Marine and Coastal

National Environmental Science Program

FINAL REPORT – APPENDICES

Project 3.21

December 2024

Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making – **Appendices**

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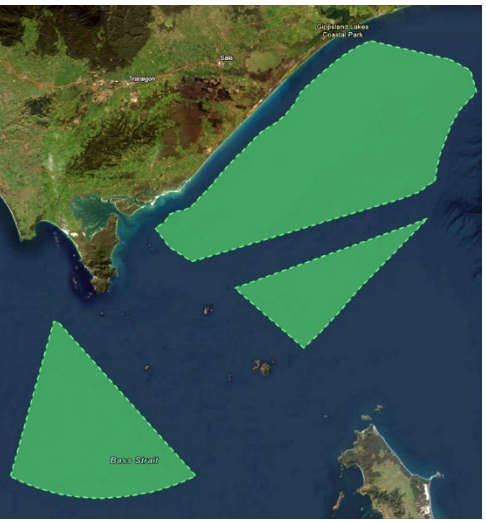
CSIRO



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NESP Marine and Coastal Hub partners

The Australian Institute of Marine Science, Bioplatforms Australia, Bureau of Meteorology, Charles Darwin University, Central Queensland University, CSIRO, Deakin University, Edith Cowan University, Flinders University, Geoscience Australia, Griffith University, Integrated Marine Observing System, James Cook University, Macquarie University, Murdoch University, Museums Victoria, NSW Department of Planning and Environment (Environment, Energy and Science Group), NSW Department of Primary Industries, South Australian Research and Development Institute, The University of Adelaide, University of Melbourne, The University of Queensland, University of New South Wales, University of Technology Sydney, The University of Sydney, University of Western Australia, The University of Wollongong

Disclaimer

This report accompanies the Marine and Coastal Hub Project 3.21 Final Report:

Evans, K. (2024) Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making – Appendices. Report to the National Environmental Science Program. CSIRO.

Both reports are available on the NESP Marine and Coastal Hub website:
www.nespmarinecoastal.edu.au

Contents

Appendix A: Data holder and data user survey

A. Datasets

1. Do you hold any datasets associated with the priority species identified for the Gippsland declaration area?

   [Yes/No]

2. Please identify which species you currently hold data for.

   [choose the relevant species]

3. Please identify what type of data you hold.

   [presence only]
   [presence and absence]
   [population counts]
   [telemetry (movement) data, including foraging trip information]
   [reproduction data including breeding cycles, incubation/chick rearing information]
   [trophic information, including diet and biochemical indices]
   [forage species information including population dynamics]
   [other: please identify]

4. Are you the original data holder?

   [yes/no]

5. If you are not the original data holder, please identify who is the original data holder.

   [free text box]

6. Was the data collected using public funds (e.g., state/territory/Commonwealth funding)?

   [yes/no/some]

7. If some of the data was collected using public funds, please identify the funder/funding scheme (e.g., National Environment Science Program).

   [free text box]

8. What format is the data currently in (e.g., excel spreadsheet, Rdata file, NetCDF file, Oracle database)?

   [free text box]

9. Is the data currently held in a formal/informal repository (e.g., Atlas of Living Australia, Australian Ocean Data Network, MoveBank, GitHub etc)? If no, please go to question 14.

[yes/no]

10. Please identify the repository in which the data are held.

    [free text box]

11. Is this repository open to the public (i.e., is it openly searchable and can anyone download raw datasets from the repository)?

    [yes/no]

12. If the repository is not open to the public, does the repository provide for access to metadata associated with the data?

    [yes/no]

13. If the repository is not open to the public, can requests for access to data be made via the repository?

    [yes/no]

14. If the data are not held in a formal repository, is any metadata associated with the data able to be accessed by the public?

    [yes/no]

15. If yes, where can that metadata be found?

    [free text box]

16. Can requests for access to the data be made via the metadata listing?

    [yes/no]

17. If the data is not available publicly (including only being available by request), what are the reasons for current limitations on access to the data?

    [free text box]

18. Are those limitations able to be lifted/resolved at all?

    [yes/no]

19. If yes, what would be required to lift/resolve those limitations?

    [free text box]

20. Has any of the data you currently hold been used directly in any state/Commonwealth planning/assessment/regulation process associated with state/Commonwealth legislation?

    [yes/no]

21. If yes, please provide the details of the data used, when it was used and for what purpose it was used.

[free text box]

B. Data products

1. Have any derived products been produced from the data (e.g., maps, publications, factsheets, graphical representations of population metrics, RShiny apps, web platforms)?
   [yes/no]

2. Please list the derived products produced from the data.

[free text box]

3. Are these derived products open to the public (i.e., are they openly searchable and can anyone access them)?

[yes/no]

4. If yes, please list where the derived products can be accessed.

   [open text box]

5. If no, what are the reasons for current limitations on access to the derived products?
   [free text box]

6. Are those limitations able to be lifted/resolved at all?

   [yes/no]

7. If yes, what would be required to lift/resolve those limitations?

   [free text box]

8. We are compiling a bibliography of publications relevant to the priority species for the Gippsland declaration area. We would appreciate if you could provide the details of any publications associated with your data or data products, including where these can be sourced from (doi's, weblinks). If there are publications that you know of that are not currently available for access/download but can be shared, we would appreciate if you could please forward these to karen.evans@csiro.au.

C. Data use

1. What is the primary purpose of your use of data relating to the priority species identified for the Gippsland declaration area?

   [state/Commonwealth planning of ORE]
   [state/Commonwealth assessments under relevant legislation]
   [state/Commonwealth regulation of ORE under relevant legislation]

[development of guidelines for ORE proponents]
[preparation of proponent submissions into planning/assessment/regulation processes]
[other: please identify]

2. What data are you most interested in for your primary purpose?

   [Presence/absence, including frequency of occurrence on seasonal and multi-year time scales.]
   [Distribution, including movement dynamics and habitat use (for feeding, breeding, resting etc.) on seasonal and multi-year time scales.]
   [Population dynamics, including abundance and trends and reproduction metrics.]
   [Understanding of forage (dietary) species dynamics (distribution, abundance) and connections to migratory timing and movement dynamics.]
   [other: please identify]

3. What data formats are of most use to you?

   [I don't know]
   [raw data in any format]
   [raw data in specific formats]
   [derived metrics (e.g., position estimates, frequency of occurrence, frequency of use, absolute abundance estimates, density kernels)]
   [derived outputs from complex modelling frameworks (e.g. spatial distribution models, population viability models, population dynamic models, cumulative effects frameworks, whole of system models)]
   [other: please identify]

4. Would derived products (e.g. maps, publications, graphical representations of population metrics, web-based information platforms) be of more of use for your primary purpose than raw data?

   [yes/no]

5. What derived products would be of most use?

   [free text box]

6. Do you need the data/data products for your primary purpose to be able to be accessed at any time?

   [yes, I need it when I want it at any time]

   [I am willing to wait for the data/data products as long as I know who to contact for the data/data products or where to go to access the data/data products]

   [I don't care]

7. How familiar are you with data repositories containing biodiversity data including data on the priority species for the Gippsland declaration area (e.g. Atlas of Living Australia, Australian Ocean Data Network, MoveBank)?

   [very familiar]

   [somewhat familiar]

   [I have no idea]

8. Are you comfortable being able to find data available across multiple repositories?

   [Yes, I undertake searches for data all the time]

   [I would need someone to point in me in the right direction, but once I know which repositories hold what, I'm all good]

   [Not at all comfortable, I need someone to deliver me the data I need via the one platform (a one stop shop)]

9. Are you comfortable being able to find data products available across multiple repositories?

   [Yes, I undertake searches for data products all the time]

   [I would need someone to point in me in the right direction, but once I know which repositories hold what, I'm all good]

   [Not at all comfortable, I need someone to deliver me the data products I need via the one platform (a one-stop shop)]

Thank you for your time and effort in supporting this project and preparation for the workshop.

Australia's National
Science Agency

Appendix B: Workshop report

Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making: workshop summary

National Environment Science Program project 3.21

December 2023

Acknowledgements

Thanks is extended to all workshop participants for their time and input into the workshop. This workshop was undertaken as part of the National Environment Science Program (NESP) Marine and Coastal Hub Project 3.21 “Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making”, jointly funded by CSIRO and the hub. Hub partners include The Australian Institute of Marine Science, Bioplatforms Australia, Bureau of Meteorology, Charles Darwin University, Central Queensland University, CSIRO, Deakin University, Edith Cowan University, Flinders University, Geoscience Australia, Griffith University, Integrated Marine Observing System, James Cook University, Macquarie University, Murdoch University, Museums Victoria, NSW Department of Planning and Environment (Environment, Energy and Science Group), NSW Department of Primary Industries, South Australian Research and Development Institute, The University of Adelaide, University of Melbourne, The University of Queensland, University of New South Wales, University of Tasmania, University of Technology Sydney, The University of Sydney, University of Western Australia, The University of Wollongong.

Contents

1. Introduction

The offshore renewable energy (ORE) sector is rapidly developing in Australia's Commonwealth and State waters with six priority areas for offshore wind identified in August 2022. An infrastructure area off Gippsland, Victoria was declared in late 2022 (Figure 1) and an infrastructure area off the Hunter region in New South Wales declared in 2023. Public consultation on infrastructure areas in the Southern Ocean, off Victoria and South Australia and off the Illawarra region in New South Wales occurred in 2023 and public consultation on an infrastructure area in Bass Strait off Tasmania is currently underway.

There are several Commonwealth and State and Territory agencies responsible for administering the licensing and regulation of infrastructure projects, including assessing environmental management plans associated with infrastructure activities under Commonwealth and State or Territory legislation. These agencies rely on a strong scientific evidence base to support decisions made under key legislation and to determine effective regulatory processes. Building this scientific evidence base requires efficient and timely access to quality environmental data that are able to be applied effectively for legislative and regulatory processes.

A number of species protected under the *Environmental Protection and Biodiversity Conservation Act* 1999 (EPBC Act) are known to occur throughout the region of the Gippsland declaration area and have the potential to interact with ORE infrastructure during construction, operations and decommissioning. Given the fast pace at which the sector is developing, there is an urgent need to identify information on species likely to interact with ORE infrastructure that can assist in supporting assessment of ORE activities, guiding monitoring programs required to be undertaken by proponents (including assessment of cumulative effects), identifying mitigation and management measures for reducing interactions and associated impacts and informing future research programs for filling knowledge gaps.

While some of the information available for planning, assessment and regulation of offshore renewable energy activities is available in the public domain, there is much that is either embedded in scientific literature, detailed in grey literature, held privately or is in the form of datasets that are yet to be fully analysed. Further, while some datasets might be publicly available, they may not be in formats that are easy to access or can be used by those agencies responsible for administering the licensing and regulation of ORE infrastructure projects.

The Department of Climate Change, Energy, Environment and Water (DCCEEW) and the National Offshore Petroleum Safety and Environment Authority (NOPSEMA) have identified the need for a rapid assessment of information available for the Gippsland declaration area specifically and for a subset of species that are listed as critically endangered or endangered under the EPBC Act (Table 1). This represents the species considered to be potentially at greatest risk to ORE activities. In association, a number of data and information needs for supporting the assessment, monitoring, mitigation and management of interactions between this subset of species with ORE infrastructure have been identified. These fall into two broad categories:

1. baseline conditions and long-term reference datasets; and
2. methods and techniques for monitoring, mitigation and management of interactions and impacts.

In response to those needs articulated by DCCEEW and NOPSEMA, the National Environment Science Program (NESP) Marine and Coastal (MaC) Hub and the CSIRO are undertaking the project “Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making”. This project aims to:

1. identify datasets and information sources relevant to priority species identified by DCCEEW and NOPSEMA for the Gippsland declaration area;
2. identify the source of these datasets and information and their level of accessibility;
3. evaluate the utility of datasets and information identified in 2) for assessments/regulatory processes required to be undertaken by DCCEEW and NOPSEMA; and
4. identify what activities would need to be undertaken to improve the accessibility and utility of datasets and information sources identified in 3) that are not currently accessible in useable formats.

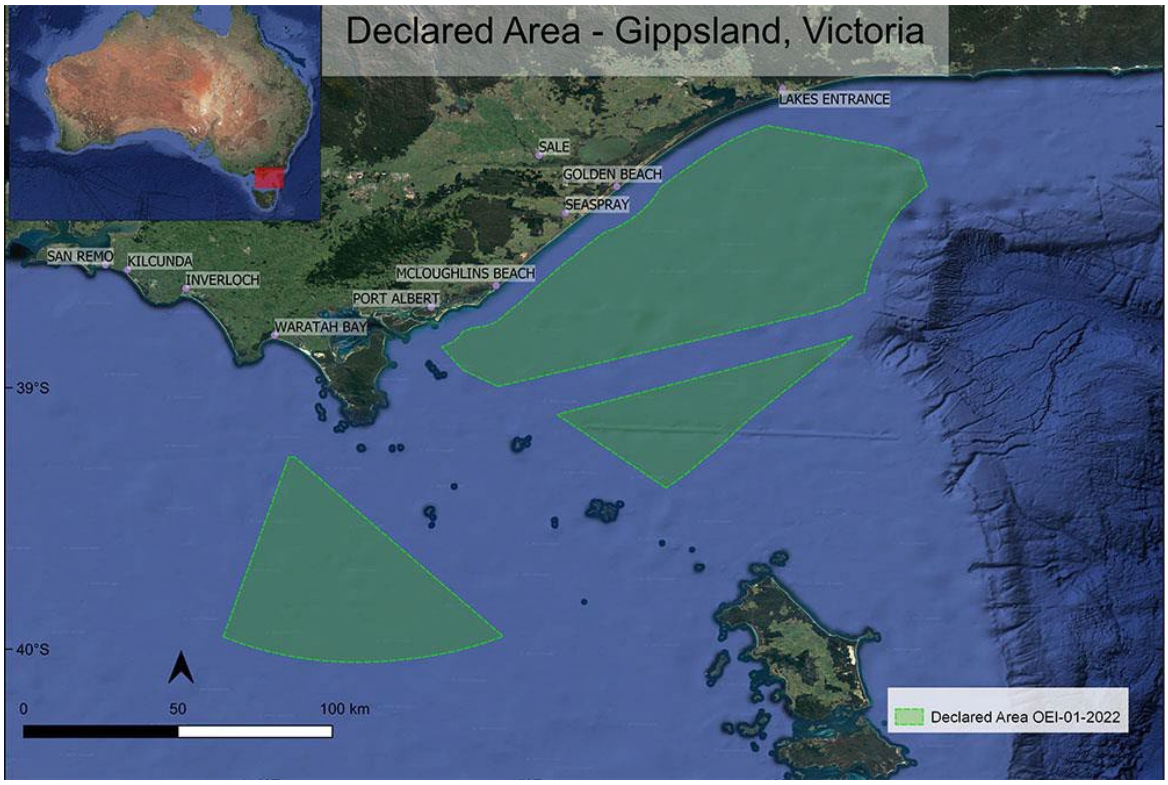


Figure 1. Declaration area for offshore renewable energy off Gippsland, Victoria.

The project will focus on identifying information associated with baseline understanding of:

– Presence/absence, including frequency of occurrence on seasonal and multi-year time scales.

- Distribution, including movement dynamics and habitat use (for feeding, breeding, resting etc.) on seasonal and multi-year time scales.
- Population dynamics, including abundance and trends and reproduction metrics.
- Understanding of forage (dietary), species dynamics (distribution, abundance), and connections to migratory timing and movement dynamics.

2. The workshop

To progress the aims of the project, a workshop of key data holders and research-users was held at the CSIRO Marine Laboratories on 5-6 October 2023. The workshop was held in hybrid mode to maximise inclusivity and scheduled to account for the various time zones of participants. The agenda for the workshop is provided in Appendix 1.
Workshop participants included Commonwealth and State managers, consultants and researchers that have historically or are currently gathering baseline understanding/datasets relevant to the priority species, those conducting assessments under the EPBC Act and the *Offshore Electricity Infrastructure Act* 2021 (OEI Act) and offshore renewable energy proponents relevant to the declaration area.
The workshop aimed to facilitate an exchange of information on assessment and regulation processes associated with offshore renewable energy, the data and information currently available for supporting those assessments and current initiatives underway gathering relevant data and information. The workshop aimed to identify a set of priority action areas for improving both accessibility and utility of information on hand for the Gippsland declaration area for use in planning, assessment and regulation.

Table 1. The priority species identified by DCCEEW and NOPSEMA for the Gippsland declaration area.

Common Name	**Scientific Name**
Birds, shorebirds and seabirds	
Amsterdam Albatross	*Diomedea amsterdamensis*
Australian Gould's Petrel	*Pterodroma leucoptera leucoptera*
Curlew Sandpiper	*Calidris ferruginea*
Far Eastern Curlew	*Numenius madagascariensis*
Grey-headed Albatross	*Thalassarche chrysostoma*
Mongolian Lesser Sand Plover	*Charadrius mongolus mongolus*
New Siberian Islands Red Knot	*Calidris canutus piersmai*
North-eastern Siberian Red Knot	*Calidris canutus rogersi*
Northern Royal Albatross	*Diomedea sanfordi*
Orange-bellied Parrot	*Neophema chrysogaster*
Swift Parrot	*Lathamus discolor*
Shy Albatross	*Thalassarche cauta*
Southern Giant-Petrel	*Macronectes giganteus*
Tasmanian Wedge-tailed Eagle	*Aquila audax fleayi*
Yakutian Bar-tailed Godwit	*Limosa lapponica menzbieri*
Cetaceans	
Blue whale	*Balaenoptera musculus sp.*
Southern right whale	*Eubalaena australis*
Humpback whale	*Megaptera novaeangliae*

To support discussions during the workshop, particularly in identifying the current limitations to accessibility and utility of information that has been collected from the Gippsland declaration area and adjacent regions, a pre-workshop survey was sent out to all those invited to the workshop. The pre-workshop survey focused on three primary areas: (i) datasets, (ii) data products and (iii) data use and data use requirements.

2.1 Background setting

The workshop started with four background presentations on:

1. The project and its aims.
2. The NESP Marine and Coastal Hub and related work on offshore renewable energy occurring within the Hub.
3. Commonwealth offshore renewable energy assessment and regulation under the EPBC Act: priorities
4. Commonwealth offshore renewable energy regulation under the OEI Act: lessons learned, the interface between the EPBC and OEI Acts and priorities looking forward.

These provided workshop participants with information on the broader aims of the project and what other work of relevance to offshore renewable energy was being facilitated through the NESP MaC Hub and DCCEEW. They also provided information on assessment processes and information priorities for assessment, monitoring, management and regulation at regional scales and the challenges and opportunities in generating and delivering priority information. All presentations are provided in Appendix 2.

Presentations referred to several key documents relevant to assessment, monitoring, management and regulation. These included:

- Nature Positive Plan (https://www.dcceew.gov.au/sites/default/files/documents/nature-positive-plan.pdf)
- Key environmental factors for offshore windfarm environmental impact assessment under the Environmental Protection and Biodiversity Conservation Act 1999 (https://www.dcceew.gov.au/environment/epbc/publications/key-factors-guidance)
- NOPSEMA research strategy (https://consultation.nopsema.gov.au/environment-division/nopsema-research-strategy-2023-2025/).

It was noted that the NOPSEMA research strategy was currently being updated based on feedback provided through a public comment process and that an updated version of the strategy would be released in the next month or so.

Discussions on presentations highlighted the need for early engagement by Commonwealth agencies with state agencies and industry, particularly in identifying data and information already held by state agencies and industry and what research programs were being planned or currently underway. It was also noted that these collaborations would be essential for undertaking a regional approach to monitoring programs and assessing impacts, in particular the cumulative effects of multiple developments within a declared area. Further, any monitoring of species will need to be coordinated with the sharing of data across agencies, proponents and researchers, to ensure that impacts of monitoring activities

themselves are minimised and data collected can be brought together to understand cumulative effects (i.e., that data collected is interoperable).

2.2 Results of the pre-workshop survey

Survey respondents comprised a balance of those that hold data on the priority species for the Gippsland declaration area (58%) and data users (42%).

2.2.1 Data and data products

Datasets held by respondents covered all species, with the exception of the swift parrot, with the most numerous datasets being those associated with the three cetacean species (over 50% of respondents held datasets on the three species). The vast majority of datasets held included those based on species presence and absence and population counts (Table 2).

Table 2. Types of datasets on priority species currently held by survey respondents.

Common Name	**Datasets held**
Amsterdam Albatross	Presence and absence, counts
Australian Gould's Petrel	Presence and absence, counts
Curlew Sandpiper	Presence and absence, counts, probability of occurrence/habitat suitability
Far Eastern Curlew	Presence and absence, counts, probability of occurrence/habitat suitability
Grey-headed Albatross	Presence and absence, counts
Mongolian lesser sand plover	Presence and absence, counts, probability of occurrence/habitat suitability
New Siberian Islands Red Knot	Presence and absence, counts, probability of occurrence/habitat suitability
North-eastern Siberian Red Knot	Presence and absence, counts, probability of occurrence/habitat suitability
Northern Royal Albatross	Presence and absence, counts
Orange-bellied Parrot	Presence and absence, counts, telemetry, forage species
Shy Albatross	Presence only, presence and absence, counts, telemetry, breeding, dietary, forage species, demography
Southern Giant-Petrel	Presence only, presence and absence, counts
Tasmanian Wedge-tailed Eagle	Presence and absence, counts, telemetry, breeding, dietary
Yakutian Bar-tailed Godwit	Presence and absence, counts

Blue whale	Presence only, presence and absence, telemetry, probability of occurrence/habitat suitability
Southern right whale	Presence only, presence and absence, counts, telemetry
Humpback whale	Presence only, presence and absence, counts, telemetry

Datasets held originated from a number of sources including state governments, non-governmental organisations, charitable organisations, industry, universities and citizens. Datasets are currently held in excel spreadsheets (77%) and databases (38%), with 57% of respondents identifying that only some of the data were housed in open searchable repositories including the Tasmanian National Values Atlas (https://www.naturalvaluesatlas.tas.gov.au/), Victorian Biodiversity Atlas (https://www.environment.vic.gov.au/biodiversity/victorian-biodiversity-atlas), Atlas of Living Australia (https://www.ala.org.au/), Movebank (https://www.movebank.org/cms/movebank-main), and the Seabird Tracking Database (https://www.seabirdtracking.org/). Metadata on datasets were also made available through agencies such as the Australian Antarctic Division. Approximately half of the survey respondents identified that the data they held could be accessed through formal requests and data sharing agreements submitted through those repositories.

Of those data not currently held in repositories, approximately 20% of respondents identified that the metadata describing those data was publicly searchable. Reasons for metadata or data not currently being publicly searchable included client, project or commercial confidentially, data ownership, data embargoes, co-ownership and active use of datasets. Where there were currently limitations to the access to data 90% of respondents identified that there was some potential to overcome limitations including through consultation with data owners, waiting until embargoes were lifted and entering individual data sharing agreements.

Datasets on priority species were identified by approximately half of the respondents as being used or intended for use in regulatory assessments, environmental impact assessments, recovery plans and determination of biologically important areas. Data products generated from datasets included internal and external reports, scientific papers and maps of sightings, movements and indices of time spent across spatial regions. Approximately 30% of respondents identified that data products were openly searchable and able to be accessed whilst a further 42% of respondents identified that some of their data products were openly searchable and able to be accessed. This included through journal websites, agency websites and formal repositories. Reasons for not making data products openly searchable were similar to those provided on metadata.

2.2.2 Data use

Respondents identified data from the Gippsland declaration areas as primarily being needed and used for State and Commonwealth planning and assessment processes and for the preparation of submissions into those planning and assessment processes. Respondents were most interested in accessing presence/absence data, including frequency of

occurrence on seasonal and multi-year time scales and data on distributions, including movement dynamics and habitat use (for feeding, breeding, resting etc.) on seasonal and multi-year time scales. Respondents were most interested in derived metrics derived from raw data (e.g., position estimates, frequency of occurrence, frequency of use, absolute abundance estimates, density kernels), closely followed by the raw data itself, with spatial maps, web-based platforms and spatially explicit modelling outputs identified as the most useful data products. Access to those data and data products was predominantly needed at any time rather than having to wait. Approximately 80% of all respondents were familiar with identifying, accessing and searching data repositories containing biodiversity data, with just under half of those identifying that they needed a starting helping hand but could then search and access datasets independently. Only 13% of respondents identified that they required someone else to deliver the data and data products needed.

2.2.3 Limitations

Key limitations associated with the pre-workshop survey included:

- Not all data holders responded to the workshop invitation (e.g., gaps in shorebird /experts).
- Not all workshop participants completed the survey (>70 participants, 19 respondents).
- Data identified often was from a broader region than eastern Bass Strait, because of the wider range of the species and in some cases incorporated information from extensive areas beyond the scope of this project's focus.
- Some data holders did not know the full complement of data held or in what formats the data were in.
- There is mixed interpretation of what constitutes "publicly available/accessible".

It was noted that accessibility of data could take varying forms ranging from completely open access, having a metadata record that is publicly searchable from which the data holder and any publications can be identified, to having a network of researchers you can contact to be able to access publications from.

2.3 Workshop discussions

2.3.1 Discussion on the priority species list

When discussing the priority species list, it was noted that the list was not exhaustive and should be viewed a starting point for consideration of those species that might be at most risk from ORE infrastructure and activities. It was developed based on information in the Species Profile and Threats (SPRAT) database, the conservation status of the species, and information in associated recovery plans that suggested that species might occur in the declaration area and that might be at risk. It was noted that there was a statutory document in place that identifies that species are protected and need to be considered and managed. The workshop was identified as a great opportunity for those with expertise to be able to provide advice on whether a species on the priority list is unlikely to occur in the declaration

area, what data might be available on the species, how good are those data for informing assessments, where are the gaps and any other expert information that could be used to narrow the list down to the species that are most at risk and need to be focused on.

Participants noted that the priority list did not currently consider several species that might be at risk of infrastructure and may not be currently either be listed as endangered or critically endangered (but may or may not be listed), including white-bellied sea eagles, gannets, shearwaters, dwarf minke whales, orcas, fin whales and small cetaceans such as bottlenose and common dolphins and the Burrunan dolphin. In discussing additional species for consideration, it was noted that if a regional planning exercise is implemented across the declaration region, it is likely that it will cover Commonwealth and state waters and potentially a terrestrial component. If that happens, it will dispense with any jurisdictional barriers, resulting in those species listed under state legislation needing to be considered. In discussing jurisdictional boundaries, it was noted that in considering the Gippsland declaration area, given the animals move across boundaries, that all relevant state agencies be involved in conversations around planning, assessment and regulations processes. It was proposed that ecosystem modelling frameworks that considered pressures and impacts could be utilised to scope potential species and provide some transparency in the selection process for priority species.

It was also noted the potential risk of pathogenic avian influenza on bird populations and the potential compounding impact this disease might have. This could result in species currently not listed rapidly declining and the status of those species changing. It would also mean that those bird populations would not be accessible for monitoring or collection of baseline data.

Discussion focused on what might be feasible in terms of collecting/accessing data on some of the species in the priority list, particularly for those species distributed globally and for whom only part of their distribution occurs in eastern Bass Strait. To assess impacts on a population, information on how the population might be changing through time is needed. This would mean being able to access information from outside Australia and collaborating with international groups/agencies collecting those data.

Given the difficulty in identifying some species (and sub-species), it was queried whether it would be worth grouping species or sub-species (such as the great albatross, sub-species of knot, Australian and New Caledonia Gould's petrel, shy and white-capped albatross) together for monitoring purposes. In response, it was identified that undertaking such an approach would need to be carefully thought through and identified as a legitimate approach to gathering the information needed for assessments and decision making. This is because the species are protected individually and any prospect of losing visibility of an outlier was avoided. It was identified that a discussion on the level to which the identification of species was appropriate was needed, as it would assist in understanding what datasets might be useful for assessment. In relation, it was noted that without clear criteria for prioritising species that was easily accessible and shared, then it would be almost impossible to justify utilisation of groupings or surrogates or proxies. Ultimately, there is a need to determine what can be done now with the information available for particular species and whether there is information on another species that could approximate the priority species in the interim until adequate data is collected on the priority species.

It was raised that for those groups undertaking research under permits there is a requirement to report on data collected, but that there was some potential for this not to be occurring. Ensuring that permit holders submitted their data to state and Commonwealth agencies was highlighted as a potential mechanism for filling gaps. It was noted however, that permit holders only had to submit their data after the expiry of their permit, so if permits were for lengthy periods of time, information needed for assessment may not be made available on shorter time scales. Somewhat related it was identified that it was unclear if permits were required for at-sea deployments of tags on seabirds and whether those data were being captured through permitting processes.

2.3.2 Further input of information on priority list species

When discussing individual species, participants noted:

Amsterdam albatross: there are very few records in Australian waters, it has a small population that breeds in the Indian Ocean and that the tracking information available for the species did not identify that those individuals tracked moved into Bass Strait.

Australian Gould's petrel: at sea data was collected by the NSW Environment agency in 2010-2012 with about 40% of movements entering Bass Strait. Since then, the population has declined by 30% with this decline thought to be associated with a shift of food resources further south from their main breeding colony (Cabbage Tree Island). This would result in birds having to travel further to access food and as a result, the success of their foraging trips during incubation has declined. Since 2010-2012 individuals have been observed to be breeding 450kms further south of Cabbage Tree Island on Montague Island. It is known that about 50% Of birds returning from their honeymoon period half move north and half move south. Overlaid on this is that New Caledonian Gould's petrel during their honeymoon period travel to Western Australia and almost certainly move through Bass Strait. However, there is currently no movement data available for this species and distinguishing the two sub-species is difficult.

Grey-headed albatross: Natural Resources and Environment (NRE) Tasmania runs a monitoring program on Macquarie Island collecting breeding effort and breeding success. There is some tracking data that suggests that they do not move north into Bass Strait. They are noted as a non-frequent visitor to Australian waters and may be from other subantarctic/southern islands.

Northern royal albatross: breed principally in the Chatham Islands with a smaller breeding population on Otago Peninsula, New Zealand. The species occurs in Australian waters with some data available from at sea charters. Accessing most data on the species would require collaboration with New Zealand agencies.

Swift parrots: most information collected relates to survival and breeding within the context of forestry operations in the important breeding areas in Tasmania. There has been some short-term tracking with GPS tags to assess movements in the breeding area over short periods of time.

Shy albatross: a monitoring program run by NRE Tasmania on Albatross Island has been operating for 43-44 years with populations on Pedra Branca and Mewstone Rocks monitored less frequently.

Southern giant petrel: annual chick counts are conducted (as a proxy for the population as a result of high disturbance risk) by NRE Tasmania. The use of drones is currently being trialled as a method for improving census counts. Birds observed in Bass Strait are probably from multiple populations throughout the Southern Ocean (not just the Macquarie Island population). It was noted that most giant petrels observed in Australian waters were northern giant petrels, but there are difficulties in distinguishing northern and southern giant petrels at sea.

Wedge-tail eagle: is found on Cape Barren and Flinders Island, with the assumption that these birds are the Tasmanian sub-species. From what was known of their movement patterns, they rarely fly over marine areas and do not extend far out to sea.

Yakutian bar-tailed godwit: mostly occurs in northern and western Australia, with the subspecies *baeuri* occurring in eastern and southern Australia. The species was probably out of scope for the Gippsland declaration area.

Blue whale: it was noted that of the sub-species, the pygmy blue whale was probably most relevant, although without acoustic and genetic data it was difficult to distinguish between the subspecies. While sighting information was sparce for eastern Bass Strait, what data there was suggested that the nominated season for blue whales as detailed in the Commonwealth recovery plan was outdated, with the season extending between October and December, noting that the species of blue whale (whether they were pygmy or New Zealand blue whales) was not clear. Tracking data available has not recorded movements of individuals into eastern Bass Strait, noting that no individuals within Bass Strait have been tagged. Genetic data has identified that the Indian Ocean Australian population is separate to the New Zealand population, and it is thought that the animals observed off the east coast of Australia are part of the New Zealand population.

Southern right whale: the small amount of tracking data available for this species has only recorded one individual moving into western Bass Strait at the end of the calving/nursery season (so when heading to the foraging grounds). Of all tracking data available only one individual from the south-east Australia sub-population has been tagged and movement data collected. Few systematic survey data are available for the south-east Australian region, with most sightings data opportunistic. It was noted that the Biologically Important Area (BIA) for southern right whales has recently been updated.

Humpback whale: sightings data collected by a number of organisations suggests that changes are occurring to arrival and departure times, habitat use and increased feeding activity, with some individuals spending extended periods of time in east Gippsland.

2.3.3 Additional datasets

Further datasets to that gathered through the pre-workshop survey that were identified during discussions included:

Australian Gould's petrel: movement data.

Orange bellied parrot: sightings records, timing of migration, banding data, breeding success, survival, population size, VHF tracking (local movements).

Wedge tail eagle: cameras are being used at Wattle Hill wind farm that are providing flight path information. Flight information has been collected prior to wind farms being constructed as well as after the construction of the Musselroe Bay wind farm.

Blue whale: acoustic data providing presence and absence and seasonal presence, at-sea sightings, citizen science sightings.

Upcoming research that will be collecting data on priority species identified during discussions included:

Australian Gould's petrel: three year tracking program using GLS tags aimed at clarifying the southward movement of birds from the Cabbage Tree Island and Montague Island breeding populations (NSW Environment; note this study will not indicate flight heights or accurate positions at-sea).

Orange bellied parrot: further VHF tracking following a pilot study; over the horizon hoping to start GPS tracking of individuals to determine migratory pathways, however there is a need to test potential impacts of trackers as birds first as they are right at the limits of the weight range to carry trackers (previous trials have not been successful) (NRE Tasmania, Zoos Victoria).

Shy albatross: GPS tracking from Albatross Island (NRE Tasmania, Deakin University).

Blue whale: tracking of south bound individuals along the western coast of Australia (AIMS), noting that these individuals are unlikely to be part of the same population as those utilising waters in the Gippsland declaration area.

Southern right whale: tagging of unaccompanied individuals (who undertake long range movements and demonstrate less site fidelity to particular sites) off east South Australia at the start of the season (Flinders University, NESP project 3.15). In discussing this project, it was noted that at this point in time, it is unknown what proportion of whales utilising this region might be derived from the south-east sub-population given the tagging location is situated at the boundary of what is currently regarded for the two sub-populations. It was also noted that the project would be collected biopsy samples and was aiming to provide greater insight into potential mixing of the two sub-populations in the area via genetic analyses.

When discussing datasets, it was repeatedly noted that correct interpretation of data was key, particularly where data have particular complexities, or there may be errors or biases associated with the data. Any use of data therefore needed to be collaborative with those collecting the data and involve expert input. In this regard, workshop participants identified that it was preferable to have a data sharing agreements in place and partnerships for use of data collected from species.

One further dataset identified by participants relating to the three cetacean species was that collected by marine mammal observers (MMOs) under permit requirements for undertaking seismic surveys. It was noted that because the data contains personal information it can only be used under confidentiality agreements and that because there are no guidelines in place in terms of MMO training and experience, the reliability of the dataset was unknown. It was identified however that some observers are quite experienced, and these observer data could be used to provide some seasonal information on presence. Further discussion identified that MMO data is both observation biased and heavily biased towards certain times of year and that these biases would need to be accounted for.

2.3.4 Additional data products

It was noted that biologically important areas (BIAs, https://www.environment.gov.au/webgis-framework/apps/ncva/ncva.jsf) had been defined for all three priority cetacean species (with the south right whale BIA recently updated and the blue whale and humpback whale BIAs currently being updated) and of the priority seabird species, they have been defined for Australian Gould's petrel, shy albatross and southern giant petrel. In discussing BIAs, participants noted that BIAs may not necessarily reflect foraging of species outside the BIAs. It was noted that the BIA process was meant to identify "key" areas for each species – not all areas that a species might occur in – and are based on all information available at the time of establishment or revision[4]. Further discussion focused on the suitability of MMO data for determining relative density due to the spatial and temporal exclusions generated by BIAs that then resulted in spatial and temporal disparities between MMO data and data used to determine BIAs. This was raised as a limiting some data collection of relevance for updating BIAs in response to potential shifts in the distribution of species and habitat utilisation.

When discussing data products, it was identified that products on habitat use such as kernel utilisation or gridded time in area or habitat suitability model outputs that incorporate space and time were useful for assessments. Other products identified were the maps in recovery plans, the protected matters search tool, fisheries stock assessments, DEECA's CoastKit tool (noting that there is no species data in this at the moment, but this is a work in progress, https://mapshare.vic.gov.au/coastkit/) and NatureKit for habitat use/distribution of terrestrial species (https://www.environment.vic.gov.au/biodiversity/naturekit). The Agreement for the Conservation of Albatross and Petrels (ACAP) hold population data that can be accessed via application and produce species assessment forms that are in the process of being updated. Several agencies and programs provide their reports publicly available online such as the Arthur Rylah Institute and NESP Hubs. NOPSEMA publishes proponents' environment plans

[4] The protocol for designation of BIAs for protected species is available at: https://www.dcceew.gov.au/sites/default/files/documents/protocol-designation-bia-marine-species.pdf

on their website, thereby providing information on potential environmental impacts of (at the moment) oil and gas activities on the marine environment. These plans include information resulting from proponents' research or monitoring and analyses and consideration of the impacts of marine underwater noise.

Regarding orange bellied parrots, it was identified that the Arthur Ryler Institute had been modelling habitat extent in Victoria over 5 year periods from the 1980s to 2000s. This modelling process is planned to be repeated based on data in a shared resight database and banding database that pulls data from Tasmania, South Australia and Victoria so that modelling and mapping projects can be informed with a current and regularly updated dataset.

It was highlighted that a substantial body of work on the priority species has been published, emphasising the need for strong literature search and collection of outputs, particularly for consideration by those planning baseline surveys and conducting pilot studies. Workshop participants were reminded that the project was compiling a bibliography to identify what had already been published on the species and encouraged to provide their publications, including grey literature and technical reports. Workshop participants were also reminded of a second project that was identifying datasets across a broader range of species nationally and producing metadata records for those that will be housed within the Hub. The Hub will be working with DCCEEW, NOPSEMA and workshop participants to identify what might be next steps beyond data and metadata identification.

2.3.5 Data accessibility and use

It was noted that data curation was an issue, particularly in updating databases and data products and that it was a considerable process in bringing variable datasets together to produce data products. The three projects currently underway through DCCEEW on orange-bellied parrots and swift parrots, albatross and cetaceans were aimed at providing guidance on surveys and approaches to managing the data generated. This is aimed at ensuring that proponents are working on a consistent basis when undertaking assessments, and that datasets produced in the declaration area are interoperable and can support regionally based monitoring and reporting to understand cumulative effects and enable adaptive management.

Data quality and processes for quality assurance was also raised as an issue. It was noted that CSIRO was currently designing a quality assurance process for Parks Australia for use on data products. This was aimed at helping Parks Australia when making decisions on products, structured around six questions. The six questions go through the entire life cycle of a product focusing on how the data collection is designed, how the data is collected and stored, how it's analysed and used. The process being utilised is quite well established in other domains, and could be developed to be applied elsewhere. It was noted that repositories could play a role here, but it would depend on the data type.

Discussions identified that there were probably two approaches to data accessibility that could be identified dependent on data type. The first being species distribution, location and movement data, where there are already repositories in place that can be accessed with confidence that the data held within are of high quality and come with extensive metadata

that describes how the data were collected. The second is population data, from which population size and trend can be derived, which are important for tracking change in populations through time. These data tend to be tailored to specific species and are held predominantly by individual agencies as part of significant/long-standing monitoring programs. In association, they tend to be formatted individually depending on agency use, so it is not a simple process to reformat data for upload to a repository and would require time and effort (and finances to support that time and effort). The data also requires more nuanced interpretation and therefore are better suited to data sharing agreements and partnerships. Bringing such datasets into common formats or standardised units for input into models this is not a straightforward issue. This is where good metadata or input from the data collectors is needed. How to manage individual data agreements across multiple datastreams and developing true equitable partnerships that allow for two-way exchange of information were raised as important considerations.

It was also noted that species recovery teams (when established) had an important role in bringing stakeholders together and understanding information that is currently available, particularly where those recovery teams are already gathering information in regard to the conservation status, risks and data gaps for species.

2.4 Directions forward

In considering the priority species list, discussions focused around whether there were some priority species with relatively dense datasets that a program of work could be focused on to develop products or outputs that could deliver into assessments and regulation. A number of long-term monitoring programs were highlighted including shy albatross and Australian Gould's petrel.

It was highlighted that a coordinated and collaborative approach across government, research agencies, consultants and industry was needed for a number of reasons: (i) appreciating the larger body of work already done; (ii) understanding how declaration areas and developments are distributed (iii) being able to identify the consistency and visibility of datasets and data holders; (iv) identifying the pathways for getting information effectively, efficiently and consistently to the end user, including the partnerships and agreements needing to be in place; (v) prioritising where to put efforts towards further data collection and research; (vi) maximising/leveraging economies of scale; (vii) managing resources, including people.

This would ensure that information exchange was well coordinated and the effectiveness and the efficiency of delivery of information and efforts into priority areas was well supported. An example of a centralised system that could facilitate a coordinated collaborative approach was provided – the International Seabed Authority that assesses, manages and regulates licenses for deep sea mining (https://www.isa.org.jm). As an alternative, a hybrid approach was put forward with an example of a cautionary tale where a national data repository was developed but funding was not ongoing, resulting in the repository being essentially non-functional. Coordination needs to occur across industry as well as across the supporting structures for assessment and regulation.

In discussing coordination and collaboration, participants identified that given the placement of declaration areas, the placement of developments within those areas and the movements of species, areas cannot be considered individually. The tension between the assessment process, which is site/development specific and the need to consider species at the right spatial and temporal scale to understand impacts, and in particular cumulative impacts, was raised. The tension between setting up the mechanics that would support such an approach, delivery of research outputs at those scales and the timeline to feasibility license applications, the time period for feasibility licenses and the need for proponents to be assured that they can service legislative information requirements was also discussed at length.

The speed at which what is a new industry and the regulatory framework has and is moving to ensure the industry can be established in an ecologically sustainable way was highlighted. It was further noted that prior to applications of feasibility licenses, who comprised the industry could not be identified and who will be the developers for Gippsland was not known. This is currently limiting engagement processes. In the absence of a formal industry and the development of a body that can represent that industry, it was noted that the Clean Energy Council was a forum for communicating and disseminating information and gathering feedback.

It was identified that in terms of "best practices" for surveys and data management, there were a lot of best practice guidelines available, but no clear understanding of whether they were being applied by proponents and whether the practices that they were using could clearly be defended as best practice. There is a need to confirm establish and socialise appropriate best practice standard protocols for not only collecting but also managing data and information (including meeting data standards that provide for interoperability). It was noted that the larger ORE focused NESP project was collecting information on best practices and that the outputs of this project could provide a starting point for developing further guidance on best practices.[5]

In discussing data gaps around operations, it was highlighted that a key data gap was the flight height of birds. In association, it was noted that because there is currently no ORE infrastructure in the water, there was an inability to use that infrastructure to determine specifically the efficacy of detection of birds from ORE infrastructure using equipment such as Lidar, radar and cameras and the development and testing of associated mitigation measures. It was also noted the challenges in extrapolating information from other regions, particularly given Australia's bird assemblages are different, many birds are nocturnal and many have differing flight behaviour to assemblages elsewhere. In this regard, discussions highlighted that while there was no information on most birds, there was likely to be information on some surrogate species in other areas (e.g., gannets, cormorants) that could be used as a starting point. The pace of the evolution of turbine technology was also noted and in association, the difficulties in determining the noise emissions. This has implications

[5] After the workshop a participant identified that DCCEEW was finalising national guidelines for the survey of cetaceans, marine turtles and dugong, which once published could be considered to be a national standard. Further DCCEEW was developing national underwater anthropogenic noise guidelines, which will consider the cumulative effects of noise.

for providing some guidelines on the distances across which monitoring would need to be carried out. It was noted that there were policies and guidelines at both the Commonwealth and state levels on noise regarding whales.

The need to provide clear guidance on the assessment of cumulative effects and consideration of the resulting impacts was raised multiple times within the context of data gaps and priority needs. It was noted that while some guidance was provided in the Key Environmental Factors document, further guidance was needed. It was identified that a project focused on developing modelling frameworks for evaluating cumulative effects and risks was currently being considered under the NESP program. There was strong encouragement from participants that if this project was to progress, that broad consultation and co-design involving researchers, state and Commonwealth agencies and industry would need to be integrated into the project to ensure that outputs were useful within the context of Commonwealth legislation and associated guidelines.

2.5 Priority action areas

Eight priority action areas for assisting access to and the provision of data and information into assessment and regulatory processes were identified by workshop participants.

Engagement, communication and coordination

1. Better connecting all stakeholders to improve communication, awareness and exchange of information across those generating and using data and information on priority species across the region.

Research prioritisation processes

2. Increasing the transparency and robustness of the prioritisation of species including detailing the criteria used and facilitating a wider discussion on species that need to be considered, particularly those species that might be a risk from infrastructure and future uplisting as a result of impacts.
3. Determining a priority list of impacts needing to be understood and the key datasets needed to quantify impacts (building on the Key Factors document/DCCEEW-NOPSEMA scoping projects).

Ensuring data quality, provenance and interoperability

4. Coordination of data needs for assessment and regulation, including better connecting and utilising the data that is already available, establishment of data standards, best practices and data agreements, including requirements for robust survey designs that will deliver information required for assessment and regulation in useable and interoperable formats.
5. Requirements for reducing uncertainties associated with data currently held, particularly in bringing datasets together for establishing baseline understanding and impacts, and where efforts can be directed to reduce those uncertainties over the short-, medium – and longer-term.

Immediate research needs for determining risk

6. Determining the vertical overlap between infrastructure and birds, in particular flight heights and flight behaviours.
7. Understanding noise emissions from rapidly evolving infrastructure and systems that are multiplicatively placed within a region throughout the lifetime of the infrastructure (construction to decommissioning).
8. Determining clear guidance on the assessment of cumulative effects that considers assessment and regulatory requirements.

2.6 Limitations

While workshop invitations were sent out to a diverse range of stakeholders, research providers and data holders on a range of species either did not respond to the invitation or were not available to take part in the workshop. This meant that stakeholders with knowledge of datasets on most of the shorebird species and the swift parrot did not participate in workshop discussions and in association, contribute to the identification of priority action areas. Further, it should be noted that not all workshop participants contributed to the pre-workshop survey, thereby limiting the overall assessment of datasets held and data use needs. Additional outreach to those missing stakeholders will be undertaken to ensure that information on data and data products can be included in the materials delivered by the project as part of final reporting on the project.

2.7 Next steps

As part of the project, a bibliography on understanding of the priority species already collected will be compiled. Participants were encouraged to pass on the details of any literature relating to the priority species. Following finalisation of the workshop report and bibliography a briefing on the outputs of the project will be provided and following this a final report delivered to the NESP. Participants were encouraged to identify any individuals beyond the workshop that might be interested in attending that briefing. All outputs from the project will be made available on the NESP website. Further information on the project can be found at: https://www.nespmarinecoastal.edu.au/project/3-21/.

Further information on the other offshore renewable energy project discussed by the workshop can be found at: https://www.nespmarinecoastal.edu.au/project/3-3/.

Further information on the southern right whale project discussed by the workshop can be found at: https://www.nespmarinecoastal.edu.au/project/3-15/.

Details of the proposed project developing a cumulative effects and risk assessment will be made available once the NESP MaC Hub Research Plan for 2024 is released.

A.1 Appendix 1. Workshop agenda

Thursday 5 October

11.00-11:15	Welcome, introduction and overview of objectives of workshop	Karen Evans
11:15-11:30	Overview of NESP MaC Hub, objectives, priorities and focus on offshore renewable energy	Alan Jordan
11:30-11:45	Q&A	Moderator: Karen Evans
11:45-12:15	Commonwealth offshore renewable energy assessment and regulation under the EPBC Act: priorities	Chris Hicks
12:15-12:45	Commonwealth offshore renewable energy regulation under the OEI Act: lessons learned, the interface between the EPBC and OEI Acts and priorities looking forward	Raquel Carter
12:45-13:00	Q&A	Moderator: Karen Evans
13:00-13:30	Lunch	
13:30-14:30	Overview of pre-workshop survey results and discussion on what's been captured and what might be missing	Karen Evans with input from all
14:30-15:30	Datasets: current limitations and overcoming accessibility and useability challenges	All
15:30-15:45	Afternoon tea	
15:45-16:45	Data products: current limitations and overcoming accessibility and useability challenges	All
16:45-17:00	Wrap up Day 1 and questions	Karen Evans

Friday 6 October

10:15-10:30	Morning tea	
10:30-10:45	Recap of day 1 and questions	Karen Evans
10:45-11:45	Data use and needs: current limitations and overcoming accessibility and useability challenges	All
11:45-13:00	Priority areas for directing efforts – how do we improve access to and use of data and data products	All
13:00-13:30	Lunch	
13:30-14:20	Priority actions and next steps, including DCCEEW research scopes and future needs - synergies and opportunities for leveraging actions	All
14:20-14:30	Wrap up	Karen Evans

A.2 Appendix 2. Agencies, organisations and companies represented at the workshop

Agency/organisation/company
Australian Institute of Marine Science
Bluefloat
Copenhagen Energy
Corio
CSIRO Environment Data61
Deakin University
Department of Climate Change, Energy, the Environment and Water Australian Antarctic Division Biodiversity Division Nature Positive Regulation Division Net Zero Industries Division
EPS Energy
Fathom Pacific
Flinders University
Hi Def Aerial Surveying Ltd
JASCO Consulting
Latitude 42 Environmental Consultants Pty Ltd
National Environment Science Program Marine and Coastal Hub
New South Wales Department of Planning and Environment
Nexsphere
NRM South
North Barker Ecosystem Services
Ørsted
Ross Analytics
RPS Group
Seadragon
Sky Born Renewables
Star of the South
Symbolix
Tasmanian Department of Natural Resources and Environment
University of Queensland

University of Tasmania
Vena Energy
Victorian Department of Energy, Environment and Climate Action Arthur Rylah Institute for Environmental Research
Western Australian Department of Water and Environmental Regulation

Appendix C. Workshop presentations

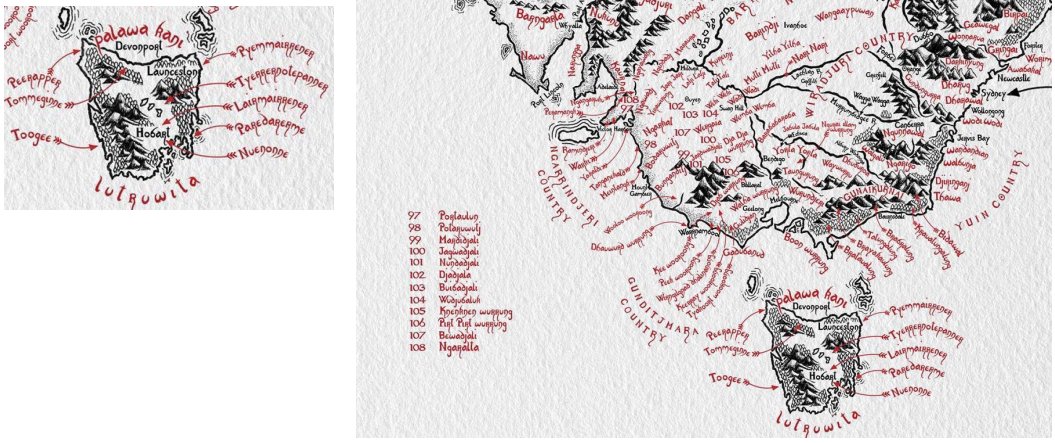
C.1 Workshop introduction

Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making

5-6 October 2023

CSIRO Marine Laboratories, Hobart and online

Australia's National Science Agency

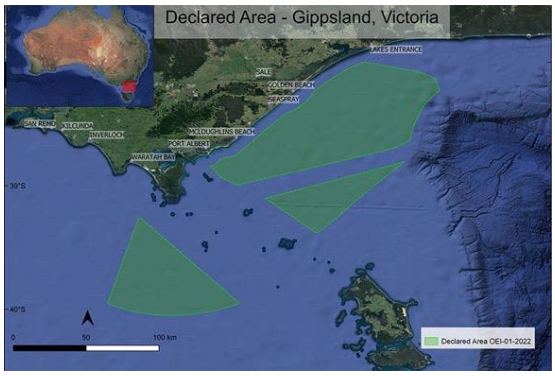


Alexander Broers, Wildwood maps
https://wildwoodmaps.com/

Background

The context: development of ORE

ORE is part of the mix in transitioning the energy sector within the context of the Paris Agreement



Rapid development of legislation, identification of potential renewable energy zones – both onshore and offshore, state and Commonwealth

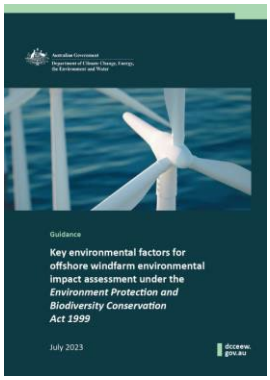
First offshore wind zone (Gippsland) declared in 2022

Five other regions identified: region off Hunter declared 2023, notice of proposal for declaring Southern Ocean and Illawarra regions released 2023, proposals for area off Bunbury/Perth and northern Tasmania expected by the end of 2023.

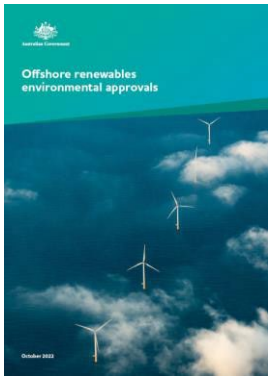
The context: development of ORE

First step: guidance for licensing/assessment processes

Guidance for offshore renewables environmental approvals – sets out interactions between the licensing and environmental approvals processes of the OEI Act and EPBC Act



Guidance on offshore wind farm environmental impact assessment under the EPBC Act



Moving forward: assessment of environmental management plans for licensing

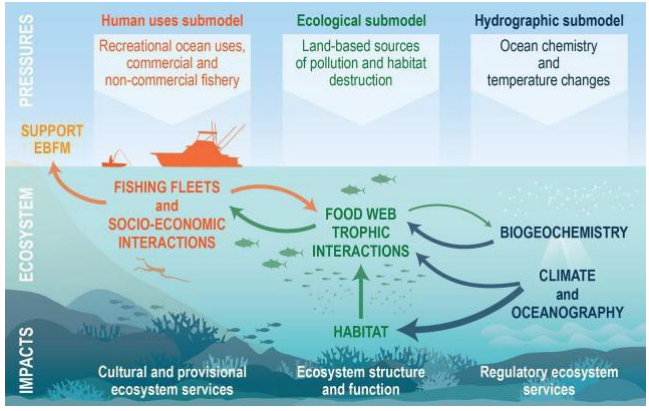
NOPSEMA: research strategy

The context: development of ORE

All require information on the environment (to understand its current state), understanding of risks to the environment from activities (to understand how species and habitats might be impacted) and understanding of impacts and mechanisms by which those impacts can be identified and quantified

Development of data standards and best practices

Identification of information needs, information available and adequacy of existing information for assessments



The context: priorities for DCCEEW and NOPSEMA

Common Name	Scientific Name
Birds, shorebirds and seabirds	
Amsterdam Albatross	Diomedea amsterdamensis
Australian Gould's Petrel	Pterodroma leucoptera leucoptera
Curlew Sandpiper	Calidris ferruginea
Far Eastern Curlew	Numenius madagascariensis
Grey-headed Albatross	Thalassarche chrysostoma
Mongolian Lesser Sand Plover	Charadrius mongolus mongolus
New Siberian Islands Red Knot	Calidris canutus piersmai
North-eastern Siberian Red Knot	Calidris canutus rogersi
Northern Royal Albatross	Diomedea sanfordi
Orange-bellied Parrot	Neophema chrysogaster
Swift Parrot	Lathamus discolor
Shy Albatross	Thalassarche cauta
Southern Giant-Petrel	Macronectes giganteus
Tasmanian Wedge-tailed Eagle	Aquila audax fleayi
Yakutian Bar-tailed Godwit	Limosa lapponica menzbieri
Cetaceans#	
Blue whale	Balaenoptera musculus sp.
Southern right whale	Eubalaena australis
Humpback whale	Megaptera novaeangliae

Set of priority research topics focused on whales, seabirds and migratory birds

Several workshops
Two NESP projects
Three NOPSEMA projects

Note: list has since been updated

The project

Problem:
Not all information that might be relevant for assessment and regulation purposes is available in the public domain

Many datasets are yet to be fully analysed

While some datasets might be publicly available, they may not be easily findable, in formats that are easy to access, or in formats that can be used

The project

Overall aim:
To provide DCCEEW and NOPSEMA with a fast-track view of what information is available on those priority species for assessment and regulation purposes and is fit for use now

Focus:
A rapid exploration of current information on a priority subset of species identified by DCCEEW and NOPSEMA in relation to the Gippsland declaration area and the adjacent areas of Bass Strait.

The project

Aims:

1) identify datasets and information sources relevant to priority species identified by DCCEEW and NOPSEMA for the Gippsland declaration area;
2) identify the source of these datasets and information and their level of accessibility;
3) evaluate the utility of datasets and information identified in 2) for assessments/regulatory processes required to be undertaken by DCCEEW and NOPSEMA; and
4) identify what activities would need to be undertaken to improve the accessibility and utility of datasets and information sources identified in 3) that are not currently accessible in useable formats.

The project

Focus on information associated with

- Presence/absence, including frequency of occurrence on seasonal and multi-year time scales.
- Distribution, including movement dynamics and habitat use (for feeding, breeding, resting etc.) on seasonal and multi-year time scales.
- Population dynamics, including abundance and trends and reproduction metrics.
- Understanding of forage (dietary), species dynamics (distribution, abundance), and connections to migratory timing and movement dynamics.

The workshop

Brings together relevant Commonwealth and State managers, consultants and researchers that have historically or are currently gathering baseline understanding/datasets with those participating in assessments and regulation under the EPBC Act and regulation under the OEI Act 2021 as well as offshore renewable energy proponents

Discussions focused on:
Data/information already collected
Accessibility of data/information
Utility of data/information
Current limitations
What might be needed to enhance accessibility and use

C.2 Overview of NESP Marine and Coastal Hub, objectives, priorities and focus on offshore renewable energy

Marine and Coastal
National Environmental Science Program

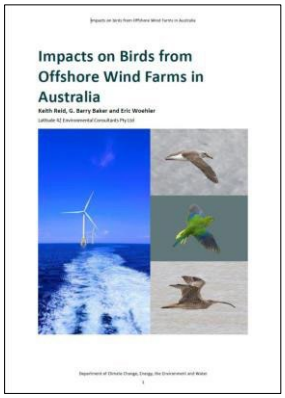
NESP Marine and Coastal Hub

Offshore Renewable Energy Research

- Overview of Hub offshore renewables research projects
- Status of data synthesis across thematic areas
- Proposed future research

Research to support development of offshore renewables

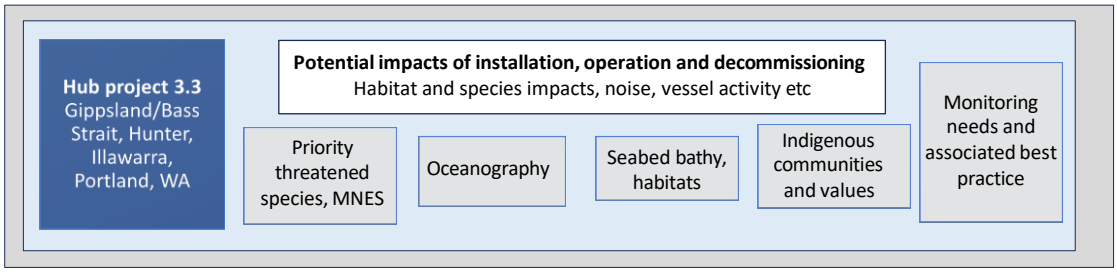
Marine and Coastal Hub and partner co-investments | Industry funded research | FRDC | Blue Economy CRC projects | Uni's/ARC | State gov't agencies

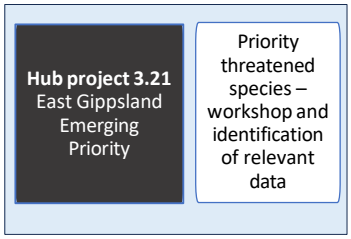


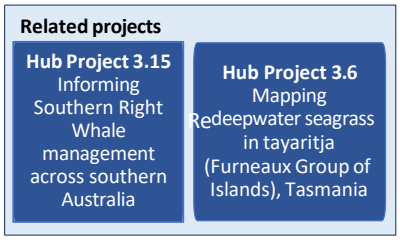
DCCEEW investment → Gippsland → Priority threatened species – OB Parrot, Swift Parrot, Albatross, Whales

Marine and Coastal
National Environmental Science Program

MaC Hub Research Plan 2023: projects underway

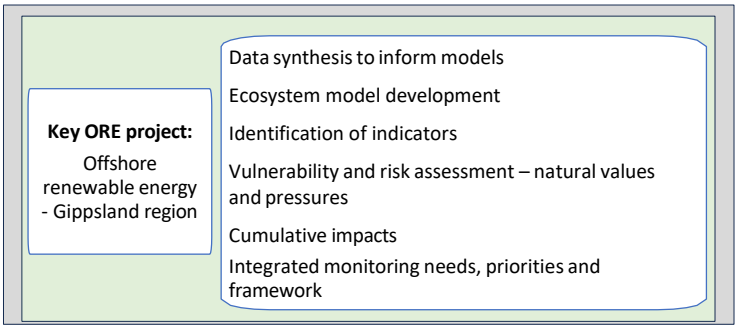






Marine and Coastal
National Environmental Science Program

MaC Hub Research Plan 2024: developing projects



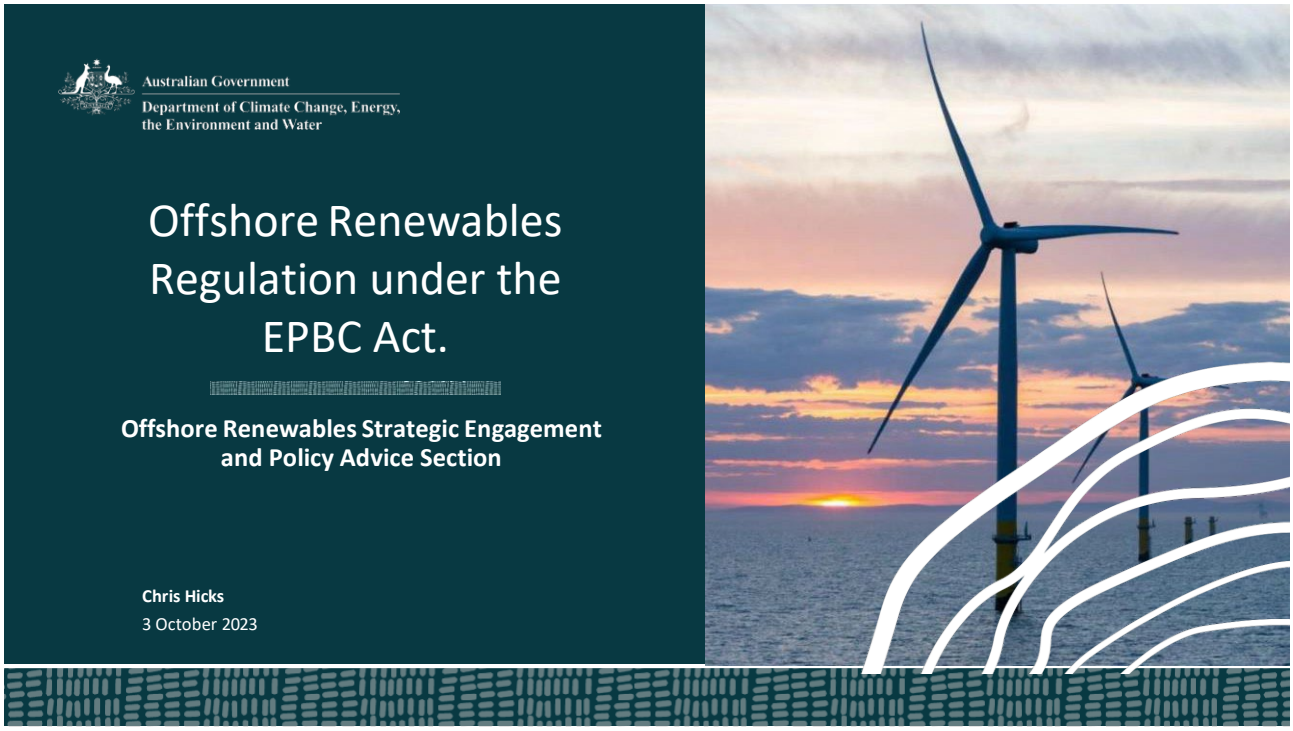
Further ORE priority research issues for potential related projects in RP2024:

- Risk modelling of cetacean interactions
- Assessment of pygmy blue whales
- Connecting Indigenous values of cetaceans across south-eastern Australia

Further ORE research issues for discussion with research-users but outside scope of projects proposed in 2024:

- Field studies on priority cetaceans and birds
- Commercial and recreational displacement
- Seabed surveys
- Social licence associated with ORE
- Invasive species
- Indigenous cultural mapping of seabed features in offshore renewable areas

C.3 Commonwealth offshore renewable energy assessment and regulation under the EPBC Act: priorities



Background

Powering Australia Plan

- The plan is focused on creating jobs, cutting power bills and reducing emissions by boosting renewable energy.
- The Government has legislated a **43% emissions reduction target by 2030** and **net zero emissions by 2050**.
- The Government has the goal of achieving **82 per cent renewables by 2030**.

4

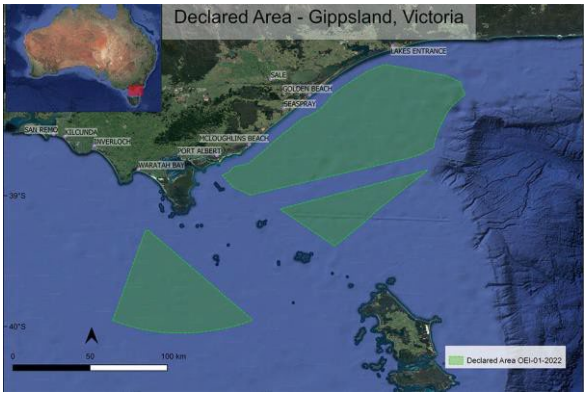
Offshore Electricity Infrastructure Framework

- The *Offshore Electricity Infrastructure Act 2021* (OEI Act) enables the construction, operation and decommissioning of offshore electricity infrastructure within declared areas.
- Under the OEI Act, the Minister for Climate Change and Energy may declare an area in Commonwealth waters suitable for offshore renewable energy infrastructure.
- DCCEEW's Net Zero Industries Division administers the OEI Act processes.
- NPRD and other relevant Commonwealth agencies are consulted during the identification, evaluation, and declaration of areas.

5

Gippsland Declared Area

- The Minister declared an area in the Bass Strait off Gippsland, Victoria, as suitable for offshore renewable energy on 19 December 2022.
- The Minister for Climate Change and Energy also considered the area west of Wilsons Promontory but did not proceed due to environmental and other constraints in the region.
- Feasibility Licence applications were accepted for proposed projects within the Gippsland declared area from 23 January 2023 to 27 April 2023.



6

Environmental Assessment

- In addition to any licences required under the OEI Act, proponents must also consider their obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Any referrals will be considered on a case-by-case basis in accordance with Parts 7 to 9 of the EPBC Act.
- The EPBC Act provides for the Minister to consider anything relevant to the protection of MNES, including cumulative impacts.
- The Department is developing an approach to addressing cumulative impacts at a regional level to enable establishment of the offshore renewable sector in Australia, support energy transition targets and ensure ecologically sustainable development of the industry.
- The approach will be aligned with the **Nature Positive Plan** and **Threatened Species Action Plan 2022-23** and be consistent with the broader EPBC Act reform currently underway.

7

Australia's Nature Positive Plan

Key elements include:

Better environment and heritage outcomes
- Developing National Environmental Standards
- First Nations partnerships
- Conservation planning – to strengthen protection and guide recovery
- Resetting protections for water resources
- Climate considerations in planning and project assessments

Faster, better decision-making and clear priorities
- Shift to regional planning
- Improving environmental offsets
- Enabling robust accreditation arrangements based on Standards
- Stronger environmental protections for regional forestry areas
- Establishing a nature repair market
- Further streamlining

Accountability and trust
- Establishing an Environment Protection Australia
- Establishing Environment Information Australia – improving transparency & accountability
- Ensuring statutory committees have a clear roles under the new environment laws, including enhancing the IAC's role.
- Better consideration of social and economic matters in decision-making
- Reforming the management of National Parks

Regulatory Priorities

1. Sufficient environmental data and ecological baselines to assess projects at the appropriate temporal and spatial scale.

2. Ensuring all stakeholders take a regional view of the environment and understand how impacts from their project will contribute to cumulative pressures at the regional scale.

3. Environmental regulation and management of projects across their lifecycle will require regional approaches to assessment and approval and to monitoring, reporting and adaptive management.

Industry collaboration will be integral to achieving these priorities.

10

Challenges

- DCCEEW wants to support the development of an **ecologically sustainable** offshore renewables sector.
- However, concentrating multiple, large-scale offshore infrastructure projects within declared areas may cause **significant cumulative impacts to species**.
- **Sufficient information** must be available to a decision maker under the EPBC Act to:
    - inform robust, **evidence based and defensible decision-making** for developments, and
    - ensure that decisions are consistent with Australian environmental law - including the principles of ecological sustainable development.
- In Gippsland, DCCEEW have identified a range of priority **protected seabirds, migratory birds and cetaceans** at risk from development with data gaps, but there are **data gaps** for a broader range of species than those identified in the priority list.

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Priority Species

- The priority species have been identified as those EPBC Act-listed species that are at high risk from development and will require information for assessment.
- The list has been informed by:
    - Impacts on Birds from Offshore Wind Farms in Australia (2022)
    - Key environmental factors for offshore windfarm environment impact assessment under the EPBC Act.
    - NOPSEMA/OIR research strategy priorities
    - Consultation with species experts and DCCEEW internal line areas

Common Name	Scientific Name
Birds, shorebirds and seabirds	
Amsterdam Albatross	*Diomedea amsterdamensis*
Australian Gould's Petrel	*Pterodroma leucoptera leucoptera*
Curlew Sandpiper	*Calidris ferruginea*
Far Eastern Curlew	*Numenius madagascariensis*
Grey-headed Albatross	*Thalassarche chrysostoma*
Mongolian Lesser Sand Plover	*Charadrius mongolus mongolus*
New Siberian Islands Red Knot	*Calidris canutus piersmai*
North-eastern Siberian Red Knot	*Calidris canutus rogersi*
Northern Royal Albatross	*Diomedea sanfordi*
Orange-bellied Parrot	*Neophema chrysogaster*
Swift Parrot	*Lathamus discolor*
Shy Albatross	*Thalassarche cauta*
Southern Giant-Petrel	*Macronectes giganteus*
Tasmanian Wedge-tailed Eagle	*Aquila audax fleayi*
Yakutian Bar-tailed Godwit	*Limosa lapponica menzbieri*
Cetaceans#	
Blue whale	*Balaenoptera musculus sp.*
Southern right whale	*Eubalaena australis*
Humpback whale	*Megaptera novaeangliae*

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Gippsland Pilot Projects

1. Migration paths and patterns for Orange bellied and swift parrots

2. Baseline surveys for threatened seabirds (Albatross)

3. Baseline surveys for whales (Blue and Southern Right)

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Contact us

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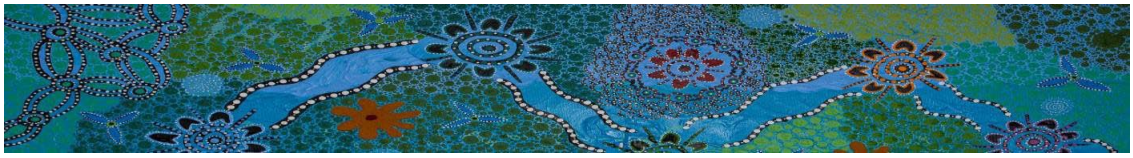
C.4 Commonwealth offshore renewable energy regulation under the OEI Act: lessons learned, the interface between the EPBC and OEI Acts and priorities looking forward

Acknowledgement of country



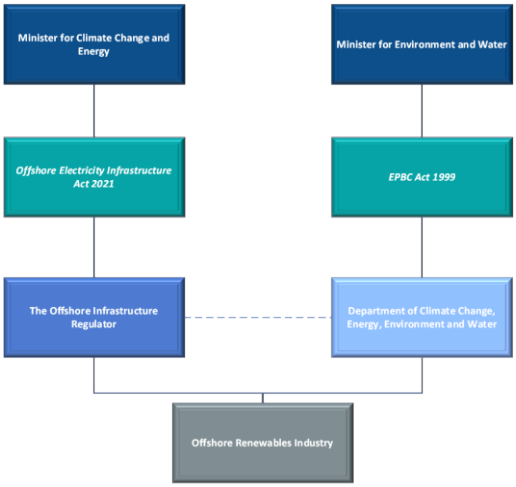
We recognise the First Peoples of this nation and their ongoing connection to culture and country. We acknowledge First Nations Peoples as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living culture and pay respects to their Elders past, present and emerging.

Establishing the Australian context

- Australia's operating environment is unique
- Sufficient effort is needed to understand this operational environment (ecological, social, cultural, economic) in the planning and design phases
- Collaboration across industry, government, other marine users and the community is critical to addressing key challenges

3

Interface between EPBC and OEI Acts



- DCCEEW have regulatory responsibility for approvals, compliance and enforcement under the EPBC Act
- OIR has legislated functions for environmental management and protection under s177 the OEI Act.
- Legislative link between the frameworks provided for under OEI Act section 115.
- OEI Act management plans must address environmental management, including how the licence holder is to comply with any obligations under the EPBC Act.

4

Challenges & opportunities gleaned from experience

Challenges

- Environmental protection requirements set a high bar for environmental approvals
- Establishment of coordinated, common and cohesive environmental baselines across areas identified for offshore renewable energy development areas
- Paucity in environmental data in offshore areas - scientific uncertainty, longer approvals timeframes, overly precautionary management requirements or conditions and missed
- A lack of transparency and accessibility in environmental data - unnecessary cost, duplication and delay to environmental decision making.

Opportunities

- Collaborative research and data sharing arrangements and systems
- Design of research to address end user needs such e.g. to demonstrate impacts will not be inconsistent with recovery plans or plans of management
- Continuous improvement and adaptative management approaches

5

Science needed to inform decision making (OIR provision of EIA advice to DCCEEW)

6

Collaborative research – Our Research Strategy

- Aims to provide industry with a clear vision for enhanced research outcomes
- Supports the establishment of an environmentally responsible and sustainable offshore renewables industry
- Encourages standardised methodologies for data collection, sharing and storage
- Efficient and effective use of industry and research sector resources to meet the needs of end-users
- In process of being updated at present

7

A key challenge – scientific uncertainty

Ensuring that the environmental impacts of offshore energy projects and activities are managed to an acceptable level when faced with scientific uncertainty

Whales

- Abundance, distribution, seasonality
- Behavioural responses to noise
- Biological consequence of noise disturbance on important life stages
- Mitigation measures inc noise quieting technologies and spatial /temporal controls
- Validating effectiveness of whale detection and mitigation technologies

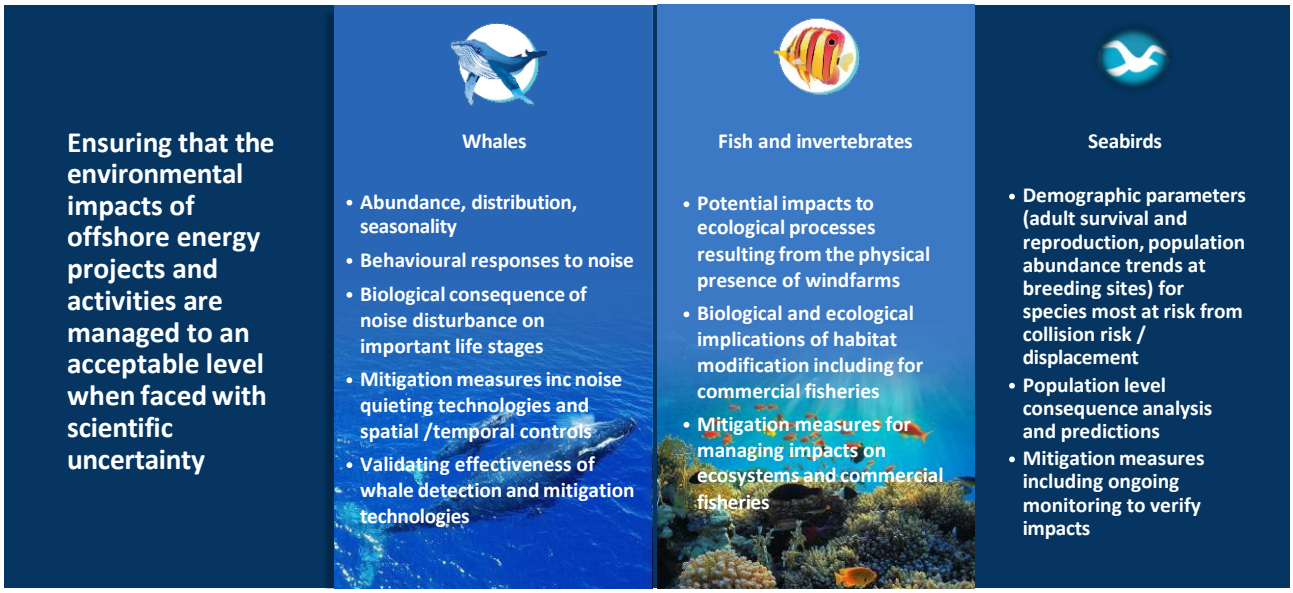
Fish and invertebrates

- Potential impacts to ecological processes resulting from the physical presence of windfarms
- Biological and ecological implications of habitat modification including for commercial fisheries
- Mitigation measures for managing impacts on ecosystems and commercial fisheries

Seabirds

- Demographic parameters (adult survival and reproduction, population abundance trends at breeding sites) for species most at risk from collision risk / displacement
- Population level consequence analysis and predictions
- Mitigation measures including ongoing monitoring to verify impacts

A key challenge – scientific uncertainty



Key takeaways

Enhancing scientific certainty to support decision making and improve confidence in proposed management

Cross industry /research collaborations – broad scale monitoring arrangements, biological and ecological implications of offshore windfarms, developing and validating fauna detection and mitigation technologies

Frameworks data standardisation, sharing and access

Adopting adaptive management frameworks drive continuous improvement and account for new science, monitoring results, new technology, unanticipated changes in environmental (ecological, social, cultural, economic) factors

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Appendix D: Outputs of literature search

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Appendix E: Communication and outreach

Presentation to the NESP showcase

Marine and Coastal
National Environmental Science Program

Update and status of Gippsland priority species project (3.21) and southern right whale project (3.15)

Karen Evans

30 January 2024

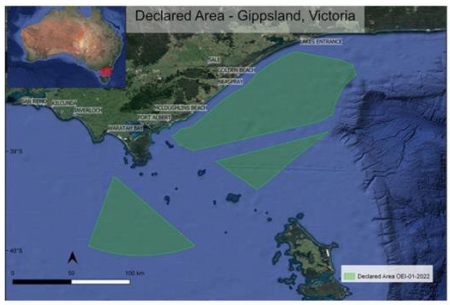
Marine and Coastal
National Environmental Science Program

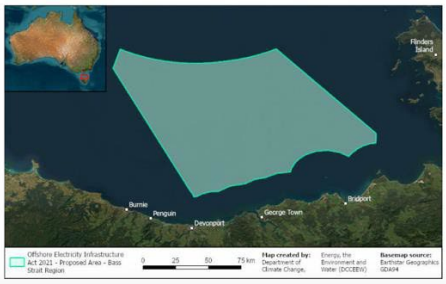
Project 3.21: Identifying priority datasets of relevance to the Gippsland declaration area and pathways for their use in decision making

Project PI: Karen Evans (CSIRO)

Project aim: Provide a fast-track view of what information is available for a set of priority species in relation to the Gippsland declaration area for assessment and regulation purposes

Focus





Common Name	Scientific Name
Birds, shorebirds and seabirds	
Amsterdam Albatross	Diomedea amsterdamensis
Australian Gould's Petrel	Pterodroma leucoptera leucoptera
Curlew Sandpiper	Calidris ferruginea
Far Eastern Curlew	Numenius madagascariensis
Grey-headed Albatross	Thalassarche chrysostoma
Mongolian Lesser Sand Plover	Charadrius mongolus mongolus
New Siberian Islands Red Knot	Calidris canutus piersmai
North-eastern Siberian Red Knot	Calidris canutus rogersi
Northern Royal Albatross	Diomedea sanfordi
Orange-bellied Parrot	Neophema chrysogaster
Swift Parrot	Lathamus discolor
Shy Albatross	Thalassarche cauta
Southern Giant-Petrel	Macronectes giganteus
Tasmanian Wedge-tailed Eagle	Aquila audax fleayi
Yakutian Bar-tailed Godwit	Limosa lapponica menzbieri
Cetaceans#	
Blue whale	Balaenoptera musculus sp.
Southern right whale	Eubalaena australis
Humpback whale	Megaptera novaeangliae

Focus

Identifying:
- datasets currently collected
- their current status
- what might be needed to improve data/information sharing for regulations and assessments

Three components to project:

1. Stakeholder and data holder workshop
2. Data holder and data use survey and interviews
3. Bibliography

Workshop

Involved 58 participants from research, state agencies, Commonwealth agencies, consultant and ORE proponents

Focused on:
- identifying datasets and repositories, key data custodians
- establishing data sharing requirements, opportunities and challenges
- priority actions areas for improving data sharing and supporting data use, filling gaps in current information

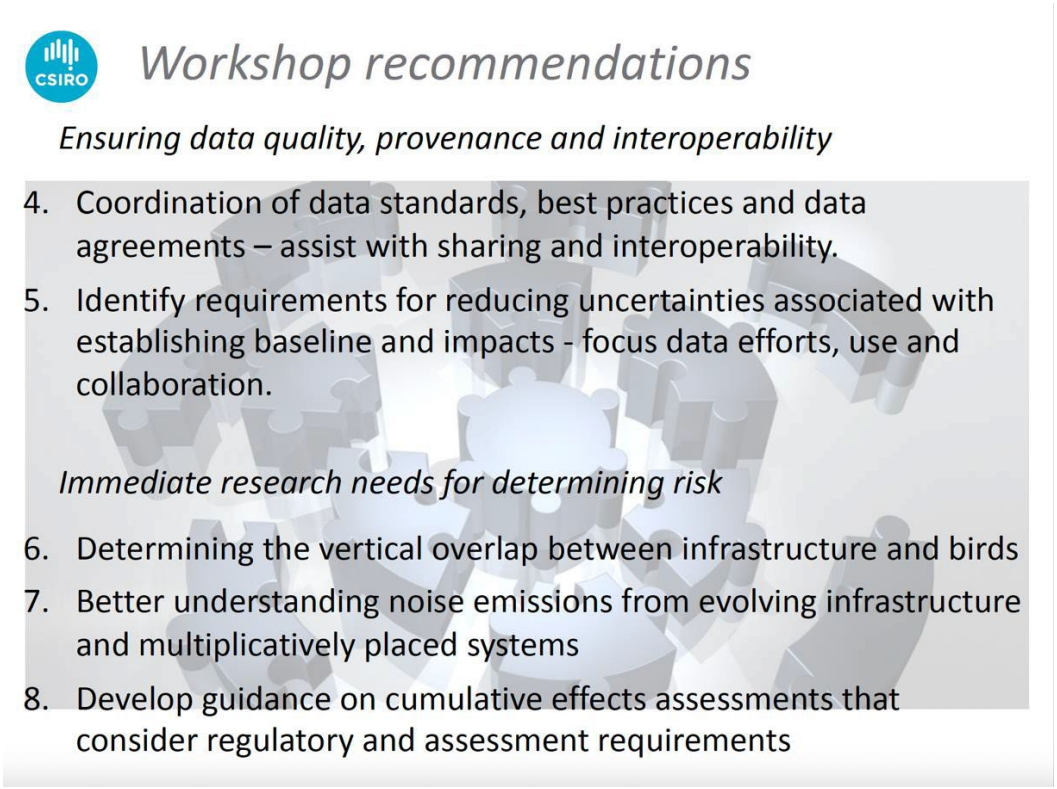
Workshop recommendations

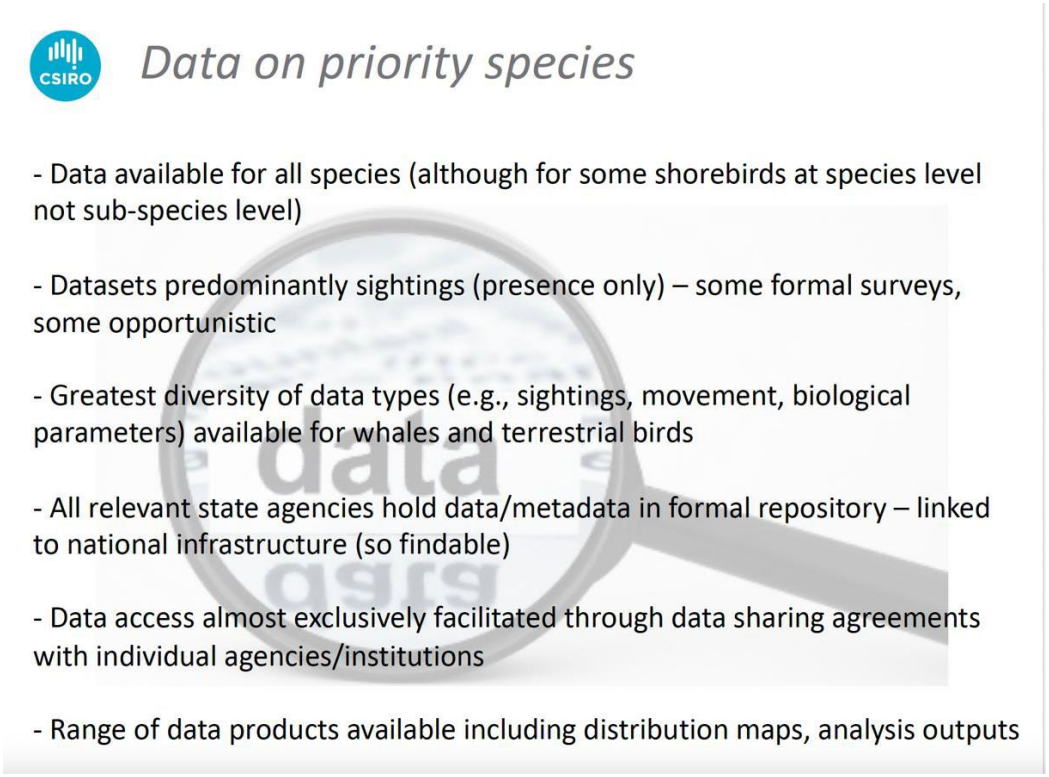
Engagement and communication

1. Better connect all stakeholders to improve communication, awareness and exchange of information on priority species.

Research prioritisation processes

2. Increase the transparency of the prioritisation of species, including detailing the criteria used, including expert input.
3. Determine a priority list of impacts needing to be understood and the key datasets needed to quantify impacts – focus data efforts, use and collaboration


Workshop recommendations
Ensuring data quality, provenance and interoperability
4. Coordination of data standards, best practices and data agreements – assist with sharing and interoperability.
5. Identify requirements for reducing uncertainties associated with establishing baseline and impacts - focus data efforts, use and collaboration.
Immediate research needs for determining risk
6. Determining the vertical overlap between infrastructure and birds
7. Better understanding noise emissions from evolving infrastructure and multiplicatively placed systems
8. Develop guidance on cumulative effects assessments that consider regulatory and assessment requirements


Data on priority species
- Data available for all species (although for some shorebirds at species level not sub-species level)
- Datasets predominantly sightings (presence only) – some formal surveys, some opportunistic
- Greatest diversity of data types (e.g., sightings, movement, biological parameters) available for whales and terrestrial birds
- All relevant state agencies hold data/metadata in formal repository – linked to national infrastructure (so findable)
- Data access almost exclusively facilitated through data sharing agreements with individual agencies/institutions
- Range of data products available including distribution maps, analysis outputs

Final steps

Finalising identification of datasets and repositories – cross check

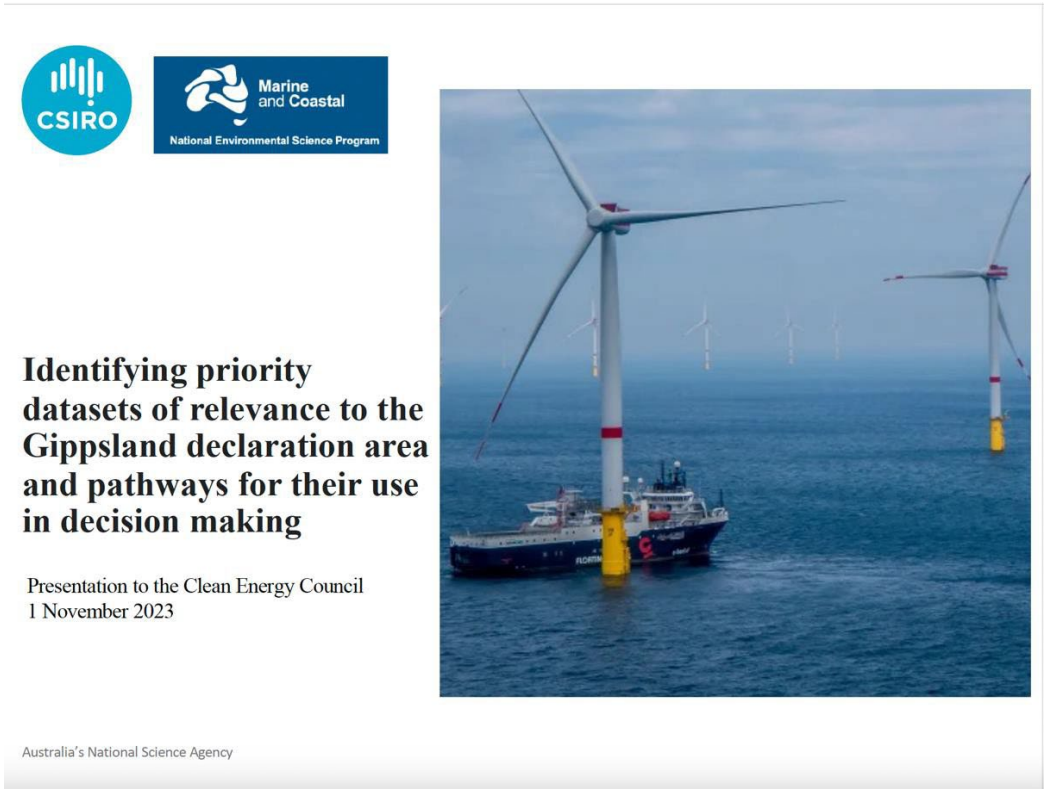
Finalising bibliography

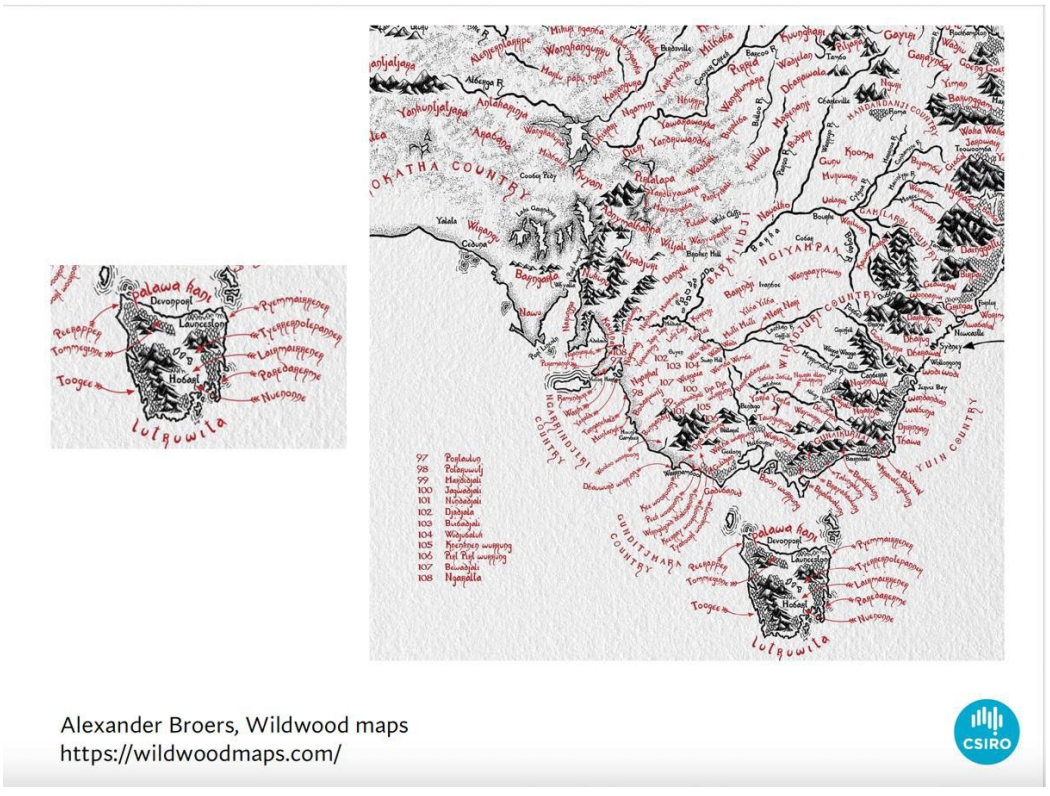
Cross check with other NESP and DCCEEW projects and fill gaps

Sharing of data information and bibliography with project 2.2

Final report – review by NESP and CSIRO

Presentation to the Clean Energy Council

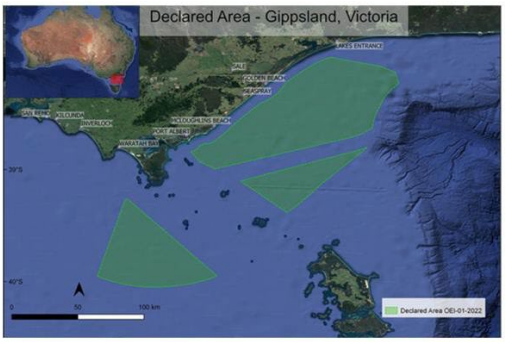




The context: development of ORE

ORE is part of the mix in transitioning the energy sector within the context of the Paris Agreement

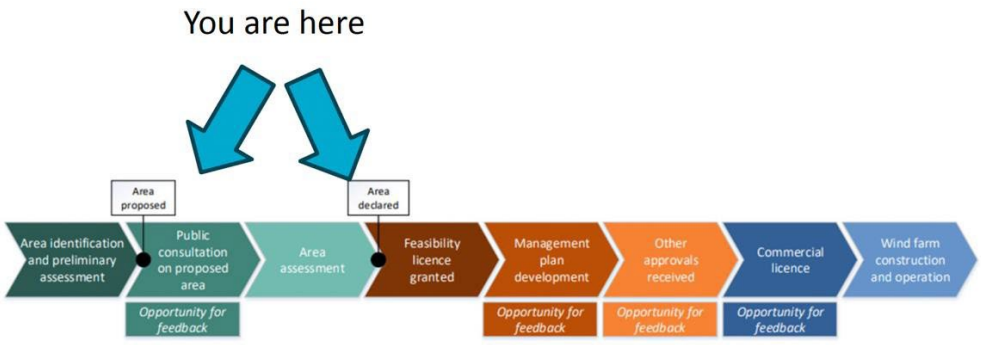
Rapid development of legislation, identification of potential renewable energy zones – both onshore and offshore, state and Commonwealth



First offshore wind zone (Gippsland) declared in 2022

Five other regions identified: region off Hunter declared 2023, notice of proposal for declaring Southern Ocean and Illawarra regions released 2023, proposals for area off Bunbury/Perth and northern Tasmania expected by the end of 2023.

The context: development of ORE



The context: development of ORE

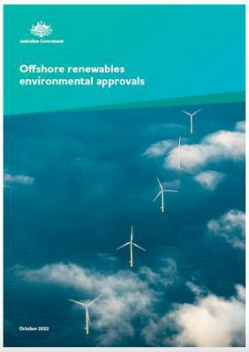
First step: guidance for licensing/assessment processes

Guidance for offshore renewables environmental approvals – sets out interactions between the licensing and environmental approvals processes of the OEI Act and EPBC Act

Guidance on offshore wind farm environmental impact assessment under the EPBC Act

Moving forward: assessment of environmental management plans for licensing

NOPSEMA: research strategy

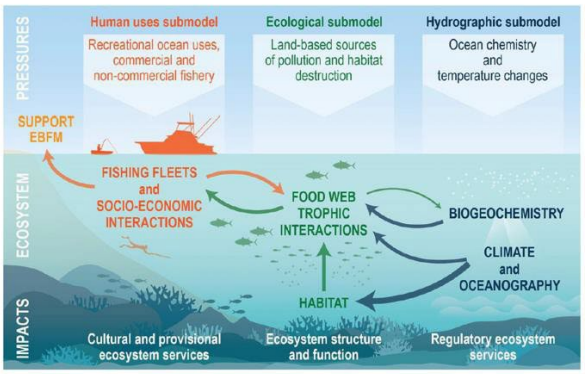


The context: development of ORE

All will require information on the environment (to understand its current state), understanding of risks to the environment from activities (to understand how species and habitats might be impacted) and understanding of impacts and mechanisms by which those impacts can be identified and quantified

Development of data standards and best practices

Identification of information needs, information available and adequacy of existing information for assessments



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The context: development of ORE

Government Regulatory Priorities

1. Sufficient environmental data and ecological baselines to assess projects at the appropriate temporal and spatial scale.

2. Ensuring all stakeholders take a regional view of the environment and understand how impacts from their project will contribute to cumulative pressures at the regional scale.

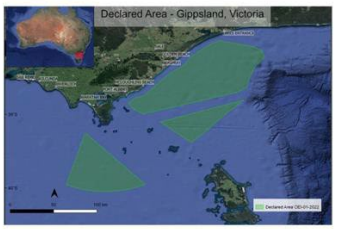
3. Environmental regulation and management of projects across their lifecycle will require regional approaches to assessment and approval and to monitoring, reporting and adaptive management.

Government-Industry-Research collaborations will be integral to achieving these priorities.

The context: priorities for DCCEEW and NOPSEMA

Set of priority research topics focused on whales, seabirds and migratory birds

Common Name	Scientific Name
Birds, shorebirds and seabirds	
Amsterdam Albatross	Diomedea amsterdamensis
Australian Gould's Petrel	Pterodroma leucoptera leucoptera
Curlew Sandpiper	Calidris ferruginea
Far Eastern Curlew	Numenius madagascariensis
Grey-headed Albatross	Thalassarche chrysostoma
Mongolian Lesser Sand Plover	Charadrius mongolus mongolus
New Siberian Islands Red Knot	Calidris canutus piersmai
North-eastern Siberian Red Knot	Calidris canutus rogersi
Northern Royal Albatross	Diomedea sanfordi
Orange-bellied Parrot	Neophema chrysogaster
Swift Parrot	Lathamus discolor
Shy Albatross	Thalassarche cauta
Southern Giant-Petrel	Macronectes giganteus
Tasmanian Wedge-tailed Eagle	Aquila audax fleayi
Yakutian Bar-tailed Godwit	Limosa lapponica menzbieri
Cetaceans#	
Blue whale	Balaenoptera musculus sp.
Southern right whale	Eubalaena australis
Humpback whale	Megaptera novaeangliae



Impacts on Birds from Offshore Wind Farms in Australia (2022)

Key environmental factors for offshore windfarm environment impact assessment under the EPBC Act.

NOPSEMA/OIR research strategy

Consultation with species experts and DCCEEW internal line areas

The project

Problem:
Not all information that might be relevant for assessment and regulation purposes is available in the public domain

Many datasets are yet to be fully analysed

While some datasets might be publicly available, they may not be easily findable, in formats that are easy to access, or in formats that can be used

The project

Overall aim:
To provide DCCEEW and NOPSEMA with a fast-track view of what information is available on those priority species for assessment and regulation purposes and is fit for use now

Has alignment with:
- three DCCEEW/NOPSEMA projects (broader focus, similar delivery timeline)
- NESP national inventory project (broader focus, 2024 delivery)

Informed by several workshops – DCCEEW/NOPSEMA/Research agencies

The project

Focus on information associated with

- Presence/absence, including frequency of occurrence on seasonal and multi-year time scales.
- Distribution, including movement dynamics and habitat use (for feeding, breeding, resting etc.) on seasonal and multi-year time scales.
- Population dynamics, including abundance and trends and reproduction metrics.
- Understanding of forage (dietary), species dynamics (distribution, abundance), and connections to migratory timing and movement dynamics.

The workshop

Who:
- Commonwealth and State managers
- Consultants and researchers
- Those participating in assessments/ regulation under the EPBC Act and the OEI Act 2021
- Offshore renewable energy proponents

Discussions focused on:
- Data/information already collected
- Accessibility of data/information
- Current limitations on information/accessing information available
- What might be needed to enhance accessibility and use, priority action areas to meet needs

Pre-workshop survey

Data held and availability:

- Most data focused on whales although long term research programs on birds by state agencies
- Most data not in a formal repository or readily available
    - several reasons for this
- Most data presence/absence
- Some state agencies provide for external search/access to data
    https://vba.biodiversity.vic.gov.au/
- Most researchers identified formal publication as primary route for making information (not necessarily data) available

Pre-workshop survey

Data user needs

- Users identified provision of metrics (e.g., population abundance and trend/habitat residence) as primary needs
- Need for open access to data
- Most identified would need assistance in finding relevant repositories and accessing data

Resolving current limitations – priority areas

What might be the low hanging fruit immediately able to be addressed?

What could be addressed over the medium term through consultation and additional funding?

What will require considerable effort and a longer-term stretch?

Recommendations

Engagement and communication

1. Better connecting all stakeholders to improve communication and awareness across those generating and using data and information on priority species across the region.

Research prioritisation processes

2. Increasing the transparency of the prioritisation of species including detailing the criteria used.
3. Determining a priority list of impacts needing to be understood and the key datasets needed to quantify impacts (building on the Key Factors document/DCCEEW-NOPSEMA scoping projects).

Recommendations

Ensuring data quality, provenance and interoperability

4. Coordination of data needs including data standards, best practices and data agreements.
5. Requirements for reducing uncertainties associated with establishing baseline and impacts including requirements for robust survey designs.

Immediate research needs for determining risk

6. Determining the vertical overlap between infrastructure and birds
7. Determining noise emissions from infrastructure

Next steps for the project

Additional inputs into survey
– collation and integration

Summary of survey and workshop
– first half of November

Development of bibliography
– papers, reports, datasets, key contact points

Briefing on outputs from project
– online, towards the end of the year

Final report
– will be made available on the NESP MaC Hub website end of year

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