Submission on:

Draft Wildlife Conservation Plan for Seabirds, Commonwealth of Australia 2019

Centre for Ecosystem Science, UNSW, Sydney

April 2020

1. Executive Summary

The Centre for Ecosystem Science welcomes the opportunity to provide advice to this important plan. We provide nine recommendation which we believe would increase the effectiveness of the plan and reflect the current state of scientific knowledge.

Recommendation 1: The Royal penguin urgently requires an EPBC listing as a marine species and consideration against the criteria for threatened species. If the species does not qualify as a threatened species, it should be listed under this plan and appropriate conservation advice and management plans detailed.

Recommendation 2: The main part of the document needs to be strengthened in relation to seabird conservation and declining productivity as a result of shifting currents, citing relevant scientific evidence.

Recommendation 3: Given the impacts of climate change on productivity, already affecting seabirds (Carroll et al. 2016, Gorta et al. 2019), listing this issue as "almost certain" in Table 3 (pg. 37), as opposed to "likely" would be more appropriate under the criteria provided.

Recommendation 4: It is critical that this action plan accurately highlight all species vulnerable to climate change effects, accurately reflecting Garnett and Franklin (2014).

Recommendation 5: The recommended actions and their budgets in Garnett and Franklin (2014) should be included in the "Recommended Management Actions" sections for each relevant species, given these are the most up-to-date recommendations for climate change management of seabirds available.

Recommendation 6: Inclusion and acknowledgement of the effects of ENSO on Sooty Terns (e.g., Ashmole 1963, Schreiber & Schreiber 1984, Duffy 1990, Erwin & Congdon 2007) is needed in the relevant section quoted above (c.).

Recommendation 7: In relation to d., the statement "*however, stochastic events such as storms and cyclones are beyond the control of management authorities and have not been addressed for the species in this Plan"* is valid, however it is appropriate to link the increased incidence of extreme storm events to climate change (e.g., Steffen et al. 2019) and recognise that we can take action to address this.

Recommendation 8: Extensive, feasible and measurable goals, management actions and performance criteria need to be listed within this plan to address the severity of the threats climate change poses for seabirds in the short and long-term. These need to be in-line with evidence-based advice, for example from Garnett and Franklin 2014.

Recommendation 9: Clearly defined and measurable action to reduce seabird bycatch, in line with quantifiable and measurable goals to achieve this outcome are required to ensure this action is achieved.

Centre for Ecosystem Science, UNSW Sydney

The Centre for Ecosystem Science (CES), UNSW Sydney, supports instruments of government, including strategies that improve effectiveness of biodiversity conservation, founded on a strong evidence base, which assist in mitigating the extinction crisis in Australia. Researchers in CES have established track records in the research and management of Australia's biodiversity, both within and outside protected areas. In particular, researchers focus on the three main realms of biodiversity (freshwater, terrestrial, marine) in the natural world (https://www.ecosystem.unsw.edu.au/) and welcomes the opportunity to provide a submission on the Draft Wildlife Conservation Plan for Seabirds on behalf of the Centre for Ecosystem Science, UNSW Sydney. The development of this plan is important as seabirds are some of the most ecologically important, yet most threatened species which inhabit both our marine and terrestrial ecosystems.

2. Species listed

"*The Plan includes 73 species of seabird that occur or regularly visit Australia and its Exclusive Economic Zone (EEZ). The Plan does not include Australian Antarctic Territory restricted species, vagrant seabirds or those species that are listed as threatened under the EPBC Act. Threatened species receive separate, approved Conservation Advice and, in some cases, a recovery plan which sets out what could be done to stop the decline and support the recovery of the species.*" pg. 17.

Royal Penguins *Eudyptes schlegeli* are endemic to Australia, breeding only on Macquarie Island and adjacent islets (Department of the Environment 2020). Royal Penguins are not listed by this plan, nor are they listed under the EPBC Act, not even as a marine species. The SPRAT profile for this species states it was historically considered a subspecies of Macaroni Penguin *Eudyptes chrysolophus*, but this is well understood not to be the case anymore (Department of the Environment 2020). This draft only considers Macaroni Penguin and does not include Royal Penguins. Despite this species being endemic to Australia and having a near-threatened listing by the IUCN, this species has no recovery plan, no conservation advice, and is now not even covered by this draft plan.

Recommendation 1: The Royal penguin urgently requires an EPBC listing as a marine species and consideration against the criteria for threatened species. If the species does not qualify as a threatened species, it should be listed under this plan and appropriate conservation advice and management plans detailed.

3. Climate change effects

Marine Productivity

There is no section in the Draft Wildlife Conservation Plan for Seabirds that adequately presents the most serious issue related to decreased marine productivity, despite increasing evidence of its importance (Steinacher et al. 2010). Marine productivity is significantly affected by the strengthening East Australian Current and warming waters (Ridgway 2007, Wu et al. 2012), increasingly likely to affect seabirds (e.g. foraging impacts and distribution changes, see Carroll et al. 2016, Gorta et al. 2019).

High seabird diversity in the Tasman Sea is particularly subject to fast rates of ocean warming and large decreases in productivity in the country (Mott and Clarke 2018). While this is an Australia-wide action plan, many of the species most threatened by climate change are distributed largely or exclusively in the Tasman Sea, hence its importance. Such information should also be reflected in species specific sections. In particular, there should be an emphasis on superabundant and highly functionally important Sooty Terns *Onychoprion fuscatus* (Brooke 2004), given their foraging and reproductive output are particularly strongly affected by ENSO effects in (e.g., Ashmole 1963, Schreiber & Schreiber 1984, Duffy 1990, Erwin & Congdon 2007).

The effects of strengthening warm currents and increased ocean warming leading to changes in marine ecosystems, decreases productivity (Ridgway 2007, Steinacher et al. 2010, Wu et al. 2012.) This is occurring all the time in Australian waters, and are likely to affect seabirds every year, not once every five years.

Broad impacts

In three key parts of the Draft Wildlife Conservation Plan for Seabirds, there are statements relevant to climate change and its effects.

a. "*Several seabird species have been identified as been at high risk from exposure to climate change and sensitive to climate change (Garnett and Franklin 2014). These species include: White-bellied Storm-petrel (Tasman Sea), Wedge-tailed Shearwater, Little Shearwater (Tasman Sea), Soft-plumaged Petrel, White-necked Petrel, Kermadec Petrel and Masked Booby (Tasman Sea). Many of the other seabirds listed by Garnett and Franklin (2014) are sensitive to climate change but it is thought that their exposure to climate change factors was low."* pg. 21.

b. *"Projected sea level rises are likely to adversely affect beach-nesting seabirds such as terns and noddies in the short term, followed by ground nesting seabirds like gulls, boobies and burrowing species such as penguins, shearwaters and petrels on low lying islands and cays."* pg. 21.

c. *"Generally, effects of ENSO events on seabirds are seen first in the central Pacific where they develop and are the most severe, but parallel oceanographic and atmospheric changes occur in the Atlantic and Indian Oceans (Schreiber and Burger 2002). During ENSO events, when the flow of the Leeuwin Current flow is weaker and the Southern Oscillation Index is low, reproductive effort and output was severely reduced for Lesser Noddy (Anous tenuirostris) and Common Noddy (A. stolidus) breeding at the Houtman Abrolhos, WA (Surman and Nicholson 2009). The conditions appeared to result in low prey availability, which delayed the commencement of seabird breeding by up to two months and caused breeding failures (Surman and Nicholson 2009)."* pg. 21-22.

d. *"Storms and cyclones have the potential to have serious effects on the nesting substrate, vegetation and wildlife on remote seabird breeding islands, in addition to impacting seabirds at sea. Such natural factors can place additional pressures on seabird populations adversely affected by anthropogenic influences […] However, stochastic events such as storms and cyclones are beyond the control of management authorities and have not been addressed for the species in this Plan."* pg. 22.

In relation to point a., we cannot find information in Garnett and Franklin (2014) that reflects the statement that "*many of the other seabirds listed by Garnett and Franklin (2014) are sensitive to climate change but it is thought that their exposure to climate change factors was low.*" For example, Sooty Terns *Onychoprion fuscata* are described as having a "VERY HIGH" exposure to reduced marine productivity (Garnett and Franklin 2014). The same is listed for Grey Ternlet *Procelsterna cerulea*, Lesser Noddy *Anous tenuirostris*, Black Noddy *Anous minutus* given their very high exposure to reduced marine productivity.

Further, there are other species listed with very high exposure to climate change-related variables by Garnett and Franklin (2014), but documented as having low exposure in this draft action plan for seabirds, without any evidence. These include: Herald Petrel *Pterodroma heraldica* (decreased marine productivity), Gould's petrel (Australian) *Pterodroma leucoptera leucoptera* (decreased marine productivity), Little Tern *Sternula albifrons* (high exposure to sea-level rise), Fairy Tern *Sternula nereis* (high exposure to sea-level rise). Garnett and Franklin (2014) provide a range of actions and budgets for different species and understanding these impacts. While many (not all) of these species are threatened, it would again be valuable for these to be listed within this plan, with a caveat that only species not listed as threatened are included (with a subsequent list).

In relation to b., there is a need for referencing of specific studies to validate this statement.

In relation to c., inclusion of all species known to be affected by ENSO is needed.

Recommendation 2: The main part of the document needs to be strengthened in relation to seabird conservation and declining productivity as a result of shifting currents, citing relevant scientific evidence (see below). Currently, there is a section (b.) defining the predicted effects of sea-level rise on seabirds. This section needs references to specific studies to validate it. However, there is no information on the predicted effects of declining productivity (see Marine Productivity section above), which is a key threat to seabirds as the oceanographic conditions where they forage are predicted, in many cases, to change dramatically (Garnett and Franklin 2014). References to specific studies and details of the ways in which this will affect seabirds, and the groups of birds most exposed and sensitive to these changes (see Garneet and Franklin 2014) are needed.

Recommendation 3: Given the impacts of climate change on productivity, already affecting seabirds (Carroll et al. 2016, Gorta et al. 2019), listing this issue as "almost certain" in Table 3 (pg. 37), as opposed to "likely" would be more appropriate under the criteria provided.

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Recommendation 7: In relation to d., the statement "*however, stochastic events such as storms and cyclones are beyond the control of management authorities and have not been addressed for the species in this Plan"* is valid, however it is appropriate to link the increased incidence of extreme storm events to climate change (e.g., Steffen et al. 2019) and recognise that we can take action to address this.

Species-specific impacts

Under species for which climate change is a threatening process, the extent of management advice is to "*minimise effects of climate change."* There are no specific climate change actions or performance criteria in the draft plan (other than action 3d: "*investigate the impacts of climate variability and change on seabirds and their habitats"*), nor are there any measurable goals listed in the plan to address this issue for each species. More broadly, the plan has no measurable goals listed to address threats related to climate change.

Recommendation 8: Extensive, feasible and measurable goals, management actions and performance criteria need to be listed within this plan to address the severity of the threats climate change poses for seabirds in the short and long-term. These need to be in-line with evidence-based advice, for example from Garnett and Franklin (2014).

4. Bycatch

Bycatch is a serious issue for the conservation of many seabirds as noted in the plan. However, the actions, performance criteria and targets for reducing this threat are not particularly clear. For example, action 2g states "*a reduction of seabird bycatch has occurred by 2025 through the promotion, and further development of deterrent methods*." Actions taken to achieve this are not stated. Will there be an increase of observers on fishing vessels monitoring bycatch, and greater legal enforcement of best practice bycatch mitigation strategies? Measurement of progress to achieve this goal is also not stated. There also needs to be clarity about the percentage reduction which is the target for this action, which can then be approached potentially using quantitative methods. Again, these methods of measuring progress are not indicated.

Recommendation 9: Clearly defined and measurable action to reduce seabird bycatch, in line with quantifiable and measurable goals to achieve this outcome are required to ensure this action is achieved.

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