renewables.
- Development and adoption of standardised monitoring approaches for seabirds so that data from regional and small-scale studies can be aggregated to examine cumulative impacts.
- Research, development and testing of methods to predict and quantify attraction/displacement/collision risk on seabird species to estimate mortality from offshore infrastructure on long-term population viability, particularly for species vulnerable due to life history characteristics.
- Developing real-time monitoring techniques that can reliably detect seabirds near to wind turbines, including the detection of collisions with offshore wind turbines, to inform mitigation decisions.

- Research, development and validation of the effectiveness of existing and emerging mitigation technologies to reduce the risk of seabird interactions with wind turbines such as:
 - location, size, number, orientation, and spacing of turbines
 - speed of rotor and blade tips
 - blade visibility and visual / acoustic stimuli
 - efficacy of turbine shutdown or curtailment during important seasonal windows
 - best practice methods for lighting wind farm turbines to reduce night-time collision risk for birds without compromising navigation and vessel safety.

A collaborative approach is merited among ACAP Parties including sharing of research findings concerning interactions with, and the adverse effects of OWFs on ACAP-listed albatrosses and petrels, and other seabirds, and potential technologies and techniques to avoid or minimise those impacts including cumulative impacts.

3. REFERENCES

Commonwealth of Australia, 2022. [National Recovery Plan for Albatrosses and Petrels \(2022\)](#). Department of Climate Change, Energy, the Environment and Water, Canberra.

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