



Submission on the Draft Far North Coast Regional Water Strategy: impacts to local platypus populations

**From the Platypus Conservation Initiative, Centre for Ecosystem
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The Platypus Conservation Initiative

The Platypus Conservation Initiative was established through the Centre for Ecosystem Science in 2016, with the main goal of reducing the risk of extinction to platypuses. Since that time, the Platypus Conservation Initiative has been researching platypuses in rivers throughout NSW and Victoria to assess the impacts of threatening processes and quantify population sizes. 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, assisting 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.

Proposed Dunoon Dam

The proposed dam is on Rocky Creek and coincides with several and recent observations of platypuses, as recorded in the Atlas of Living Australia, both above and below the proposed dam (Figure 1).

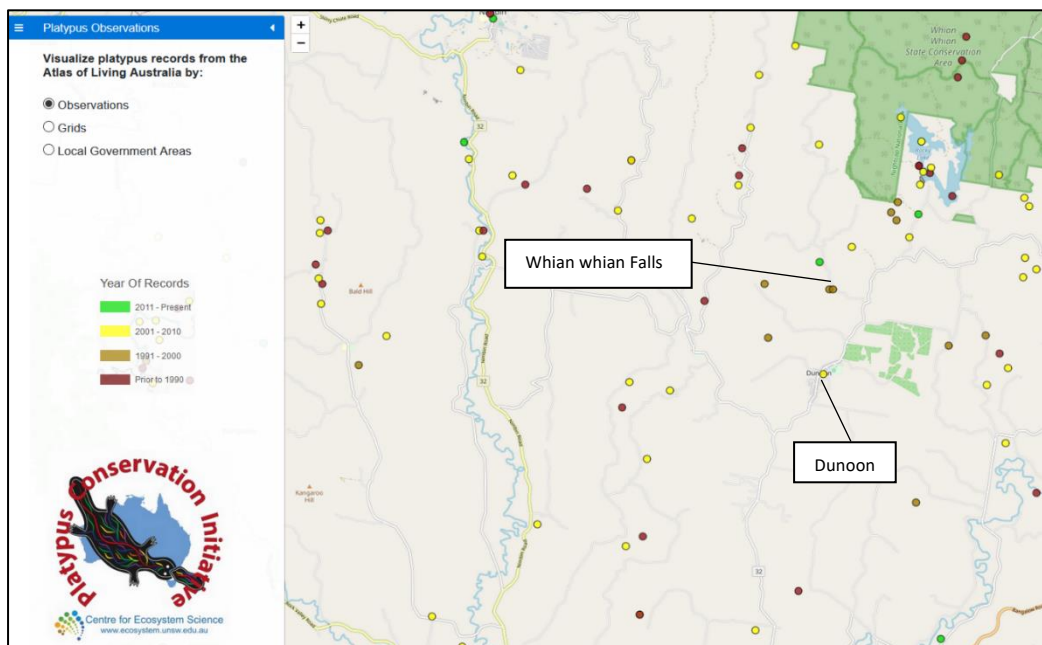


Figure 1: Figure of platypus observations recorded in the Atlas of Living Australia (accessed 1 Dec 2020), coloured by year of observation: <https://www.bees.unsw.edu.au/platypus-atlas/>

Considering the impact of dams on platypuses

Water resource development, including the building of dams and extraction of water poses a significant threat to platypuses. Alterations to flow regimes, including the timing and temperature of flows can significantly impact platypus abundances downstream of these regulatory structures (Hawke et al. 2020a). Inundated areas from reservoirs destroy platypus habitat while providing limited food resources for platypuses given their significant depth (Bino et al. 2019). Large dams also impede platypus dispersal over water and land, potentially reducing genetic diversity and breeding capabilities and increasing the risk of extinction (Furlan et al. 2010, Furlan et al. 2013). Restricted dispersal can carry both short-term and medium-term impacts, limiting platypuses from recolonizing river sections after severe droughts, dividing rivers into separate and smaller populations leading to loss of genetic diversity which in-turn reduces survival and breeding, as well reducing the ability of populations to respond to environmental change (Allendorf et al. 2010, Frankham et al. 2017). In addition, dams and the subsequent extraction of water can lead to drying up of pools downstream of dams during extreme dry periods because small floods are captured in the dam.

Such scientific evidence provides strong evidence that the proposed Dunoon Dam will destroy platypus habitat and pose significant risks to the long-term viability of the local platypus populations above and below the proposed dam. In addition, platypus habitat will likely be impacted during construction of the proposed dam, by generating considerable sedimentation which will smother downstream pools. Finally, increased water abstraction, reduced flows, and disruption of the natural flow regime of the creek can have long-term impacts to platypus populations and other freshwater species.

Evidence for platypus declines

Platypuses are increasingly under threat from direct and indirect human developments across much of their range. The species is currently listed as 'Near Threatened' under the International Union for Conservation of Nature (IUCN) Red List but not currently listed as threatened under Australia's *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. They are listed as Threatened (*National Parks and Wildlife Act 1972*) in South Australia, and in November 2020, they were recommended for listing as vulnerable in

Victoria, a stronghold for the species (SAC 2020).. Although considered ubiquitous in eastern Australia, there is increasing evidence of historically higher numbers (Hawke et al. 2019) and more recent local declines. In November 2020, we assessed the species' risk of extinction against IUCN and *EPBC* criteria, using all available data relating to platypus observations from multiple sources (Hawke et al. 2020b). Based on our assessment, we conclude that there is evidence of past and projected declines in platypus populations. In line, we formally nominated the platypuses for listing as Vulnerable under the *EPBC Act 1999*.

Alternative water management

There are a range of alternative strategies which concentrate particularly on the demand part of the issue, rather than the supply side. Developing water security strategies which are dependent on rain increased the vulnerability of the community to the impacts of droughts, predicted to increase over the foreseeable future. There is a need to increase water use efficiencies so that our impacts on river environments are reduced. Developing a Purified Recycled Water and desalination system which are powered by renewable energy can offer a secure water supply, low carbon emissions and provide long-term employment for the local community. The strategy has a number of these options which should be further explored before building a highly destructive dam, affecting platypuses and many other river animals and plants.

Supporting evidence

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