RESTORE LAKE PEDDER

FACT SHEET

Platypuses

TASMANIA

RESTORE PEDDER

Coordinated by
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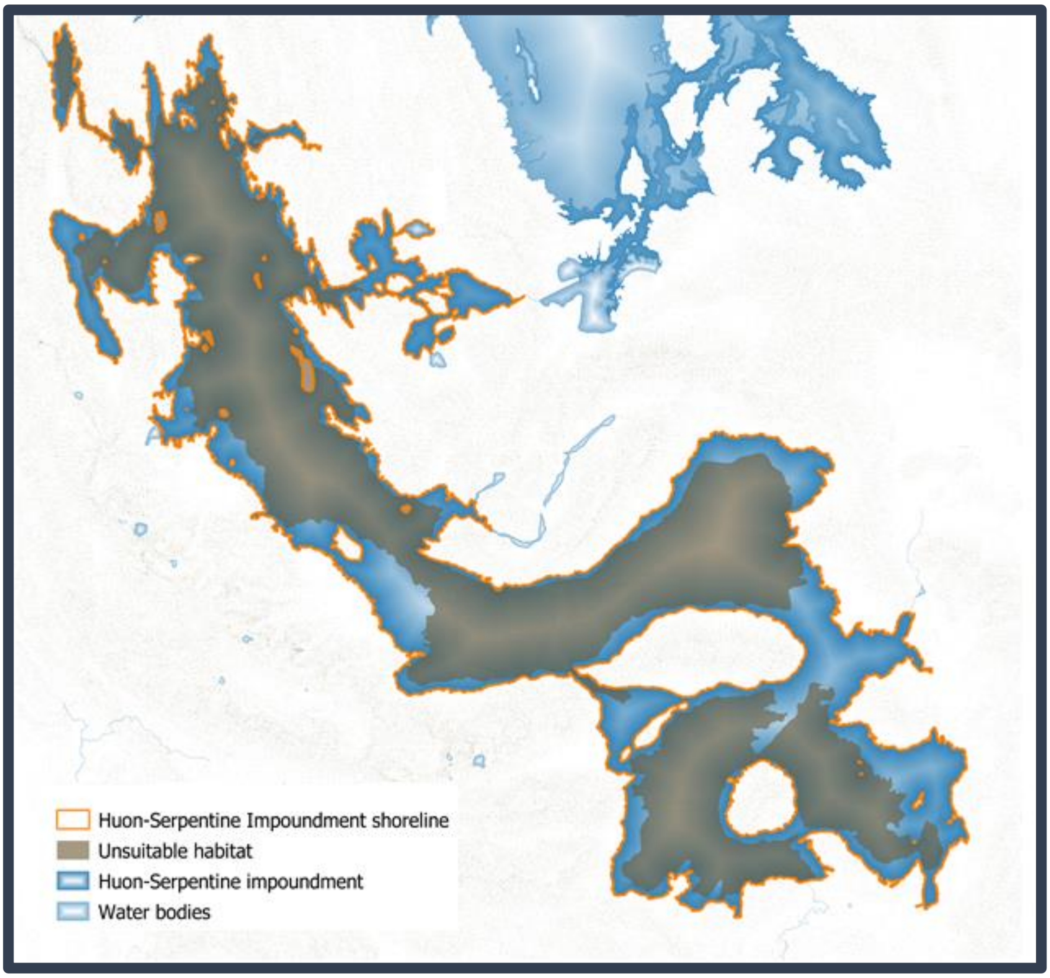
Much of the current impoundment is deeper than the preferred foraging and diving depth of platypuses

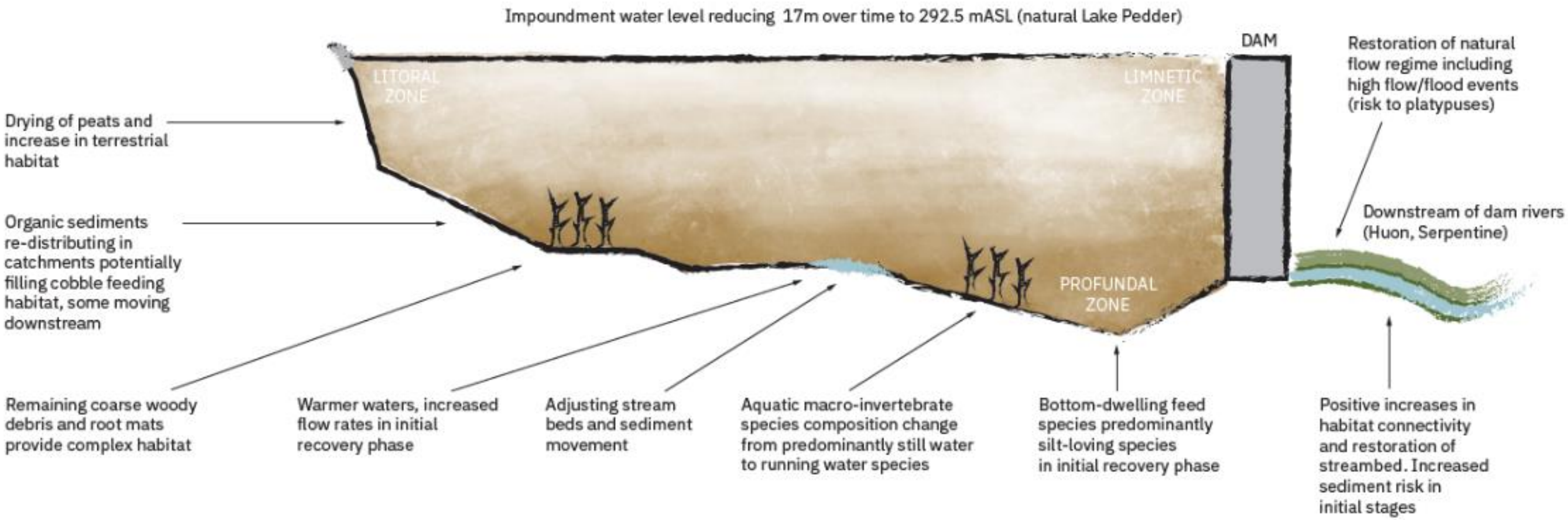
Platypuses are semiaquatic mammals and favour specific habitats. Important habitat characteristics include consolidated earth banks, vegetation overhanging the stream channel, wide streams with in-stream organic matter, shallow pools, coarse woody debris and coarse channel substrates.

Platypus dive to feed from lakebeds and riverbeds in water depths between 1 and 5 metres and favour areas closer to lake shores. Areas deeper than 5 metres are generally unsuitable for platypuses; these are shaded brown on the map below.



Restoration of Lake Pedder would convert the current large, deep reservoir into a freshwater environment characterised by a complex network of connecting multiple-order streams, rivers, wetlands and shallow lakes and ponds, habitat types known to currently support viable platypus populations both in Tasmania and on mainland Australia.

Disturbance caused by the removal of the dams is likely to redistribute sediment, expose and erode surfaces, change water flow, depth and temperature and alter the macroinvertebrate and plant communities in the catchment.

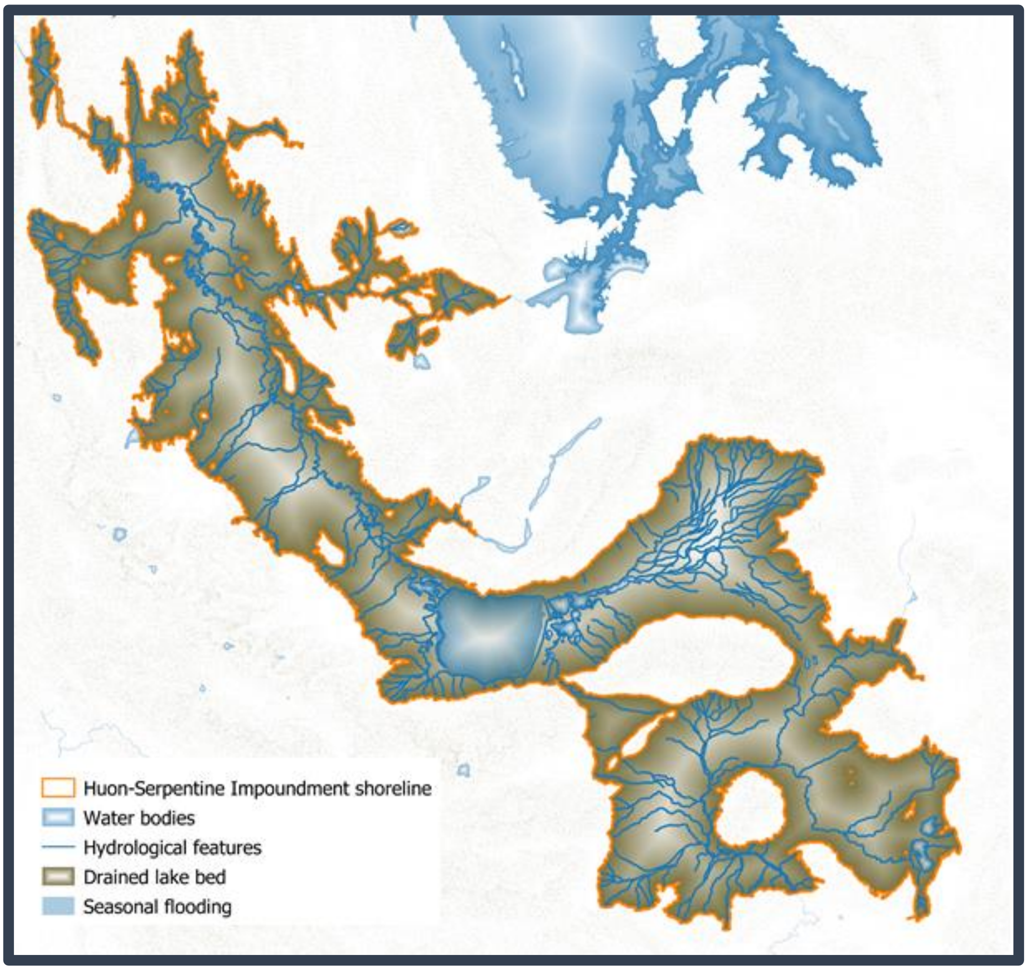


The expected physical consequences of dam removal will significantly alter both foraging and refuge habitat for the platypuses present in the current reservoir and downstream river reaches.

The disruptions to the physical environment would be expected to initially have significant direct and indirect negative impacts on the platypuses inhabiting the area. The effects would possibly include lower reproductive success, increased competition, increased susceptibility to disease, thermal stress and increased mortality rates.

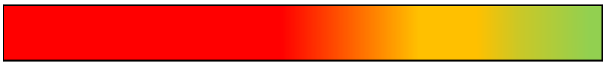
Longer term, restoration is likely to increase the area and diversity of suitable platypus habitat

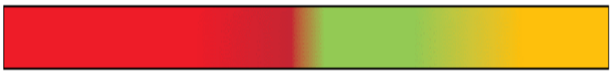
Following the initial disturbance from dewatering, restoration may result in beneficial outcomes for the platypus population in the long term. Due to the change from a large lake system to the original creeks, rivers and small lakes, the regenerating physical environment would greatly increase habitat; connectivity with downstream river and stream reaches; burrow sites and foraging areas of suitable depth and macroinvertebrate diversity and abundance.



Some of the potential negative impacts on platypuses can be mitigated and reduced

The rate and timing of dewatering is an important factor when considering ways to reduce negative impacts caused by the initial dam removal on platypuses. A slow, staged rate of dewatering and timing the dewatering to the winter months is critical to reduce impacts, particularly any disruption to breeding.

Risk mitigation aim	100 days	6 months	12 months	24 months	>24 months
Allowing retreat/movement/ establishment of burrows of platypuses					

Risk mitigation aim	Summer	Autumn	Winter	Spring
Allowing retreat/movement/ establishment of burrows of platypuses				

A relatively rapid rate of vegetation recovery, especially around the small streams, would be critical for platypuses and would reduce the risk of thermal stress, provide cover, and help in the restoration of foraging and burrow habitats. Active revegetation of riparian areas may be considered as a priority to speed up habitat stabilisation and shading for platypuses in the new environment created by the dewatering.

There is much we don't know, and further studies could reduce these uncertainties to better plan restoration

The following additional work is recommended to increase the reliability of conclusions about the effects of restoration on the platypus population in the Huon-Serpentine Impoundment:

- systematic platypus surveys to gather data on the structure, spatial ecology and health of the platypus population in the catchment
- population viability analysis to model the initial changes in populations from dewatering and subsequent recovery
- habitat suitability models like those to assess dam restoration success in the US
- monitoring of the platypus population and habitats before, during and after the dewatering and restoration - done using new techniques such as eDNA[1].
- further studies of vegetation recovery, particularly along streams to determine the potential and rate of restoration of platypus habitat
- studies to determine how intact and stable stream and creek banks may be for burrow creation
- modelling of the optimum water drawdown rates to ensure continuity of platypus habitat over time and space
- responses in exposure to potential landscape-scale fire events.

[1] eDNA is nuclear or mitochondrial DNA that is released from an organism into the environment. As part of their everyday activity, aquatic animals shed DNA from their bodies which is dispersed via water movement. The process of eDNA sampling involves collecting simple water samples and filtering the water. The filtrate (material that is collected in the filter) is sent to a diagnostic laboratory where the DNA is then extracted if present.

Further Reading

Munks S and Wild AS (2020) Review of potential responses of Platypuses to restoration of Lake Pedder. Report commissioned by Lake Pedder Restoration Inc. Hobart, Tasmania. https://lakepedder.org/thescience

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This factsheet is one of a series commissioned by Lake Pedder Restoration Inc. and prepared by Dr Anita Wild and colleagues to understand the impacts of the full ecological restoration of the original Lake Pedder and surrounding ecosystems in the Tasmanian Wilderness World Heritage Area. Released August 2020.

For more information go to www.lakepedder.org.