2025/26 Annual Implementation Plan

Snowy 2.0 Threatened Fish Management Plan

NSW GOVERNMENT | snowyhydro | snowy 2.0

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Executive Summary

This 2025/26 Annual Implementation Plan (AIP) details the ongoing efforts under the Snowy 2.0 Threatened Fish Management Plan (TFMP) to mitigate potential biosecurity risks to native fish species, specifically Macquarie Perch and Stocky Galaxias, that may arise from the Snowy 2.0 pumped hydro expansion. Funded by Snowy Hydro and delivered by NSW Department of Primary Industries and Regional Development (NSW DPIRD), this AIP outlines the activities for the upcoming year, building upon the successes and lessons learned from previous years.

Key highlights and changes for the 2025/26 year include:

- **Adaptive Program:** The plan remains adaptive, incorporating new information. The Eucumbene Borrows has been paused as a Stocky Galaxias translocation site due to unsuitable conditions identified through recent monitoring.
- **Enhanced Captive Breeding Efforts:** A significant focus is placed on expanding the captive breeding program for Macquarie Perch. This includes trialling the spawning of upper Murrumbidgee female Macquarie Perch with genetically distinct Victorian males at the Snobs Creek hatchery, alongside continued efforts at the Narrandera Fisheries Centre (NFC). The completion of eight new ponds at NFC will significantly increase broodstock capacity.
- **Targeted Monitoring & Research:** Continued population monitoring for both Stocky Galaxias and Macquarie Perch will provide crucial data on population dynamics and distribution. A TARP (Trigger Action Response Plan) workshop is scheduled to refine criteria and response activities for Stocky Galaxias, following detected population declines. Genetic analysis of collected samples will guide genetic management strategies for both wild and captive populations.
- **Catchment Surveys:** Surveys will continue to identify potential additional populations and suitable translocation sites for both species, with a particular emphasis on identifying a preferred reintroduction site for captive-bred Macquarie Perch.
- **Translocation (Genetic Rescue):** Wild-to-wild translocations of Macquarie Perch from Cataract Dam will continue to enhance genetic diversity in the upper Murrumbidgee, targeting previously unstocked or isolated upstream sections.

The program's overall goal is to build resilience in and minimise impacts on, Macquarie Perch and Stocky Galaxias populations within the upper Murrumbidgee Catchment, should a new incursion of pest fish occur due to Snowy 2.0 activities.

Measures of success include establishing robust monitoring programs, developing successful re-stocking/re-introduction programs, and improving knowledge of species distribution and habitat to inform long-term survival strategies. Regular updates on expenditure and program progress will be provided to the Expert Advisory Committee (EAC) for review and endorsement, and an Annual Report will be prepared at the conclusion of the year.

Contents

Introduction

Snowy 2.0 is a pumped hydro expansion of the Snowy Mountains Scheme which will hydrologically link the existing reservoirs of Talbingo and Tantangara, via underground tunnels and an underground power station, that will be owned and operated by Snowy Hydro Limited (Snowy Hydro).

The transfer of water between these reservoirs and catchments brings with it the risk of transfer of pest fish and pathogens which are currently not present within the upper Murrumbidgee catchment (Baumgartner et al 2018 and Ning et al 2019), and which may impact the threatened fish species Macquarie Perch (*Macquaria australasica*) and Stocky Galaxias (*Galaxias tantangara*) if planned controls fail, and pest species spread beyond Tantangara Reservoir.

Snowy Hydro comprehensively assessed the likelihood of these potential impacts and options to avoid transfer of pest fish through Snowy 2.0 as well as options to minimise potential impacts (EMM 2019, EMM 2020).

Further details are provided in the Snowy 2.0 Biosecurity Risk Management Plan (BRMP).

In addition, the Snowy 2.0 Threatened Fish Management Plan (TFMP) was developed to minimise the impact of the development on threatened fish species and their habitat by increasing the existing resilience to the potential biosecurity risks from the development. The main focus of the TFMP is Macquarie Perch, Stocky Galaxias and Murray Crayfish (*Euastacus armatus*). A key part of this plan is a captive breeding program for the Macquarie Perch and Stocky Galaxias involving the spending of $5 million over 5 years from the commencement of the program that provides for:

- → population monitoring, surveillance and research on the Macquarie Perch and Stocky Galaxias in the Mid to Upper Murrumbidgee catchment;
- → habitat surveys to identify suitable receiving sites for stocking insurance populations of Stocky Galaxias and Macquarie Perch;
- → captive breeding, stocking and monitoring of Macquarie Perch and Stocky Galaxias with the aim of achieving self-sustaining populations of these species;
- → habitat enhancement for the Macquarie Perch in the mid-Murrumbidgee catchment in accordance with the National Recovery Plan.

Implementation of the TFMP aims to increase the existing population's resilience to the potential biosecurity risks from the development.

The TFMP contains broad management objectives and is based on several underpinning plans and strategies developed for each species: Macquarie Perch (Lintermans et al. 2022a,b; Lyon et al. 2022; Tonkin et al. 2022); Stocky Galaxias (Raadik and Lintermans 2022a,b; Raadik et al. 2022; Stoessel and Raadik 2022). These detailed documents contain objectives, methods, and outputs for each species, and as such, along with the TFMP, provide the direction and detail for the implementation of the captive breeding program ('the program') under the TFMP.

The program is funded by Snowy Hydro and undertaken by New South Wales Department of Primary Industries and Regional Development (NSW DPIRD) with oversight from an independent Expert Advisory Committee (EAC). Activities each year are guided by an annual implementation plan (AIP) developed by NSW DPIRD and endorsed by the EAC which outline the activities and deliverables that will occur under the program. This

is the third AIP to be prepared under the program. At the conclusion of each year, an Annual Report, detailing activities and outcomes, is submitted to the EAC for review and endorsement. Once finalised, these reports are made public via the Snowy 2.0 website. Further detail on the EAC is provided in Appendix 1.

2. Program overview

During the development of the TFMP, expert advice was sought on what actions would be appropriate for the species under this program. The following details are based on this advice and are taken from the documents listed in Table 1.

As it is important for the program to remain adaptive, each year, the following sections are reviewed as part of the annual plan preparation to ensure they remain relevant as the Program progresses. The activities listed in this section cover the full five-year program while Section 5 details the activities to occur in the 2025/2026 year.

Table 1. List of documents prepared for Snowy Hydro to inform the preparation and implementation of the captive breeding program for the TFMP.

Topic	Contributing Authors	Citation
Stocky Galaxias - Review of existing information	Raadik, T.A. and Lintermans, M.	Raadik, T.A. and Lintermans, M. (2022). Stocky Galaxias – review of existing information, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Macquarie Perch - Review of existing information	Tonkin, Z., Lintermans, M. and Lyon, J.	Tonkin, Z., Lintermans, M. and Lyon, J. (2022). Macquarie Perch – review of existing information, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Stocky Galaxias - Species Monitoring	Raadik, T.A. and Lintermans, M.	Raadik, T.A. and Lintermans, M. (2022). Stocky Galaxias - monitoring plan, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Macquarie Perch - Species Monitoring	Lintermans, M., Tonkin, Z., Lyon, J. and Gilligan, D.	Lintermans, M., Tonkin, Z., Lyon, J. and Gilligan, D. (2022). Macquarie Perch – monitoring plan, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Stocky Galaxias - Habitat Surveys	Raadik, T.A. and Lintermans, M.	Raadik, T.A. and Lintermans, M. (2022). Stocky Galaxias - catchment survey, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Macquarie Perch - Habitat Surveys	Lintermans, M., Lyon, J. and Tonkin, Z.	Lintermans, M., Lyon, J. and Tonkin, Z. (2022). Macquarie Perch – catchment survey, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Stocky Galaxias - Translocation	Raadik, T.A., Stoessel, D. and Lintermans, M.	Raadik, T.A., Stoessel, D. and Lintermans, M. (2022). Stocky Galaxias - translocation strategy, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Macquarie Perch - Translocation	Tonkin, Z., Lintermans, M., Gilligan, D. and Lyon, J.	Tonkin, Z., Lintermans, M., Gilligan, D. and Lyon, J. (2022). Macquarie Perch - translocation strategy, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Stocky Galaxias - Captive Breeding	Stoessel, D.J. and Raadik, T.A.	Stoessel, D.J. and Raadik, T.A. (2022). Stocky Galaxias – captive breeding strategy, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.
Macquarie Perch - Captive Breeding	Lyon, J. Ho, H., Ingram. B, Gilligan, D., Pavlova, A., Moyles, A. and Tonkin, Z.	Lyon, J. Ho, H., Ingram. B, Gilligan, D., Pavlova, A., Moyles, A. and Tonkin, Z. (2022). Macquarie Perch – captive breeding strategy, Snowy 2.0. Published client report for Snowy Hydro Ltd, Cooma. Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning, Heidelberg, Victoria.

Key changes for the 2025/2026 year include:

Trialling the spawning of female Macquarie Perch from the upper Murrumbidgee with male fish from Victorian populations at the Victorian Fisheries Authority (VFA) hatchery at Snobs Creek. Female Macquarie Perch will be collected from the upper Murrumbidgee during the spawning season and transported to the Snobs Creek hatchery where the VFA will attempt to cross them with male fish from either Dartmouth Dam or the Yarra River. With the completion of the eight new ponds at the NFC, this will see an increased focus in broodfish collection to build up number and establish increased capacity.

The removal of the 'Eucumbene Borrows' as the specific location for Stocky Galaxias translocation activities. Monitoring and other findings over the last two years, no longer support this as a suitable re-introduction location for Stocky Galaxias. Further details can be found in the 2024/2025 Annual Report. A focus for this year will be identifying and trialling a new release location for Stocky Galaxias.

Each year, the following sections are to be reviewed as part of the annual plan preparation to ensure they remain relevant as the program progresses.

2.1 Goal

The overall goal of the program is to build resilience in and minimise impacts on, Macquarie Perch and Stocky Galaxias populations within the upper Murrumbidgee Catchment, should a new incursion of pest fish occur due to Snowy 2.0 activities.

2.2 Measures of success

Achievement of the goal of the program can be measured by progress against the following three key outcomes:

1. An established monitoring program that provides quantitative data about the spatial and temporal patterns of population size and structure (age, size, genetic) and distribution of Macquarie Perch and Stocky Galaxias in current known locations within the upper Murrumbidgee Catchment, to allow assessment of species status and inform success of any re-stocking/re-introduction program.
2. An established basis for a successful re-stocking/re-introduction program of genetically diverse individuals for Macquarie Perch and Stocky Galaxias supported by; scalable hatchery protocols for captive breeding; habitat rehabilitation; and the establishment of reproductive insurance populations of both species.
3. Improved knowledge on the distribution (presence/absence) and potentially suitable habitat of Macquarie Perch and Stocky Galaxias, to inform decisions on management intervention for the long-term survival of the species.

3. Specific aims, objectives, activities and targets of the five-year plan

3.1 Monitoring

3.1.1 Stocky Galaxias

Aim: To provide baseline, comparable data on the species, to inform decisions on management intervention for the long-term survival of the species.

Objectives are to collect data on:

- The persistence of Stocky Galaxias (presence and breeding).
- The population trajectory (is the population increasing, stable or decreasing) and variability (significant change from normal).
- The status of the Stocky Galaxias population (incorporating measures of abundance, distribution, reproduction, fish health and demographics).
- The status of identifiable threats at Stocky Galaxias locations (e.g. riparian erosion, instream sedimentation, riparian vegetation condition with respect to ability to trap sediment).
- The persistence and establishment of any new translocations of the species into the catchment.
- Incursions of exotic fish species (Brown Trout (*Salmo trutta*), Rainbow Trout (*Oncorhynchus mykiss*), or invasive native species Climbing Galaxias (*Galaxias brevipinnis*) into known Stocky Galaxias populations.
- Metrics informing triggers (as part of a Trigger Action Response Plan (TARP)) for identified management interventions to mitigate potential sudden declines because of identified threats (e.g. fish incursion, fire, drought).
- Triggers for further investigations and/or identified management interventions to mitigate potential sudden declines because of identified threats (e.g. Redfin Perch (*Perca fluviatilis*) fish invasion, drought, fire).

Activities:

- Undertake population monitoring at the two sites in Tantangara Creek and one site in Sallys Flat Creek as outlined in section 6.2.2 of this document.
- If warranted by the results of previous years sampling, undertake additional investigative sampling.

Target:

- Improved knowledge of baseline population, distribution, and fluctuations, and measuring the success or otherwise of restocking and translocation programs.

3.1.2 Macquarie Perch

Aim: provide baseline, comparable data on the Mid Murrumbidgee population, to inform decisions on management intervention for the long-term survival of the population.

Objectives are to collect data on:

- → The persistence of Macquarie Perch (is the species still present and breeding at sites where recorded since 1998).
- → The population trajectory (is the population increasing, stable or decreasing) and variability (significant change from normal).
- → The status of the Macquarie Perch population (incorporating measures of abundance, distribution, reproduction and demographics).
- → The persistence and establishment of any new translocations of the species into the catchment.
- → Incursions of Redfin Perch into the Mid Murrumbidgee catchment.
- → Triggers for further investigations and/or identified management interventions to mitigate potential sudden declines because of identified threats (e.g. Redfin Perch fish invasion, drought, fire).

Activities:

- → Undertake population monitoring at the seven core sites and two fringe sites in the Murrumbidgee River and two reference sites in the Abercrombie River.
- → If warranted by the results of previous years sampling, undertake additional investigative sampling.

Target:

- → Improved knowledge of baseline populations, distribution and fluctuations, and measuring the success or otherwise of restocking and translocation programs.

3.2 Catchment Survey

3.2.1 Stocky Galaxias

Aim: Improve knowledge on the distribution (presence/absence) and potentially suitable habitat of Stocky Galaxias, to inform decisions on management intervention for the long-term survival of the species.

Objectives:

- → Locate any additional Stocky Galaxias populations.
- → Identify potential future Stocky Galaxias translocation sites.

Activities:

- → Develop desktop prioritisation of sites and undertake prioritisation.
- → Undertake initial ‘rapid’ survey.
- → Second prioritisation.
- → Detailed survey of identified sites (habitat, barriers, predatory fish/barriers).

Output:

- → Identify at least three priority reintroduction locations.

3.2.2 Macquarie Perch

Aim: Establish the geographic extent of the existing population/s of Macquarie Perch in both the Murrumbidgee River mainstem and major tributaries.

Objectives:

- → Identify potential translocation sites.
- → Identify opportunities for habitat enhancement.
- → Verify the presence and distribution of target pest fish within the catchment (i.e. Redfin Perch).

Activities:

- → Determine current distribution and abundance.
- → Identify potential translocation/reintroduction sites.
- → Locate barriers to dispersal/colonisation and predator control barrier sites.

Target:

→ Identify at least three priority reintroduction locations.

3.3 Translocation

3.3.1 Stocky Galaxias

Aim: Improve the conservation status of Stocky Galaxias in the wild to ensure enough viable populations with evolutionary potential exist to support long term persistence.

Objectives:

→ Increase the number of wild populations.

→ Increase the resilience and condition of existing wild populations.

Activities:

→ Investigating and prioritising options to enhance the condition and resilience of the current population.

→ Establish a translocation procedure to enable the harvesting and translocation of Stocky Galaxias (wild-to-captivity, captivity-to-wild, and wild-to-wild) to act as brood stock for a captive breeding program, to establish additional wild populations, and where required, for emergency extraction.

→ Translocation site identification and suitability assessment.

→ Genetic modelling and assessment of the donor and recipient populations.

→ Collection of fish for wild-to-wild translocation.

→ Pre-release translocation site monitoring.

→ Translocate individuals to establish a captively maintained population in the short term, as insurance against the loss of the species in the wild.

→ Post-release monitoring to assess success of translocations (short and long-term).

→ Undertake appropriate assessment of the potential impacts of translocation and obtain appropriate approvals.

Target:

→ Have initiated stocking at, at least one of the priority locations, with the detection of survival of released fish.

3.3.2 Macquarie Perch

Aim: Improve the conservation status of Macquarie Perch in the upper Murrumbidgee catchment by enhancing condition and resilience of the current population/s.

Objectives:

→ Extend the range and abundance of the current population or establish new populations.

→ Improve the genetic fitness and ensure the persistence of the existing population/s in the catchment.

Activities:

→ Establish a catchment specific translocation procedure to enable the harvesting, transport and release/return of Macquarie Perch for translocation, stock for a captive breeding program, and for emergency extraction if needed.

→ Establish an ex-situ population maintained in captivity in the short term, as insurance against the loss of the population (and therefore unique genetic diversity for the species more broadly) in the wild.

→ Undertake captive breeding and/or wild to wild translocation of Macquarie Perch to establish an insurance population in a new area of the catchment if a suitable area is identified, and to provide offspring to bolster the upper Murrumbidgee population if needed.

→ Undertake appropriate assessment of the potential impacts of translocation and obtain appropriate approvals.

Target:

→ Detection of admix genetics along current known Macquarie Perch distribution and have initiated stocking at, at least one of the priority locations, with the detection of survival of released fish.

3.4 Captive Breeding

3.4.1 Stocky Galaxias

Aim: Improve the resilience of the species by increasing the number of individuals and populations through the captive production of viable offspring with evolutionary potential.

Objectives:

- To identify existing knowledge and knowledge gaps in relation to the captive maintenance and breeding of Stocky Galaxias.
- To identify the requirements for captive breeding and rearing of Stocky Galaxias.

Activities:

- **Quarantine**
  - Development of quarantine protocol specific to hatchery facility, including fish health protocol.
  - Isolation and observation of batches of fish entering the facility, and treatment for parasites or disease, to ensure no transferal of disease or parasites, and that only healthy fish are maintained.
- **Captive maintenance**
  - Development of a captive maintenance protocol to maximise fish health and vigour, to promote reproductive progression, and to minimise mortality.
  - Undertake captive maintenance of fish.
  - Genetic analysis of individuals to provide data to the breeding program (i.e. selection of brood stock or brood-pairs) to meet genetic targets of the captive breeding plan (see further down).
- **Captive breeding**
  - Development of a captive breeding protocol that is guided by genetics and ensures reproductive success (egg fertilisation and development, hatching, and larval growth and survival) and genetic targets for offspring are met.
  - Development of post spawning recovery guidelines to maximise brood stock recovery, and, if necessary, the replacement of all or part of the brood stock before captive management continues.
  - Undertake captive breeding (spawning, fertilisation, egg development and hatch, larval survival, and development).
- **On-growing offspring**
  - Develop larval rearing protocol.
  - On-grow offspring and maintain until release.
  - Assessment of offspring genetics to monitor compliance with the genetic target of captive breeding (if required).

Targets:

- Maintain a minimum of 100 Stocky Galaxias brood stock (genetic make up to be informed by current genetic analysis).
- The potential to initially produce 1500 Stocky Galaxias annually increasing to 2500 annually.
- Increase the abundance and distribution of Stocky Galaxias in the wild.

3.4.2 Macquarie Perch

Aim: Improve the resilience of the population by increasing the number of individuals through the captive production and stocking of viable offspring with evolutionary potential.

Objectives:

- Detail the current approach for captive breeding of Macquarie Perch.
- Outline existing knowledge gaps, known limitations of existing techniques and current research.
- Set out the steps to procure and stock Macquarie Perch in the mid-Murrumbidgee River.

Activities:

- Establish sufficient capacity to hold and breed Macquarie Perch broodstock.

→ Develop captive breeding protocols.

→ Captive breeding.

→ Genetic augmentation.

Targets:

→ 100 Macquarie Perch brood stock held in captivity (genetic make up to be informed by genetic management plan currently under development).

→ The potential to produce of 25,000 Macquarie Perch annually by the end of the five-year program.

→ Increase the abundance and distribution of Macquarie Perch within the Upper Murrumbidgee Catchment.

3.5 Habitat Enhancement

Aim: Enhance habitat for the Macquarie Perch in the upper-Murrumbidgee catchment.

Objectives:

→ Increase the availability and/or quality of habitat for Macquarie Perch in the upper Murrumbidgee catchment.

Activities:

→ Work with existing local organisations and groups to identify suitable works.

→ Undertake targeted habitat enhancement works.

Targets:

→ Habitat works undertaken at key priority locations.

3.6 Implementation timeframes

The initial five-year implementation program of the TFMP commenced on 1 January 2024 and will conclude on 31 December 2028, however, the planning is on a financial year basis as outlined below (Figure 1).

Consideration for the continuation of the program beyond the initial five-year will occur as the program progresses and in accordance with the trigger, action, response plan outlined in the TFMP.

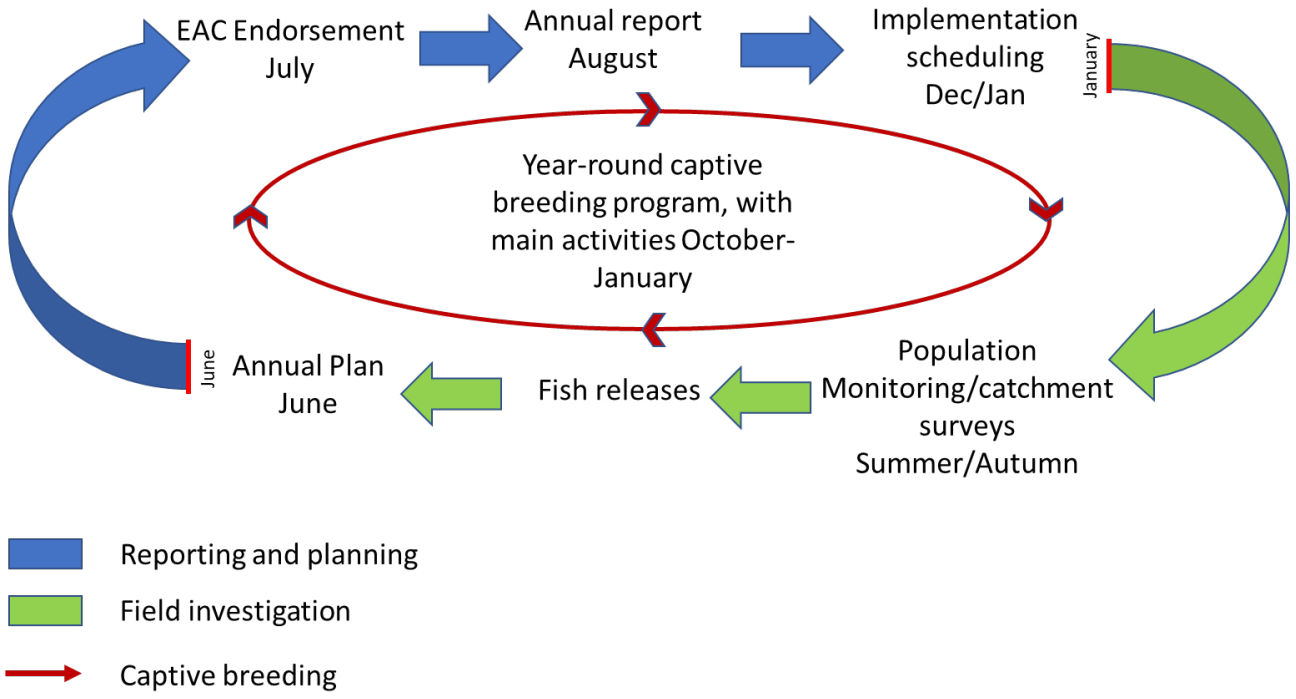


Figure 1. Indicative depiction of the implementation of the TFMP activities

4. Project management

Funding for the Program is provided by Snowy Hydro to NSW DPIRD via a funding agreement.

Implementation of the Program is undertaken by the NSW DPIRD Fisheries, Habitat and Threatened Species team that sits within the Freshwater Environment Branch. The current Project lead is Luke Pearce (Senior Fisheries Manager), who is responsible for resource allocation and the development and delivery of the Annual Implementation Plan along with other staff within the team including Simone Mabon (Project Officer) and Tim McGarry (Fisheries Manager). Oversight of the development and implementation of the program is provided by the Habitat and Threatened Species Program Leader Samantha Davis.

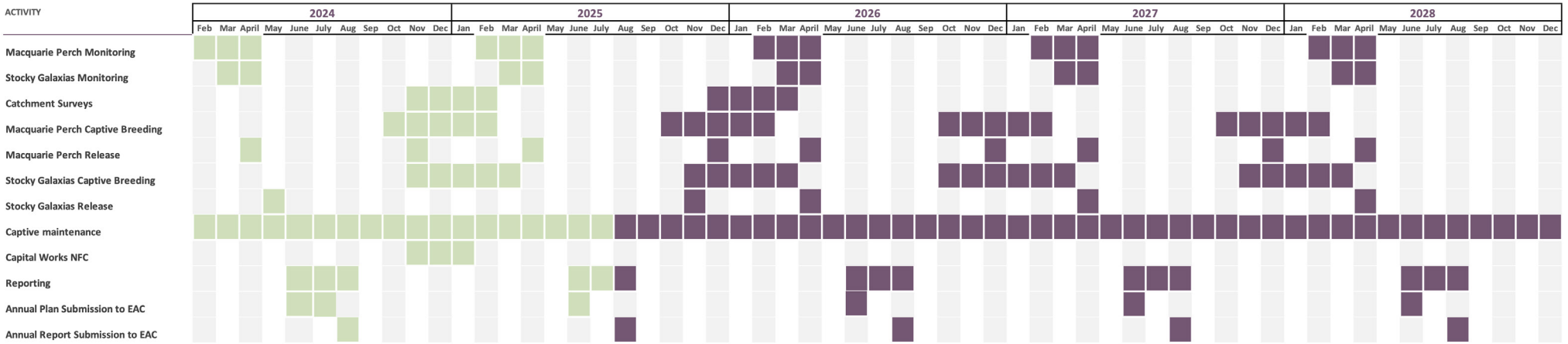
Myworkzone is the administration and finance system that DPIRD Fisheries uses for functions including finance, purchasing, procurement, staff time sheeting and cost centre management. All DPIRD projects are allocated a unique account identifier against which all related spending project spending (salaries, procurement etc.) are made. This allows expenditure to be planned, tracked and reported easily and allows for transparent audit processes to be undertaken. Daily time sheeting (with breaks) is also allocated to relevant project accounts to provide for accountable staff resourcing and tracking.

The NSW Government has set procurement guidelines and processes for the acquisition of goods and services, which is governed by the NSW Government Procurement Policy Framework. Procurement involves three broad stages: Plan, Source, and Manage. This provides for a structured approach to procurement, supported with a range of procurement tools to ensure business units achieve best practice procurement activity recommendations. The Plan, Source, and Manage process provides for an accountable and transparent nine-step procedure to achieve successful procurement. DPIRD maintains a Strategic Procurement Group that delivers procurement advisory and sourcing support services to optimise spend and deliver value for money for the department's sourcing activities, which will be used as needed during the project.

4.1 Implementation of the five-year program

The preliminary program of activities for the full five-year program are detailed in Table 2. The program is necessarily adaptive and changes to the program may occur as new information becomes available. These changes will be outlined in the relevant AIP (this document). Once the Annual Plans and Reports are finalised, they will be made available on Snowy Hydro's website.

Table 2: Schedule of implementation of the five-year program



4.2 Budget forecast

The future forecasted spend for the 2025/2026 year is detailed in Table 3. The EAC are regularly updated on program expenditure through the year. Any deviations from this projected spend are to be endorsed by the EAC prior to implementation.

Table 3: Budget expenditure forecast for 2025/26

Activity	Budget Expenditure
Macquarie Perch	
Captive Breeding	$243,294
Monitoring	$114,159
Translocation	$85,565
Catchment Survey	$54,257
Habitat Enhancement*	$100,000
Stocky Galaxias	
Captive Breeding	$125,543
Monitoring	$158,841
Translocation	$36,500
Catchment Survey	$60,000
Total	$978,159

* Note: The value and timing of habitat works in the Murrumbidgee River for Macquarie Perch will be dependent upon timing and implementation of a large the commonwealth funded project "Restoring the Upper Murrumbidgee River Program" which has committed $10.18 million to on-ground projects in the upper Murrumbidgee River.

5. Planned Activities

5.1 Monitoring

5.1.1 Stocky Galaxias

Population monitoring undertaken for Stocky Galaxias in 2024 found relatively low abundances within Tantangara Creek, particularly at the Bottom Flat site (Lintermans and Allan 2024). It was not known whether the apparent lower abundances reflected a seasonal change in abundance or sampling efficiency or were evidence of population declines (Lintermans and Allan 2024). It was therefore recommended that two sampling events be undertaken in 2025 one in summer (February) and one in Autumn (April) in order to gain greater understanding of the current status of the population in this location and the influence of potential seasonal changes in abundance and/or sampling efficiency, providing further guidance on the most appropriate time for sampling.

The Stocky Galaxias catch rate was low for both of the monthly sampling events and at similar levels to those recorded in 2024 (Lintermans and Allan 2025). Findings of both 2024 and 2025 suggest that there has been a decline in the Stocky Galaxias population at Tantangara Creek and a lack of recruitment in 2025 at Tantangara Creek Bottom Flat (Lintermans and Allan 2025). The 2025 monitoring has met trigger levels under the TARP criteria developed by Raadik and Lintermans (2022) and this will be investigated further in the 2025/26 monitoring program.

Population Monitoring

Monitoring for the 2025/26 season will follow the methods established in Lintermans and Allan (2024) and Raadik and Lintermans (2022). Additional monitoring, in response to the triggering of the TARP may involve spawning and egg hatching monitoring to establish the life stage where the failure may be occurring and seek to identify the cause.

The specifics of any additional monitoring will be confirmed following the TARP Workshop (see below).

All fish species captured will be identified and measured for length (nearest mm; Caudal Fork Length or Total Length, as appropriate). Weight of each Stocky Galaxias captured will be recorded (0.1g), and fish will be visually examined for deformities, injuries (e.g. cormorant strike) and external parasites (e.g. *Lernaea cyprinacea*).

Standard water quality parameters will be recorded at each site, during each sampling event.

Temperature loggers were installed in summer 2024/25 at the Eucumbene Borrows and will be installed at Bottom Flat and Top Flat in Tantangara Creek, Sallys Flat Creek in 2025/26.

A rapid visual habitat assessment to identify any potential threats is to be undertaken and a photo upstream and downstream at the beginning of each sampled section or reach.

TARP Workshop

Given that this is first instance that the TARP has been triggered and there is ambiguity and uncertainty in how and when the TARP triggers should be applied, a workshop composed of suitably qualified experts is planned to be held prior to this season's monitoring program to determine the appropriateness of the TARP criteria and the response activities recommended. The TARP refinement workshop is planned to be held in late September 2025. Recommendations from this workshop will inform additional monitoring required for the 2025/26 season.

Genetics

In order to monitor the level of population genetic variation and effective population size, genetic material will be collected as part of the population monitoring.

A small sample of caudal fin tissue will be collected from all fish > 50 mm in length, clipping all fish up to a maximum of 45 individuals per reach (up to 90 individuals total) into 100% ethanol. Collected tissue will be sent for population genetic analysis using single nucleotide polymorphisms (SNPs) (effective population size, genetic diversity, parentage level analysis) at an appropriate facility. The number of tissue clips required for each successive event may be able to be reduced following analysis of initial collection.

Fin clips collected during 2024 and 2025 will be sent for genetic analysis. A project conducted by Peter Unmack will see all genetic material collected for Stocky Galaxias to date analysed through DArT sequencing and recommendation provided regarding the genetic management of the wild populations and the captive population.

Deliverables:

- → Outcomes of TARP Workshop including recommendations for additional monitoring during 2026.
- → Monitoring Report detailing all catch data and comparisons with previous years data.
- → Copies of sampling data sheets.
- → Genetic analysis report including recommendations on genetic management of wild and captive populations.

5.1.2 Macquarie Perch

The monitoring for 2026 will follow the same approach and methods adopted in previous years. As the results from the previous year did not indicate any significant issues with the population, no additional sampling is planned.

Population monitoring

As with previous sampling under this program, Macquarie Perch monitoring for 2026 will be undertaken by gill netting and fyke netting.

Annual population sampling is planned to be conducted in early to mid-autumn (March–April), as this is the time of lowest flows and Young of Year fish will be of an advanced size, both of which improve detection probability. One monitoring event, repeated annually at the same time of year is considered adequate, based on other threatened species monitoring programs.

Monitoring will occur at nine sites along the Murrumbidgee River and two reference sites in the Abercrombie River (Lintermans et al., 2022).

Monitoring sites/reaches have been selected to give adequate spatial coverage of the core distribution and allow for detection of spatial expansion (an upstream and a downstream fringe site are included).

Standard water quality parameters will be recorded at each site, during each sampling event. In addition to standard water quality monitoring, water temperature and flow data will be sourced from existing programs and gauging stations within the catchment.

All fish species captured will be identified and measured for length (nearest mm; Caudal Fork Length or Total Length, as appropriate). The weight of each Macquarie Perch captured will also be recorded (nearest gram). All subadults and adult Macquarie Perch will be scanned for a PIT tag, and if a PIT tag is recorded, the code should be recorded in full. All fish will be visually inspected for deformities, injuries (e.g. cormorant strike) and external parasites (e.g. *Lernaea cyprinacea*).

Data collected in the field will be manually recorded then entered electronically and maintained (curated and backed up) during data analysis ensuring appropriate review and quality assurance procedures.

Genetic Sampling

Genetic samples will be collected at all monitoring sites with samples collected every year during population monitoring activities, with samples processed every third year. For up to 45 individuals per site, measuring ≥40mm, a small sample of fin tissue will be clipped and preserved in 100% ethanol. If insufficient samples collected in routine monitoring, additional sampling may be required.

Collected tissue will be sent for population genetic analysis including effective population size, genetic diversity, parentage level analysis (using single nucleotide polymorphisms (SNPs) (as per Lutz et al. 2021). Given that monitoring in 2026 will represent the third year of monitoring under the TFMP samples from 2024, 2025 and 2026 will be analysed in the fourth quarter of 2026, following on from previous genetic studies on Macquarie Perch and genetic rescues

that have been occurring in the upper Murrumbidgee River. Analysis undertaken by Sasha Pavlova (Monash University) will aim to assess the progress of genetic rescue of the Macquarie perch population in the Murrumbidgee River. This will involve having previously collected genetic material analysed including that of Loddon Creek fish using existing data and new DArT genotypes.

The main aim will be achieved by addressing the following questions:

- → Is there a genetic signature of "shuffle the deck" program reducing population structure?
- → Did the Macquarie perch translocated to Murrumbidgee from Cataract Dam or Loddon Creek survive?
- → Did these fish breed in the Murrumbidgee?
- → Are the Loddon Creek Macquarie perch suitable for translocation to the Murrumbidgee?

Deliverables

- → Monitoring Report detailing all catch data and comparisons with previous years data.
- → Copies of sampling data sheets.
- → Genetic analysis report including recommendations on genetic management of wild and captive populations.

5.2 Catchment Survey

5.2.1 Stocky Galaxias

Stocky Galaxias catchment surveys will continue summer 2025/26 following the recommendations provided in Raadik and Lintermans (2022) and building on work undertaken during 2024/25.

In 2024/25, a desktop analysis undertaken by Raadik (unpubl. data) identified 257 potential locations for assessment. These sites were prioritised and sites where trout were known to exist were removed leaving approximately 171 sites. Of these, 110 sites were surveyed in 2024/2025.

The prioritisation of the 110 sites surveyed in 2024/25 is still in progress. Once this has been completed, the sites will be re-prioritised for a more detailed assessment based on the presence of Stocky Galaxias, or its value as a potential translocation site as per the recommendations in Raadik and Lintermans (2022). Additional detailed survey of identified sites will be undertaken in the first quarter of 2026.

In parallel to the detailed survey of the re-prioritised sites, it is planned that the remaining lower priority sites, and any further sites identified will be surveyed over a 2 week period and will follow the same procedures and methodology that was used in 2024/25.

Morphological Analysis

A morphological analysis of priority galaxiids collected in the 2024/25 catchment surveys will be undertaken to confirm species identity. This analysis will focus on galaxiids collected from sites where their morphology suggest they may be different or distinct from Mountain Galaxias (*Galaxias olidus)*.

Genetic Analysis

A genetic analysis of priority galaxiids collected in the 2024/25 catchment surveys will be undertaken to confirm species identity. This analysis will focus on galaxiids collected from sites where their morphology suggest they may be different or distinct from *Galaxias olidus.*

Deliverables

- → Report detailing the outcomes of survey work and the resulting priority table of sites.
- → Report detailing the morphological analysis of priority galaxiids collected during the 2024/25 catchment surveys.
- → Report detailing the genetic analysis of priority galaxiids collected during the 2024/25 catchment surveys.

5.2.2 Macquarie Perch

During the 2024/25 season fourteen of the twenty-two priority sites recommended by Lintermans et al (2022b), were assessed using eDNA sampling and underwent the rapid site assessment, prioritisation of these sites is still ongoing and further details regarding barrier assessment is required.

Macquarie Perch catchment surveys will continue in Spring/Summer 2025/26 following the recommendations by Lintermans et al (2022b) building on the outcomes of the surveys in March 2025.

The focus of the 2025/26 season will be to continue to assess and evaluate the fourteen sites that have undergone the initial rapid site assessment and identified priority reintroduction site for the release of captive breed fish in late 2025. This will include further detailed assessment of fish habitat attributes, fish community assessment via electrofishing, fyke and gill netting of the identified priority sites. Further analysis will also be undertaken regarding instream barriers for predator prevention utilising LIDAR imaging to determine any further instream barriers and map these of the priority sites.

There has been strong interest in this work from the community, particularly recreational fishers via the Monaro Acclimatisation Society (MAS). We will continue to work with local interest groups including the MAS to communicate the identified priority sites once finalised and receive feedback and input from them on the value and suitability of these locations from a recreational fishing value perspective.

Once the findings of the 2024/25 surveys are complete, it will be determined if the Queanbeyan River sites and other potential sites outside the catchment of the upper Murrumbidgee should be assessed. If appropriate, surveys will also focus on those sites not surveyed in 2024/25 that are of lower priority.

Deliverables

- → Report detailing the outcomes of survey work and the resulting priority table of sites.
- → Identified priority sites agreed upon and supported by stakeholders.

5.3 Translocation

5.3.1 Stocky Galaxias

Translocation activities for Stocky Galaxias in 2025/2026 will only involve the release of captive bred fish from the Charles Sturt University (CSU) captive breeding program. Wild to wild translocation of Stocky Galaxias are not planned for the 2025/26, as further details regarding appropriate genetic management of the current wild populations are required. This information will be provided as part of the genetic assessment that is going to be undertaken on the genetic material that has been collected via the population monitoring in 2024 and 2025. Part of the analysis and interpretation of this analysis will be to provide recommendations regarding the most appropriate genetic management for the wild populations and the captive population into the future.

Captive breeding releases

The location of the release of any captive breed fish will depend on the number produced. The first release will involve the Stocky Galaxias produced by the CSU team in December 2024. The current plan is to release these fish into the identified priority release site in November 2025.

Further releases will be dependent on the number of fish produced in the 2025 breeding season. If low numbers (up to 1000) are produced, the first priority location for release will be the preferred priority location identified via the catchment surveys.

If higher production is achieved, this will allow the opportunity for releases at additional sites or locations. These may be additional lower priority sites identified via the catchment surveys, within the upper Murrumbidgee, Goodradigbee or adjoining catchments.

Captive breed Stocky Galaxias may also be released back into Tantangara Creek to boost the numbers of the remnant population. This decision will be dependent on the outcomes of the TARP workshop and/or the findings of any monitoring undertaken.

5.3.2 Macquarie Perch

Translocation activities for Macquarie Perch in 2025/2026 will involve wild to wild translocation to facilitate genetic rescue and if captive breeding activities as successful, the release of captive bred fish from both NFC and Snobs Creek.

Captive breeding releases

The location of the release of any captive breed fish will depend on the number produced, if only low numbers (up to 5000) are produced the first priority location for release will be the preferred priority location identified via the catchment surveys. If there is production of from the Murrumbidgee females crossed with the Victorian

males, this genetically diverse stock may be used to supplement the existing remnant population, however this will depend on the number produced with the decision to be informed by the EAC once production numbers have been finalised.

If higher production is achieved this will allow the opportunity for the release at additional sites or locations, these may be additional lower priority site identified via the catchment surveys, the main stem of the Murrumbidgee River or other additional locations identified outside the upper Murrumbidgee catchment.

The decision on the most appropriate release locations will be determined by the EAC in consultation with DPIRD and local stakeholders including the MAS.

Genetic Rescue

Genetic analysis of the upper Murrumbidgee Macquarie Perch population (Pavlova et al. 2024) has shown that the population remains genetically depauperate and that the upstream reaches of the population are genetically isolated from the downstream reaches i.e. there is limited upstream movement of genetic material from the lower sections.

There have been five separate genetic rescues undertaken in 2020, 2022, 2023, 2024 and 2025 with Macquarie Perch collected from Cataract Dam. The recent 2025 genetic rescue was the largest that has been undertaken with 300 fish released over four locations. The recent genetic analysis has demonstrated that there has been some admixture between the resident population and the newly introduced fish from Cataract Dam, with one recapture of a pure Cataract fish and three fish of mixed genetics from two cohorts captured in 2023 (Pavlova et al. 2024).

It is planned to continue the genetic rescue work in the Murrumbidgee with the focus on translocation of fish from Cataract Dam into the upper sections of the Murrumbidgee that have either not yet received translocated fish or have only received a single translocation and are above barriers that preclude the current upstream movement of Cataract fish that have been released elsewhere in the system.

Proposed genetic rescue sites for 2025/26:

- → Killarney -35.891930, 148.791900
- → Koonaroo -35.865378, 148.809284

We propose to collect 100 Macquarie Perch from Cataract Dam for release in equal numbers at the two sites above in the upper Murrumbidgee River. These fish will be quarantined at the Narrandera Fisheries Centre and given a health check prior to release.

If sufficient Macquarie Perch can be sourced from Cataract Dam and additional numbers over and above the 100 will be used to complement the stocking of captive breed juvenile in the identified priority reintroduction site.

5.4 Captive Breeding

5.4.1 Stocky Galaxias

The Stocky Galaxias captive breeding program will continue as it has done in the past 2 seasons with an intensive primary captive breeding in a controlled lab/hatchery environment at Charles Sturt University. It will differ from past years where a secondary extensive semi natural, refugia based environment (Eucumbene Borrows) was being utilised in an attempt to facilitate production in a more natural environment.

Temperature monitoring at the Eucumbene Borrows over the past 2 summers has indicated that the maximum temperatures are likely exceeding the upper thermal tolerance limits of Stocky Galaxias and this is supported by the fish monitoring at the site which has only detected very low survival rates with the most recent surveys failing to detect any fish at all. Given these issues, no further releases of captive bred Stocky Galaxias are planned for the Eucumbene Borrows until such a time as either it is demonstrated that the water temperature can be maintained within an acceptable range or there is detected survival of earlier released fish.

There will be continued monitoring of both the water temperature at the site along with fish surveys being undertaken in late Spring/early Summer and again in Autumn.

Further infrastructure works are currently being implemented at the Eucumbene Borrows to improve both water flow and water security, this includes earthworks to repair a breached dam wall, to increase onsite storage, and divert overland flows, increased battery capacity and replacement of pumps.

These works are currently underway and are being funded via a federal Threatened Species Grant.

Primary captive breeding of Stocky Galaxias will continue to be undertaken by the team at CSU Albury. The team at CSU has a proven track record for not only maintaining a captive population, but also successfully breeding them in captivity. CSU has a purpose-built facility to house Stocky Galaxias, with a current captive population on site.

The interim production targets for Stocky Galaxias at CSU is 1500 annually over the next two seasons, with this production increasing to 2500 in the fourth and fifth years of the program.

CSU will also be housing and maintaining Stocky Galaxias that were utilised for a temperature trial in 2025 over winter until November 2025. This will allow time for a suitable release site to be determined and to allow for more optimal release conditions. Monthly updates will be provided from CSU as well as a final report of numbers and condition prior to their release.

Deliverables

- → Release of captive bred Stocky Galaxias from 2024.
- → Production target for 2025 of 1500 juveniles for release at identified priority release site in 2026.
- → Report detailing the outcomes of the 2025 captive breeding season.

5.4.2 Macquarie Perch

Following disappointing outcomes of the captive breeding program in 2024/2025, practises have been refined at NFC and additional activities will be undertaken at Snob's Creek Hatchery in conjunction with the Victorian Fisheries Authority (VFA). Undertaking breeding in multiple locations, using multiple techniques, will spread program risk, and maximise opportunities to produce fit, genetically diverse offspring for translocation activities.

Narrandera (NFC)

A key achievement for the 2024/2025 program was the construction of eight new earthen ponds at NFC which dramatically increased the capacity to house, maintain and grow additional Macquarie Perch.

These ponds have been completed and are operational for this upcoming breeding season. They will provide capacity to increase the number of broodstock held on site and, if breeding is successful, allow for increased larval rearing and grow out.

Several of these ponds are currently being covered with netting to provide extra protection from predation and potentially increase survival rates of larvae and on grown fish. This should be completed by the September/ October Spawning season. Ponds 5 and 6 that are currently holding Macquarie Perch broodfish have already been bird netted to protect the fish.

The captive breeding program at NFC will continue as part of the ongoing "Cracking the Code" project at the NFC. This is a collaborative program between DPIRD, and Sunshine Coast University, which is focusing on utilising species-specific hormone technology to stimulate Macquarie perch to simultaneously spawn in captivity. This program is currently utilising F1 and F2 (Abercrombie origin) fish and Cataract Dam fish as the wild treatment. Additional broodfish have been collected for this program from Cataract Dam, the upper Murrumbidgee River, Retreat River and Winburndale Dam.

Snobs Creek

Ripe female fish will also be collected from the Upper Murrumbidgee following last season's trial. It is planned to take these fish to the VFA hatchery at Snobs Creek where the VFA have agreed to attempt to cross these ripe Upper Murrumbidgee fish with genetically distinct Dartmouth Dam or Yarra River Macquarie perch males to increase genetic diversity in the program. Any Macquarie Perch fingerlings produced in conjunction with the VFA will be split evenly between NSW and Victoria.

Any larvae successfully bred through either of these programs will be released to the Murrumbidgee catchment into an area where Macquarie Perch are currently present or into a new location identified via the program described in Section 5.3.2.

All female broodfish collected for this activity will be returned to the upper Murrumbidgee after the breeding program and once they have had the opportunity to recover undergone a quarantine period and have been given a clean bill of health.

Broodstock Collection

Similar to last season and as detailed above, it is planned to attempt the collection of wild running ripe female Macquarie Perch from the upper Murrumbidgee in October 2025 and incorporate these into the captive spawning program for the 2025 season.

The collection and use of running ripe Macquarie Perch for captive breeding has been undertaken since the 1960's and is still undertaken by the VFA. It was attempted for the first time last year with fish collected from the upper Murrumbidgee River and whilst some of these fish spawned, there was very low numbers of fertilised eggs and larvae produced.

Whilst the long-term objective of the "Cracking the Code" project and the Snowy 2.0 TFMP is to have a reliable and consistent breeding program from captive held stock, this is not likely to materialise until later in the project.

Following on from the successful collection of both female and male mature ripe fish from the upper Murrumbidgee River we aim to attempt this again only this time utilising the facilities and expertise of the VFA staff who have undertaken a different process and regularly produce large numbers of Macquarie Perch from ripe wild fish. It will also provide an opportunity to produce more genetically diverse offspring, by crossing the upper Murrumbidgee females with genetically distinct males from Victorian populations which is a key recommendation in the recent genetic study Pavlova et al (2024). These offspring could then be utilised to boost the numbers and genetic diversity of the upper Murrumbidgee population/s and/or potentially start to reintroduce fish into additional locations should the catchment surveys identify suitable locations and captive breeding produce sufficient numbers.

The current proposal for collection, is to target sampling in the known spawning locations within the upper Murrumbidgee River, just prior to the spawning period. The aim is to capture between 6-10 mature female Macquarie Perch and take them to Victoria Fisheries Authority, Snobs Creek Hatchery to cross with either Dartmouth or Dartmouth/Yarra cross fish, to allow for greater genetic diversity in the program.

Brood Stock Population

During the 24/25 program, an additional 29 broodfish were collected for the program including 24 from Cataract Dam and five from the Upper Murrumbidgee. As of August 1, 2025, there is currently a total of 125 broodfish on site at NFC (Table 4).

The plan is to add an additional 56 fish to the captive population (Table 5). The VFA has agreed to provide a further 20 captive bred (F1's) Macquarie Perch of either Dartmouth or Dartmouth cross Yarra River origin to be added to the program. These fish which were spawned in 2021, are between 150-180mm and will be delivered to the NFC in Jan/Feb 2026. These fish will be a massive contribution to the program from both a genetic point of view but also increasing the number of mature captive bred F1's in the program. Additional fish are also planned to be collected from Cataract Reservoir, Winburndale Reservoir and the Upper Murrumbidgee.

Table 4: Inventory of current Macquarie Perch broodfish numbers held at Narrandera Fisheries Centre and their origins.

Cataract Reservoir	51
F1 (Abercrombie)	37
F2 (Abercrombie)	17
Dartmouth	2
Upper Murrumbidgee	8
F1 Retreat	3
Winburndale	5
Origin TBC	2
Total	**125**

Brood stock collection targets

Table 5: Brood stock collection targets for 2025/26

Cataract Reservoir	20
Upper Murrumbidgee	6
Winburndale Reservoir	10
F1's Victoria (Dartmouth)	20

Deliverables

- → Production of Macquarie Perch for release at identified priority release sites.
  - → Narrandera Fisheries Centre production targets for the 2025/26 season at the NFC is 5000-10,000.
  - → Snobs Creek production targets for the 2025/26 season from the Snobs Creek hatchery is 5000-10,000.
- → Report detailing the outcomes of the 2025 captive breeding season.

5.5 Macquarie Perch Habitat Enhancement Works

Investment in habitat works under the TFMP, has not yet occurred due to the development of a much larger federally funded program "Restoring the Upper Murrumbidgee River Program", that has been in development since the initiation of the TFMP. In order to ensure any investment is maximised, works under the TFMP have been delayed until this larger program was finalised, so any habitat works under the TFMP could align with and build on the larger program and were not being developed in isolation.

The larger program of works has now been finalised and will move Into the Implementation phase during the 2025/26 financial year, the program "Restoring the Upper Murrumbidgee River Program" will be delivering $10.18 million dollars towards on-ground habitat improvement works over the next three years. The details regarding specific locations and types of on-ground riparian works are in development by South East Local Land Services (SELLS) and partner agencies and organisations. We plan to work with the SELLS to identify opportunities to add value and fill gaps in their program via the TFMP in order to achieve the greatest ecological benefit for Macquarie Perch and the best value for money.

Deliverables

- → Develop a targeted plan of works with partner agencies.
- → Implementation of habitat works by partner agencies or contractors.

6. Annual implementation plan 2025/2026 Schedule

The projected implementation schedule for the 2025/2026 year is detailed in Table 6. Details of who will be delivering each activity is detailed in Table 7. All dates are forecast only and may change based on weather conditions, the progress of precursor activities, or if new information become available which necessitates a change to the schedule. All major changes are to be endorsed by the EAC prior to implementation.

Table 6: Schedule of the AIP for 2025/26

	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Mon			1			1						1
Tues	1		2			2						2
Wed	2		3	1		3				1		3
Thur	3		4	2		4	1 New Years Day			2		4
Fri	4	1	5	3		5	2			3 Good Friday	1	5
Sat	5	2	6	4	1	6	3			4	2	6
Sun	6	3	7	5	2	7	4	1	1	5	3	7
Mon	7	4	8	6 Labour Day PH	3	8	5	2	2	6 Easter Monday	4	8 Kings Birthday
Tues	8	5	9	7 Hatchery preparation	4	9	6	3	3	7	5	9
Wed	9	6	10	8	5	10	7	4	4	8	6	10
Thur	10	7	11	9	6	11	8	5	5	9	7	11
Fri	11	8	12	10	7	12	9	6	6	10	8	12
Sat	12	9	13	11	8	13	10	7	7	11	9	13
Sun	13	10	14	12	9	14	11	8	8	12	10	14
Mon	14	11	15	13 Mac Perch broodstock collection Bidgee and transport to Vic Fisheries	10	15	12	9	9	13	11	15 Reporting
Tues	15	12	16	14	11 Stocky Gal release	16	13	10	10 Mac Perch collection Cataract	14 Mac Perch monitoring Bidgee	12 Stocky Gal release	16
Wed	16	13 Reporting	17	15	12	17 Mac Perch Release	14	11	11	15 Stocky Gal Monitoring	13	17
Thur	17	14	18	16	13	18	15	12	12	16	14	18
Fri	18	15	19	17	14	19	16	13	13	17	15	19
Sat	19	16	20	18	15	20	17	14	14	18	16	20
Sun	20	17	21	19	16	21	18	15	15	19	17	21
Mon	21	18	22	20	17	22	19	16	16	20	18	22 Reporting
Tues	22	19	23	21 Mac Perch Spwaning NFC	18	23	20	17	17 Mac Perch monitoring Abercrombie	21 Mac Perch Release Genetic Rescue	19	23
Wed	23	20 Reporting	24	22	19	24	21	18	18	22	20	24
Thur	24	21	25	23	20	25 Christmas Day	22	19	19	23	21	25
Fri	25	22	26	24	21	26 Boxing Day	23	20	20	24	22	26
Sat	26	23	27	25	22	27	24	21	21	25	23	27
Sun	27	24	28	26	23	28	25	22	22	26	24	28
Mon	28	25	29	27 Mac Perch Spwaning NFC	24	29	26 Australia Day	23	23 Mac Perch monitoring Bidgee	27 ANZAC Day	25	29
Tues	29	26	30	28	25	30	27	24	24	28	26	30
Wed	30	27		29	26	31 New Years Eve	28	25	25	29	27	
Thur	31 Endorsemet of AIP	28 2024/25 Annual report due		30	27		29	26	26	30	28	
Fri		29		31	28		30	27	27		29	
Sat		30			29		31	28	28		30	
Sun		31			30				29		31	
Mon									30			
Tues									31			

Stocky Gal spawning assessment (NOV)
Stocky Gal captive breeding (DEC)
Stocky Gal egg hatching success monitoring (FEB)
Stocky Gal Catchment surveys (MAR)
Stocky Gal spawning assessment (OCT)
Macquarie Perch catchment surveys (NOV)
Macquarie Perch catchment surveys (JAN)
Stocky Gal egg hatching success monitoring (JAN)
Stocky Gal Catchment surveys (FEB)

Table 6: 2025/26 Key activities and who is likely to undertake the activity

Activity	Section	Delivered By	2025/26 Delivery Timeframe
Stocky Galaxias captive breeding and husbandry	3.4.1	External Contractor (Charles Sturt University)	Breeding Dec 2025 Captive maintenance through the year
Macquarie Perch captive breeding and husbandry	3.4.2	NSW DPIRD and VFA	Breeding Oct 2025 Captive Maintenance through the year
Macquarie Perch Broodstock collection	3.4.2	NSW DPIRD	Oct 2025 March 2026
Macquarie Perch Genetic rescue	3.3.2	NSW DPIRD	Collection March 2026 Release April 2026
Stocky Galaxias Population monitoring	3.1.1	External Contractors (TBD)	April 2026
Stocky Galaxias TARP actions	3.1.1	External Contractors (TBD)	Oct and Nov 2025 Jan and Feb 2026
Macquarie Perch Monitoring Upper Murrumbidgee	3.1.2	External Contractors (Fish Fondler)	March 2026
Macquarie Perch Monitoring Abercrombie	3.1.2	NSW DPIRD	March 2026
Stocky Galaxias catchment surveys	3.2.1	NSW DPRID and External Contractors (TBD)	Feb 2026
Macquarie Perch catchment surveys	3.2.2	NSW DPIRD	Nov 2025 Jan 2026
Macquarie Perch Genetic Analysis	3.3.2	External Contractors (Monash University)	May 2026
Stocky Galaxias Genetic Analysis	3.3.1	External Contractors (Peter Unmack)	May 2026
TARP Review Workshop	3.1.1	DPIRD and subject matter experts	Sept 2025

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8. Appendix

8.1.1 Appendix 1

Threatened Fish Management Plan Expert Advisory Committee

In accordance with Condition 24(b) of the NSW Infrastructure Approval an Expert Advisory Committee (EAC) was established in December of 2023 to oversee the development, implementation and reporting of the actives undertaken under the TFMP. The EAC is governed by agreed Terms of Reference (TOR) with membership consisting of various scientific and technical advisors relevant to the activities specified in the TFMP. The EAC will be comprised of a minimum of four and a maximum of six members comprising the following skills/membership;

1. Chair
2. NSW Fisheries Scientific Committee member
3. Freshwater fish specialist scientist
4. Other specialist

The current EAC membership along with the skills and experience they bring to the committee:

Barry Buffier – Chair

Barry is a former senior NSW public servant and headed up three NSW Government Departments with over 40 years' experience in a variety of departments. This included serving as the Director-General of the NSW Department of Primary Industries which included NSW Fisheries. Early in his career he was also the Executive Director with responsibility for Fisheries regulation.

He has extensive experience and expertise in the public and private sectors serving on many boards, committees and authorities.

Barry brings his critical thinking, pragmatic approach, eye for detail and his natural leadership skills to his role as Chair.

Dr Nick Whiterod – NSW Fisheries Scientific Committee member

Nick is an ecologist with more than two decades experience, working broadly conserving and researching freshwater species and ecosystems across South Australia and Australia. He has conducted several successful species reintroduction projects, contributed to the national conservation listing of more than 50 freshwater fish and crayfish, and actively worked to understand and conserve freshwater fish across Australia.

Nick is a current member of the NSW Fisheries Scientific Committee and brings and extensive knowledge and practical experience in the monitoring and recovery of threatened aquatic species.

Dr Tarmo A. Raadik – Freshwater fish specialist scientist

Tarmo is an aquatic taxonomist and research biologist with over 35 years of experience in the management, research and conservation of aquatic fauna. Tarmo has extensive knowledge on alien and native aquatic fauna distribution in eastern Australia and specialist skills in freshwater and estuarine aquatic fauna assessment, taxonomy/systematics, biology, conservation and monitoring, with emphasis on fish, decapod crustaceans and bivalve molluscs.

Tarmo discovered and described Stocky Galaxias along with 12 other new species of galaxiids in 2014 and is the pre-eminent expert on the family, including their conservation management.

Dr Natalie Moltschaniwskyj – Specialist Scientist

Natalie is a pre-eminent marine biologist with a distinguished career in fisheries research and aquaculture spanning 30 years. Natalie is a highly regarded member of the scientific community, with over 100 publications to her name, she is renowned for her ability understand and communicate complex problems as well as facilitate and build collaborations across different fields and disciplines.

Natalie brings her wealth of knowledge and experience in the delivery of highly complex scientific projects to the committee.

Snowy Hydro provides administrative support to and manages the EAC and the membership with this role currently being fulfilled by Lizzie Pope.

NSW Department of Primary Industries and Regional Development is represented by Luke Pearce who provides reports and updates on activities undertaken or managed by NSW DPIRD.


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