Address for reply: PO Box 166, Fairfield, Victoria 3078

2 April 2020

The Hon. Rob Stokes MP
Minister for Planning and Public Spaces
GPO Box 5341
SYDNEY NSW 2001

The Hon. Matt Kean MP
Minister for Energy and Environment
GPO Box 5341
SYDNEY NSW 2001

Dear Ministers

Approval of Proposed Snowy 2.0 Main Works

I write to you about the imminent decision to approve the proposed Snowy 2.0 Main Works. Our concerns mainly relate to the impacts of the movement of water between the Talbingo and Tantangara reservoirs.

The Invasive Species Council supports the concerns raised by University of Canberra Assoc. Professor Mark Lintermans, the Australian Society for Fish Biology and the University of Canberra Centre for Applied Water Science in their submissions to the Snowy 2.0 Main Works EIS. We were also concerned about concerns raised by DPI Fisheries.[1]

Expected negative impacts

In particular, we are concerned about the negative impact on aquatic ecology from the movement of water from Talbingo Reservoir to Tantangara Reservoir and subsequently to Lake Eucumbene. This has the potential to contaminate the upper Murrumbidgee River catchment and the Snowy and Murray river systems with existing and future invasive pests and diseases in Talbingo Reservoir.

This is expected to have the following negative impacts on native wildlife:

1. Invasion of the upper Murrumbidgee River with redfin perch.
2. Introduction of the epizootic hematopoietic necrosis virus into the upper Murrumbidgee River and Murray and Snowy rivers.
3. In-situ extinction of the critically endangered (NSW) stocky galaxias through predation and competition by the climbing galaxias.
4. Elimination of a key population of the endangered (nationally) Macquarie perch through competition with redfin perch and/or infection with the epizootic hematopoietic necrosis virus.
5. Other future impacts dependant on the establishment of new invasive aquatic pests and diseases in Talbingo Reservoir including gambusia, carp and any number of other species during the life of Snowy 2.0.

[1] Letter from NSW DPI Fisheries to Department of Planning, Industry and Environment containing comments on the EIS for Snowy 2.0 Main Works, dated 5 Dec 2019.

Avoidance or minimisation of impacts

As a principle, the movement of water across catchments should be avoided to prevent the movement of invasive aquatic pests and diseases. If this movement must take place, fail-safe effective measures must be put in place to minimise the risk – to a very low level – of the establishment of new pests and diseases in the catchment receiving contaminated waters. In aquatic environments, it is extremely difficult to reverse an establishment event, since eradication is usually impractical. There are some exceptions, but these are rare, relatively untested and expensive, such as the recent eradication of carp from Lake Sorrell, Tasmania which required 15 years of dedicated and costly management action.

These measures could include water sterilisation, filtration or confinement of contaminated waters. A single breach of a hygiene or quarantine measure may render the measures ineffective, depending on the species, duration and severity. Thus, any measures must have built in redundancy and safeguards and take into account rare or extreme events and uncertainties and be based on a transparent and credible risk-based approach.

There is insufficient detail or independent external review of proposed mitigation measures to date to have confidence that the expected negative impacts can be avoided or mitigated. Some of the areas of concern include:

- Single filtration of the proposed secondary mitigation measures at Tantangara Reservoir lacks the needed redundancy.
- Primary containment of invasive species at Talbingo Reservoir should not be rejected and instead this option should be fully costed and seriously considered for adoption.
- The risk of transmission and measures to prevent the spread of climbing galaxias appear poorly considered with the proposed barrier lacking detail and untested.
- Secondary containment of introduced invasive fish and the virus in Tantangara Reservoir are poorly defined and unlikely to be effective (exacerbated by the behaviour of fishers likely to accidentally spread invasive fish and diseases).
- Rare and extreme events are not fully or adequately considered, such as the overtopping of Tantangara reservoir.
- Additional impacts of the movement of invasive species to the rest of the upper Murrumbidgee, Snowy and Murray rivers have not been fully or adequately considered.
- The recovery of aquatic threatened species such as stocky galaxias, trout cod and Macquarie perch is significantly compromised by adding additional threats and risks to current and potential habitat.
- The threat of new invasive species yet to arrive in Talbingo Reservoir has not be considered.

Redfin perch is listed in Part 2, Schedule 1 under mandatory measures of the NSW Biosecurity Act Regulations 2017. As a result, it is prohibited to 'move the pest or disease' and 'release the pest or disease'[2] without an exemption under the Biosecurity Order (Permitted Activities) 2017[3]. The deliberate movement of water known to have invasive pests and diseases is also contrary to the 'general biosecurity duty' of the NSW Biosecurity Act 2015.

Conclusion

Until there are fail-safe effective mitigation measures in place that have been independently reviewed by appropriate experts, the Invasive Species Council opposes the movement of water from Talbingo Reservoir to

[2] Clause 18 Prohibition on certain dealings, NSW Biosecurity Regulation 2017.
[3] Clause 6 Exception if dealing permitted by Biosecurity Order (Permitted Activities), ibid.

Tantangara Reservoir. Similarly, we oppose the grant of an exemption for the movement and release of redfin perch under the Biosecurity Regulation 2017.

One such effective measure in the first instance could be an effective fish screen or fish exclusion technology as a primary containment measures to prevent movement of fish from Talbingo to Tantangara reservoirs.

If our recommendation is ignored, any expected, likely or unexpected damage must be compensated with a major offset package that seeks to maximise the survival of impacted native species in the wild and minimises the broader threats such as the spread of aquatic invasive species throughout Kosciuszko National Park and NSW.

Other issues

Improved responses to aquatic invasive fish

The deliberate spread of invasive fish such as redfin perch and even carp by a small number of fishers remains a serious threat to all NSW waterways, irrespective of the approval of Snowy 2.0. To date there has been no serious attempt to address this problem by creating behaviour change through enhanced education and enforcement measures. This remains a major opportunity to improve aquatic biosecurity.

Similarly, improved research effort to undertake small catchment-wide or reservoir-based eradication of selected invasive fish may better contain and ultimately reverse the spread of invasive fish include carp, redfin perch and gambusia. We are not aware of any recent investment in this type of response to growing aquatic invasive fish impacts.

Invasive species impacts in Kosciuszko National Park

The original Snowy Scheme has left a legacy of environmental damage that continues today. Inter-basin transfers of water have facilitated the spread of invasive aquatic pests and diseases (eg. see Waters et al. 2002[4]) and the rehabilitation of many construction sites is not complete. It was worrying to see that only half of the sites identified in the Rehabilitation of Former Snowy Scheme Sites Program have been rehabilitated as at 2013[5], and that only $32 million of the estimated $100 million has been allocated to these works.

Independently of the Snowy Hydro scheme, Kosciuszko National Park has its own major pest and weed problems that need to be resolved. This includes an estimated 20,000 feral horses according to the 2019 aerial survey of the Australian Alps, a tripling since the previous survey in 2014, and no sign of this rate of growth declining under current NSW government policies.

Yours sincerely

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[4] Waters, J.M., Shirley, M., & Closs, G.P. (2002). Hydroelectric development and translocation of *Galaxias brevipinnis*: a cloud at the end of the tunnel? Canadian Journal of Fisheries and Aquatic Sciences, 59(1) 49-56.
[5] MacPhee, E., and Wilks, G. (2013) Rehabilitation of former Snowy Scheme sites in Kosciuszko National Park. *Ecological Management & Restoration* 14(3), 159-171.