



Snobs Creek Advisory Board

Snobs Creek Annual Report 2018



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Aboriginal acknowledgement

The Victorian Government proudly acknowledges Victoria's Aboriginal community and their rich culture and pays respect to their Elders past, present and future.

We acknowledge Aboriginal people as Australia's first peoples, and as the Traditional Owners and custodians of the land on which we work and live.

We recognise the strength of Aboriginal people, Traditional Owners and their communities, and value the ongoing contribution of Aboriginal people to Victorian life, through their daily work, their application of Aboriginal knowledge and practice, and at key events; we recognise how this enriches us all.

We recognise that Aboriginal cultures and communities are diverse, and should be celebrated.

We acknowledge that the land and water is of spiritual, cultural and economic importance to Aboriginal people. We embrace the spirit of reconciliation, guaranteeing equality of outcomes and ensuring an equal voice.

We have distinct legislative obligations to Victorian Traditional Owner groups, related to cultural and natural heritage, that are paramount in our responsibilities in managing Victoria's resources in partnership with Traditional Owners.

Executive summary - a year in review



It is with great pleasure on behalf of the Snobs Creek Advisory Board and staff that I provide you with this Annual Report for the Snobs Creek Hatchery in my first year as Chairman of the Board. This State-owned asset is far from just another fish hatchery that produces fish. Our team of dedicated staff ultimately provide enjoyment for hundreds of thousands of Victorians as well as visitors to our great State, who enjoy recreational fishing.

2017/2018 was a record year for stocking fish into Victorian waterways, with more than six million fish stocked into more than 200 locations state-wide. While not all these fish are bred and grown at Snobs Creek hatchery, our staff were responsible for transporting and releasing all six million of them. As you could imagine, that is truckloads of fish.

During the year, Snobs Creek hatchery celebrated its 70th birthday. Our staff, led by Stephen Vidler, must be congratulated for keeping Snobs Creek in such pristine condition, and for operating the facility at its absolute capacity to produce a record number of fish in its 70th year. On behalf of the Snobs Creek Advisory Board, I would sincerely like to thank Stephen and his team for the care and ownership they demonstrate day in, day out, and also acknowledge all previous employees who have worked at Snobs Creek for their contribution in maintaining this great piece of Victorian history.

With Snobs Creek hatchery working at full capacity, the Victorian Fisheries Authority rely on the purchase of several million fish from interstate fish hatcheries to provide its entire stocking commitment into Victorian waterways. Our Board has identified reliance on interstate hatcheries as a risk to the Victorian stocking program, and subsequently embarked on writing a

visionary 10-year plan to secure fish stocking in Victoria. The draft plan ensures that the majority of fish stocked in Victorian waterways are grown in Victoria. The draft plan sets bold targets for significant growth in numbers of fish stocked, identifies the need for new recreational fishing destinations and a significant boost to native threatened fish stocks. The draft plan also relies on the establishment of a second state-owned hatchery, and so the Board is encouraging the Victorian Government to consider investment in building a second hatchery that is committed to native fish production.

Once again, a big congratulations to all involved in stocking a record number of fish, for celebrating our 70th birthday and planning for a very bright future of stocking Victoria's waterways so that more Victorians can enjoy recreational fishing.

A handwritten signature in black ink, appearing to read 'DKramer', with a stylized flourish at the end.

David Kramer

Chairman – Snobs Creek Advisory Board

Meet the Snobs Creek Advisory Board

"Our advisory board is made up of people drawn from business, government, and the fishing industry who bring executive expertise to the table. Their role is to provide strategic advice on the efficiency of fish production and stocking operations into the future. Passionate about recreational fishing, our board members are committed to ensuring all Victorians enjoy great fishing now and for years to come."

David Kramer – Chair, Snobs Creek Advisory Board



David Kramer - Chair

David Kramer works in the recreational fishing industry as General Manager of two of Australia's largest fishing tackle stores. A Director of the Futurefish Foundation since 2006, David also hosts a weekly recreational fishing television program in Melbourne.

David has previously held roles on the Victorian Government Fisheries Co-Management Council, Fisheries Revenue Allocation Committee and Statewide Fisheries Roundtable, and has extensive experience in fisheries management and policy development.



Anthony Forster

Anthony has worked for the Victorian Fisheries Authority (formerly Fisheries Victoria) for twenty-two years and currently manages the VFA's Inland Fisheries program. Majoring in aquaculture, Anthony graduated from Tasmania University in 1986 and worked for almost a decade as one of the pioneering trout and salmon farm managers on the south east coast of Tasmania.

He then went on to work as a fisheries consultant to Victoria's trout farming sector before joining Western Australian Fisheries as an Aquaculture Extension Officer. During this time, he helped develop WA's burgeoning abalone farming sector. Anthony joined Fisheries Victoria in 1996 as an Aquaculture Development Officer. Since then, he has managed the VFA's Aquaculture Program, Snobs Creek Hatchery, and delivered a long-list of significant recreational and aquaculture fisheries.

Anthony is a passionate recreational fisher who draws on his love of fishing to inspire his work with the VFA.



Barbara Power

Barbara has had a long and successful career as an international research scientist working on cancer treatments with CSIRO, The University of Melbourne, and other International companies. She is currently Director of her own Cheesemaking company, PowerHouse Cheese.

Barbara is a Graduate Member of AICD (Australian Institute of Company Directors), and has been guiding several organisations in governance and compliance over the last few years.

Her previous board memberships include:

- Board member at Patrys Limited (2007-2010), an International antibody development company for cancer treatment;
- Secretary at Stem Cells Australia (2013-2017), an Australian-wide research consortium;
- Director at AntiboZ (2007-2013), scientific consultants and International conference organisers;
- Board member at Go Girls Foundation (2016-2018), a non-for-profit organisation to help disadvantaged women.

Barbara is also a keen angler who has travelled around the world chasing different fresh and salt water species. She is passionate about ensuring the recreational fishing opportunities she enjoyed as a child continue to be available to young people today and in the future.



Brian Mottram

Brian has worked for the Victorian Fisheries Authority (formerly Fisheries Victoria) for twelve years and currently manages the Recreational Fishing Improvements division. After studying Agricultural Science at Longerenong, Brian began his career in farm retail sales before stepping up to the role of Senior Agronomist at Tasco Rural in 1994. Three years later, he joined the Victorian Department of Primary Industries and has since spent the last two decades working within government in various management and executive roles in agricultural, environmental and fisheries project planning and implementation.

During Brian's time with the Department he has continued to engage in learning opportunities covering project management, executive training and a Graduate Diploma in Sustainable Agriculture with Charles Sturt University.

Brian brings a wealth of diverse expertise including, stakeholder relations and engagement experience, and high-level project management skills to the Snobs Creek Advisory Board. He is a calm and effective leader, and a strategic thinker with proven experience administering multi-faceted, complex projects that improve recreational fishing opportunities.



Rob Loats

Rob is a primary production business manager from rural Victoria. He has extensive knowledge of natural resource and water management legislation, and decades of experience working with government and non-government agencies to represent the needs of local, regional, and state based anglers.

Rob has provided long-term representation for his local club as president and secretary, long term representation of two local angling associations as president and is a past member of the state Fisheries Co-Management Council. He is a current member of the Recreational Fishing Licence Working Group, the Murray Darling Basin Murray Cod Fishery Advisory Group, the North Central Catchment Management Authority Natural Resource Management Committee and is the regional representative at both the North West and South West Victoria Fish Stock and Cons meetings.

He is a current member of the DELWP Riparian Advisory Group and Life Member of the Mid Northern and Wimmera Angling Associations and Donald Angling Club. Rob's efforts have also earned him the National Mal Ramsay Lifetime Achievement Award 2012.



Stephen Vidler

Steve has worked for the Victorian Fisheries Authority for eight years, and currently manages operations and staff at Snobs Creek Hatchery. Prior to joining us, Steve worked for a range of large aquaculture operations in Australia, China, Indonesia and Europe. He has specialised knowledge in rearing Australian native fish, eels, and yabbies in open water and closed recirculation systems, and brings over 30 years of aquaculture experience to his role.

Steve is also a passionate angler who cares deeply about providing better recreational fishing opportunities for all Victorians.

Welcome to Snobs Creek Hatchery

"Our mission is simple: to rear and stock native and salmonid fish in the most effective way possible to improve recreational fishing opportunities for all Victorians."

Brian Mottram, Manager – Recreational Fishing Improvements, Victorian Fisheries Authority.



Snobs Creek Hatchery is a freshwater fish production facility that was established in 1948 that is owned by the State Government and managed by the Victorian Fisheries Authority. Today, we continue to develop and implement the latest expertise and technology to produce native and salmonid fish that are stocked in over 200 locations across the state.

Located in north east Victoria alongside Snobs Creek, the site was originally chosen because the cool, clean water of the creek, and gradient of the landscape ensured a constant flow of water through the system without pumping. Over the past 70 years, the site infrastructure has changed significantly, new equipment has been installed, and advances in technology and techniques have allowed us to draw water from the Goulburn River (when needed) and increase our production capacity.

Snobs Creek has two hatcheries onsite – a native fish hatchery and a salmonid hatchery. In our native hatchery, we successfully breed Murray cod, Macquarie perch, and trout cod. We are continually researching ways to improve breeding native freshwater fish species. In our salmonid hatchery, we successfully breed rainbow trout, brown trout, and Chinook salmon.

Every year, we stock fish from Snobs Creek Hatchery in many of Victoria's inland lakes, impoundments, and rivers to support the conservation of threatened species and to improve recreational fishing opportunities. The direction of annual stockings is informed with input from key stakeholders and representative angler groups. These groups include the Victorian Recreational Fishing Representative body (VR Fish), the Australian Trout Foundation (ATF), Native Fish Australia (NFA), Water

Management Authorities, Catchment Management Authorities (CMAs), Department of Environment, Land, Water and Planning Primary Industries (DELWP), other recreational fisher groups and Local Government shires.

We run annual open days at Snobs Creek and Fishing Festivals to show anglers and their families where licence fees go and how we're working hard to provide them with more fishing opportunities. This financial year we hosted two successful open days on 2 July 2017 and on 3 June 2018 that attracted over 1000 people, and we look forward to welcoming many more anglers through the doors in the future.

Snobs Creek has a legacy of innovation and success. From pioneering native fish breeding techniques, to bringing endangered species back from the brink of extinction, we pride ourselves on being at the forefront of improving Victoria's freshwater fisheries. This year, in April 2018, we had another big reason to celebrate ... we managed to stock a record 6 million fish over 12 months. That's 1 million more fish than State Government's *Target One Million* stocking commitment of 5 million.

Our dedicated and talented team, culture of continuous improvement, and access to clean water mean that future fishing production looks bright at Snobs Creek.



Big wins in 2017-18

"Guided by our strategic plan and Snobs Creek Advisory Board team, we've delivered a number of the ambitious targets this year. Here are some of the highlights we're celebrating in 2018."

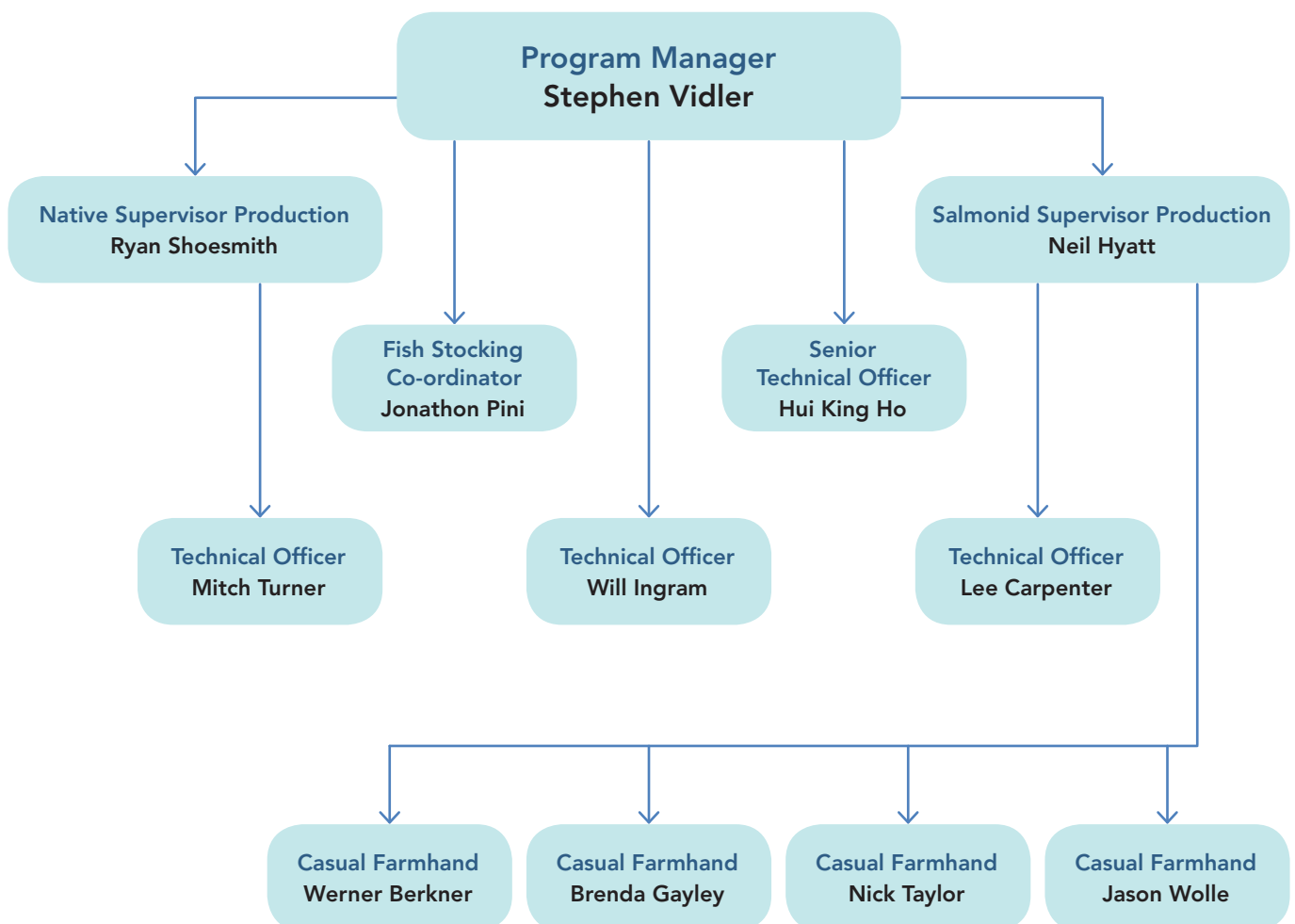
Brian Mottram, Manager – Recreational Fishing Improvements, Victorian Fisheries Authority.

- ✓ Over the last 12 months, we've stocked more than 6 million fish, which more than delivers on the *Target One Million* commitment to stock 5 million.
- ✓ We've stocked 214 locations in Victoria. Of these, 168 were lakes, dams and lagoons. We are currently reviewing 140 potential new stocking locations.
- ✓ We stocked 1,203,019 salmonids in 2017-18 season, that's 210,619 more than our proposed stocking target.
- ✓ We stocked 4,883,336 native fish in the 2017-18 season, that's 802,336 more than our proposed stocking target.
- ✓ Two new plankton ponds have been constructed at Snobs Creek to bolster our native fish production during summer.
- ✓ A new cover structure over the salmonid production area has been constructed that will help us to deliver on increased demand in the future.

Meet the crew

"Rearing fish is a tough job because you never know what the season will bring. Like all types of farming, fish farming is subject to the vagaries of weather. Good conditions make it easier to meet our targets, while tough ones make it trickier. However, there is one constant we can always rely on – our crew. Come rain, hail, or shine these dedicated individuals go above and beyond and are central to our success."

Brian Mottram, Manager – Recreational Fishing Improvements, Victorian Fisheries Authority.





Stephen Vidler, Program Manager

Steve manages operations and staff at Snobs Creek Hatchery. Prior to joining us, Steve worked for a range of large aquaculture operations in Australia, China, Indonesia and Europe. He has specialised in rearing Australian native fish, eels, and yabbies in open water and closed recirculation systems, and brings over 30 years of aquaculture experience to his role.



Jonathon Pini, Fish Stocking Coordinator

Jonathon has a Bachelor of Applied Science (Marine Environment) and strong retail experience in the fishing tackle industry. Starting with us as a Technical Officer 14 months ago, Jono recently stepped up to this role and now seamlessly manages the logistics of stocking millions of fish across the state.



Neil Hyatt, Program Leader

Neil has been working at Snobs Creek for more than 14 years now and is the major caretaker of the salmonid production of the facility. Neil has decades of experience within the Australian aquaculture industry with various species including everything from Australian bass to abalone, and a stand out career in the salmonid field.



Hui King Ho, Senior Technical Officer

Hui holds a Bachelor of Applied Biology/Biotechnology and joined us in 2005 as a research assistant working on our Murray cod, trout cod and Macquarie perch breeding projects. Prior to working with us, he spent three years in the commercial salmonid sector as an assistant manager. Today, he splits his time between working for the fish production team and the freshwater fisheries management division of the VFA.



Ryan Shoesmith, Farm Supervisor – Native Fish

Ryan holds a Bachelor in Environmental Science (majoring in freshwater ecology) from Charles Sturt University. Prior to joining us, he worked at Australia's largest native fish production farm in New South Wales. As a result, he brings significant expertise to his role. A passionate outdoors man, when he's not a Snobs you find him hunting or fishing in the bush.



Will Ingram, Technical Officer

Will has been with us for just over 14 months and is a key member of the production and stocking team. When he's not diligently tending to our native and salmonid fish or assisting in stocking deliveries, he's taking great snaps of all our operations to be shared on social media with all our fishers.



Lee Carpenter, Technical Officer

Lee is the newest member of the team having been with us only a few months. He has extensive fish farming experience, particularly in the local area where he managed the Eildon Trout Farm for well over a decade. Lee is an exceptionally competent aquaculture professional and brings significant expertise to the role.



Mitchel Turner, Technical Officer

Mitch is another new starter who has just completed a Bachelor of Science (with a double major in marine science) at the University of Newcastle. During his studies, Mitch worked as the Assistant Manager at Taylor Made Fish Farms. We're delighted to have him on board and believe his academic and practical experience is an asset to the team.



Nick Taylor, Casual Farm Hand

Nick has been with us for over ten years. A plumber by trade, he has great practical ability and knows the farming operations at Snobs Creek like the back of his hand. He leads essential weekend duties and assists with every aspect of production in both the salmonid and native fish hatcheries. Nick is a great operator and a go to for getting things done on the ground.



Brenda Galey, Casual Farm Hand

Brenda has recently joined us in a casual, part-time capacity. She is a passionate and experienced local fly fisher with a keen interest in the environment and fisheries management. Brenda will be assisting the team with various hatchery duties in the future.



Werner Birkner, Casual Farm Hand

Werner has also recently joined us in a casual, part-time capacity. He is an experienced fly fishing guide with extensive local knowledge and a passion for educating young people about good environmental custodianship. Werner will be assisting the team with various hatchery duties in the future.



Jason Wolle

Originally from Alaska, Jason spent seven years researching wild salmon for the Alaskan Department of Fish & Game before moving to Australia in 2010. Jason joined us in 2015 and brings a wealth of fisheries knowledge to his role of overseeing native fish and salmonid production. A positive and enthusiastic member of the team, Jason is always happy to help wherever he is needed in the hatchery.

Defining success at Snobs Creek

"We can only define success if we set ourselves goals and then measure ourselves against them. Our strategic plan, developed in collaboration with our Snobs Creek Advisory Board members, allows us to do just this. This year, I'm pleased to report that we've achieved on a number of the goals set out in this plan."

Brian Mottram, Manager – Recreational Fishing Improvements, Victorian Fisheries Authority.

Overdelivering on the Victorian Government's Target One Million stocking commitment by 1 million more fish

Target One Million is a Victorian State Government initiative that aims to grow participation to one million anglers by 2020. As part of this, the Government committed to increasing fish stocking to 5 million fish per year.

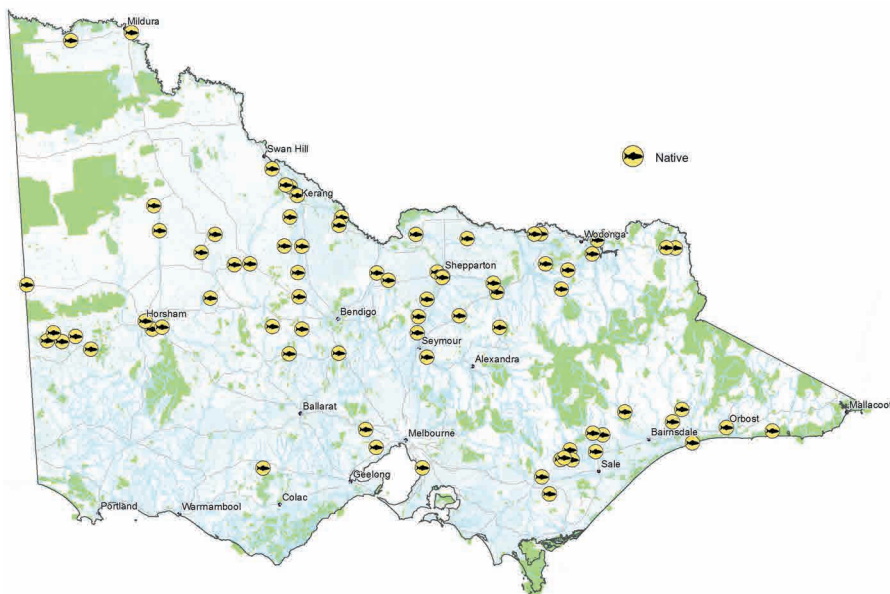
This season (2017-18), Snobs Creek Hatchery stocked more than 6 million fish. Below is a breakdown of what we stocked.

Salmonid Fish 2017 Species and Region Breakdown

Species	Barwon South West	Gippsland	Grampians	Hume	Loddon Mallee	Port Phillip	Grand Total
Brook trout	3,270						3,270
Brown trout	72,449	24,575	98,560	166,217	259,914	8,750	630,465
Chinook Salmon	29,715						29,715
Rainbow trout	59,225	48,775	126,018	216,023	52,022	37,506	539,569
Salmonids total	164,659	73,350	224,578	382,240	311,936	46,256	1,203,019

Native Fish 2017-18 Species and Farm Breakdown

Species	Barwon South West	Gippsland	Grampians	Hume	Loddon Mallee	Port Phillip	Grand Total
Australian bass		474,500					474,500
Estuary perch	7,000						7,000
Golden perch	205,650		247,000	973,495	1,084,836	5,000	2,515,981
Macquarie perch				17,500			17,500
Murray cod	215,332		60,000	756,699	597,834		1,629,855
Silver perch			54,000	37,000	126,000	18,000	235,000
Trout cod				3,500			3,500
Natives total	427,972	474,500	361,000	1,788,194	1,808,670	23,000	4,883,336



Locations of native fish stocking in Victoria in 2017-18

In the last year, more than 1.2 million trout and salmon were released alongside nearly five million native fish such as Murray cod (1.6 million), golden perch (2.3 million), Australian bass (474,500) and silver perch (235,000).

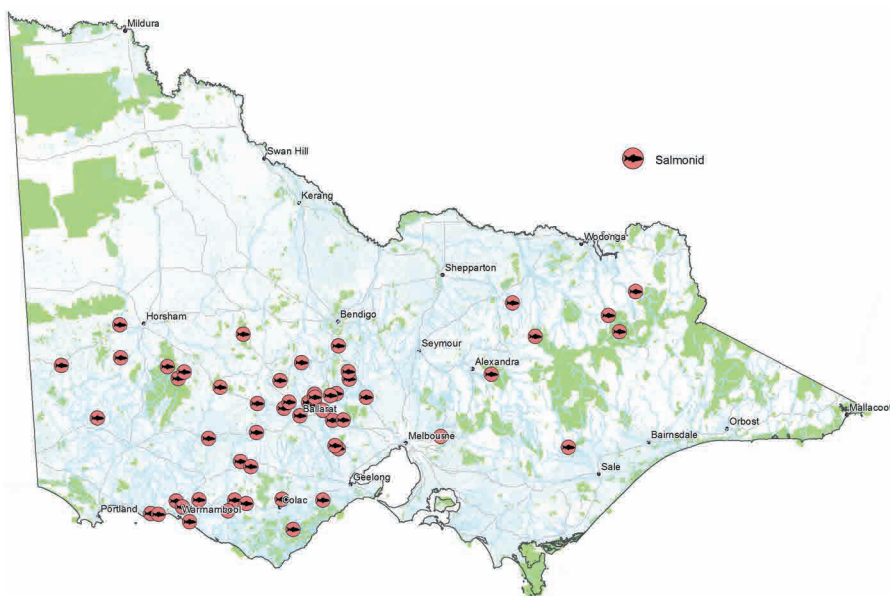
Large numbers of the trout and Murray cod were grown at our Snobs Creek Hatchery, near Eildon, which is funded by fishing licence fees and Target One Million.

Lakes Eildon (100,000), Hume (69,000), Tullaroop Reservoir (53,000), Purrumbete (41,500), and Wendouree (29,000) received plenty of trout and salmon, most of which were one-year-old fish.

Over four million Murray cod and golden perch fingerlings, only a few months old and averaging one gram each, were stocked into lakes Eildon (427,000), Rocklands (431,000) Hume (320,000), Eppalock (300,000), Gunbower Creek (300,000) and Cairn Curran (208,000) reservoirs.

We also stocked many other lakes and waterways across Victoria in 2017-18 and these maps illustrate the breadth of locations stocked by Snobs Creek hatchery.

For full list of fisheries stocked in 2017-18, please visit: <https://vfa.vic.gov.au/db>



Locations of salmonid fish stocking in Victorian 2017-18

Improving infrastructure at Snobs Creek Hatchery

Investment in infrastructure is ongoing and a crucial part of effective and efficient fish production. This has been identified in our strategic plan as being crucial to securing the long-term sustainability of the hatchery and continual improvements in fish husbandry.

This year, we are pleased to report that we completed several infrastructure projects that have improved our fish production facilities.



Native fish infrastructure improvements

In line with the recommendations of the Snobs Creek Strategic Review to help build supply security in native fish production, we built two new plankton production ponds in July 2017.

The new ponds will allow us to produce sufficient live, natural feed to carry native fish such as Murray cod, trout cod, and Macquarie perch, from the larval stage to fingerlings ready for release over the warmer summer months.



Salmonid infrastructure improvements

In line with the recommendations of the Snobs Creek Site Masterplan, and Building Infrastructure Review recommendations, we built a new cover over the salmonid production area in August 2017. This structure will help us manage future increased production requirements of salmonids for recreational stockings.

The new cover has given us more space and allowed us to install extra production tanks. It has also reduced tank exposure to UV rays that can cause algal growth and water temperature fluctuations – both of which can have a negative impact on fish production.

Switchboard Upgrades

In line with the Building Infrastructure Review recommendations, several upgrades were made to electrical switchboards at Snobs Creek in October 2017 and May 2018.

The original electrical switchboard that supplied the main office and salmonid area was replaced because it did not meet present standards. Although it had never caused any issues it was considered unsafe and in need of updating.

The switchboard in the generator shed was upgraded. While it was only about 12 years old, it did not meet present standards.

The mechanical switchboard in native fish building was upgraded to remove a lot of functions that were no longer being used due to previous building changes.

The mechanical/main switchboard on the Goulburn River Pump House was upgraded as it was 60 years old and reaching the end of its service life.

Snobs Creek Diversion Gates

In line with the Building Infrastructure Review recommendations, the three gates that control how much water is diverted from Snobs Creek into the Hatchery were replaced in March 2018.

The old gates were originally installed in the mid-seventies and the timber frames were starting to rot. These were removed and replaced with modern aluminium framed units.



Delivering fish and harnessing the passion of our community

Over the past 12 months, our Snobs Creek team have spent a total of 405 person days on the road and travelled 169,347 kilometres stocking fish.

In simple terms, this converts to a staff member being on the road every day, and our stocking vehicles driving around the world four times!

We know our efforts are appreciated by many anglers because of the positive feedback we get and the help we often receive releasing fish on stocking days. While we don't have official data (something we're going to look at collecting in the future), we estimate that clubs, volunteers, and stakeholder groups have given up thousands of volunteer hours this financial year to help us stock fish to improve recreational fishing opportunities.

The following is a list of just some of the folks who've help us this year. In the future, we hope to be able to credit everyone who has helped with stockings in our Snobs Creek annual review or another relevant publication.

Tatong Anglers Group, Camperdown Angling Club, Lake Purrumbete Angling Club, Derrinallum Anglers Club, Lismore Angling Club, Mansfield and District Flyfishers Club, Howqua Angling Club, Calder Fly Fishing Association, Strathbogie/Euroa Angling Club, Nagambie Angling Club Inc., Cobden Angling Club, Tyabb Railway Station Primary School, Coliban Water, Goulburn Murray Water, and Barwon Water.

We'd like to thank everyone who has helped us stock fish in 2017-18 because you're helping us put more smiles on fishers' faces across Victoria for years to come.



Producing fish at Snobs Creek, including a record number of native fish this year

In 2017-18, a record six million fish were stocked across Victoria, of which 1.7 million were grown at Snobs Creek hatchery and the remainder purchased from private fish hatcheries, mainly in New South Wales.

Here, we'll summarise the breeding cycle of salmonid and native fish before discussing what we're doing to secure fish production and supply in the future.

Salmon breeding cycle and production summary

The salmonid breeding season at Snobs Creek generally lasts for about 12 weeks over autumn and winter.

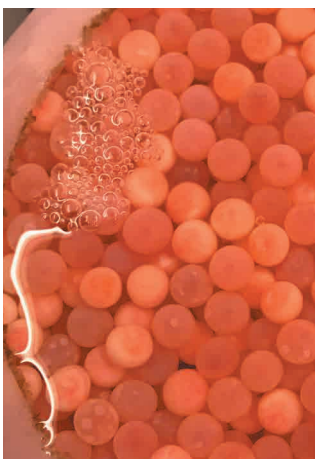
Female and male rainbow and brown trout broodstock are selected, sedated (with an approved, plant-based derivative), and handled carefully to harvest eggs and milt (sperm) from the fish. After eggs and sperm have been removed, they are returned to holding tanks to recover before they are released as ex-brood stocked into lakes or impoundments.

With Chinook salmon, the females and males are euthanised and the eggs removed from the body cavity and then fertilised with male broodstock milt. We euthanise Chinook salmon because their condition deteriorates rapidly after spawning and they will die – this is a function of their biology and something that occurs naturally in the wild too.

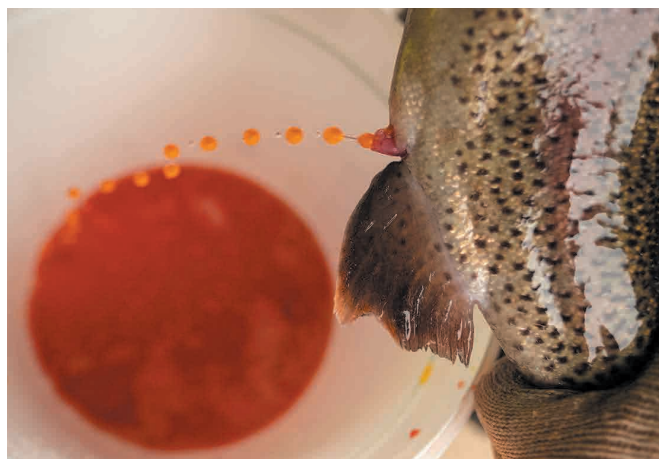
Once the eggs are fertilized, they are quickly placed in incubator jars and supplied with temperature controlled water (<10 °C).

It takes about 4-6 weeks for salmonid eggs to hatch, and another 4-6 weeks for the alevins (baby salmonid fish) to exhaust the contents of their yolk sac and move onto artificial feeds.

Stockings of newly bred Chinook salmon will begin as early as November into the crater lakes (Purumbete and Bullen Merri) of the western districts. Similarly, with trout, some stockings occur as early as October within



Fertilised trout eggs



Spawning trout being harvested for eggs



Trout alevins (baby salmonid fish)

the same year of breeding. However, most salmonid stockings occur in May the following year when fingerlings reach an average weight of around 30 grams.

We produce the majority of all the salmonids that we stock at the Snobs Creeks facility, with only a small proportion of what we stock sourced from other hatcheries.

Salmonid production data 2016

	Brown trout	Rainbow trout	Chinook Salmon
Female broodstock	645	619	116
Male broodstock	124	103	116
Estimated eggs	1,056,348	980,000	157,004
Fish stocked in 2017	630,465	539,569	29,715

Native fish breeding cycle and production summary

At the Snobs Creek hatchery, the core native species produced are Murray cod followed by Macquarie perch and trout cod. The native fish breeding season at Snobs Creek commences in October when on-site brood pond water temperatures increase.

Trout cod typically spawn first, followed by Macquarie perch, and finally Murray cod in November and December.

Native fish have different spawning strategies relative to each other that we consider when developing our captive breeding program. Unlike the trout and other salmonid species produced at Snobs Creek, the native fish spawning occurs during the warmer months of the year. Macquarie perch spawning water temperature is around the 16°C mark and the first of the native fish to breed annually, followed by trout cod at around 18°C, Murray cod at 19 – 20°C then the golden perch that will hold off until water reaches a very warm 24°C which is often very late in the Victorian high country.



Murray cod fingerlings



Macquarie perch fingerlings

While we do have occasional natural spawning occur in trout cod in our brood ponds, most of the trout cod, and all Macquarie perch, are bred artificially using hormone induction techniques.

After fertilization, the eggs are moved to incubators that differ depending on the species. Trout cod produce large adhesive eggs that attach to screens and are incubated and provided a constant flow of well aerated water in Ewos troughs. Macquarie perch produce semi-demersal, non-sticky eggs that are incubated in Macdonald Jars. These jars are designed for well aerated water to be injected in a way that causes the perch eggs to continually roll and tumble – something that's required to keep them clean and free from fungal infection.

It takes about 5-10 days for trout cod and Macquarie perch eggs to hatch. It then takes another 3-5 days for Macquarie perch, and 10-15 days for trout cod, to exhaust their yolk sacs and start eating live feed. Both species feed on brine shrimp (*Artemia*) nauplii – also known as sea monkeys.

The little hatchlings are then moved to earthen ponds that have been fertilised to encourage plankton blooms. The hatchlings spend around 4-10 weeks

feeding on zooplankton (cladocerans, copepods), and aquatic insects (e.g. chironomid larvae) before being recovered when they're around 40 - 60 mm in length and used for stocking. Due to the requirement of native fish to be reared on live, natural feeds the maximum stocking size of the fish is around 1 gram, unlike the salmonid species, which can be on grown with commercial artificial feeds.

All our Murray cod are bred using natural spawning methods. This involves putting nesting boxes (made to imitate the structure of the hollow old snags Murray cod use in the wild) in brood ponds (one box per pair) and collecting the eggs for incubation in the hatchery. Like trout cod and Macquarie perch, Murray cod hatchlings feed on brine shrimp nauplii and are transferred to plankton ponds to grow out to a stocking size of around 40 – 60 mm.

Unlike salmonids, native fish stocking starts within the same breeding year and ceases at the end of summer in the next year. Therefore, for the purposes of this publication that focuses on reporting activities within the financial year 2017-18, we will be reporting on fish produced in 2017-18 breeding season. In total, we produced **670,260 native fish** – a record for Snobs Creek.



Macquarie perch



Mitchel Turner with Macquarie perch



Steve Vidler with native fish breeding box



Native fish breeding box with eggs

Native fish production data 2017-18

	Trout cod	Murray cod	Macquarie perch	Additional information
Broodfish	16	130	30 - 15 males, 15 females	Macquarie perch females came from Dartmouth and the Yarra River
Eggs	3850	716,350	263,400	
Larvae purchased from private supplier	Not applicable	160,000	Not applicable	
Fingerlings produced at Snobs & used for stocking	3,500	649,260	17,500	

Securing fish supply in the future

Snobs Creek Hatchery is currently operating at full capacity. The VFA currently purchases large amounts of fish from native fish suppliers interstate.

As we continue to grow our fish stocking, there is a great opportunity to increase our production of a range of native fish species here in Victoria. The Snobs Creek Advisory Board has produced a draft Inland Fish Production and Stocking plan that provides a high-level, strategic vision of fishing production and stocking for the next decade.

The advisory board recognises the crucial role that anglers play in helping build great fisheries so we consulted them on this plan in spring 2018. The feedback received will help guide the advisory board in developing a final Inland Fish Production and Stocking Plan that bolsters native fish populations and improves recreational fishing opportunities for all Victorians.



Murray cod fingerlings

Creating new recreational fishing opportunities – success stories in 2017-18

Over the last 12 months we have stocked over six million fish to create some great fisheries in Victoria. Here, we'd like to share a few case studies and celebrate some of the highlights.

Ouyen Lake – March 2018

Ouyen is a small town located in the Mallee region, 100 kilometres south of Mildura. It has a population of around 1000 people.

In 1998, the shift away from open air gravity-fed irrigation channels to the Northern Mallee Pipeline and Wimmera Mallee Pipeline resulted in the decommissioning of the Timberoo Lake Reserve, and the disappearance of many other recreational waters.

The loss of recreational water hit the local community hard. In response, Ouyen Inc – a community peak body representing residents – started working with the State Government, Local Government, catchment management authorities, water authorities, local businesses and not-for-profit groups to identify

a suitable location for a new lake. While other locations were scoped, the old Ouyen Reservoir site was selected for development.

Water from the Wimmera Mallee Pipeline was used to fill the lake for recreational purposes, and plans are being made to construct a BBQ area and public toilets nearby.

The Victorian Fisheries Authority was involved in this project and committed to stocking the lake with golden perch and silver perch annually. And on March 13, Snobs Creek hatchery released the first 2000 golden and silver perch fingerlings into the lake much to the delight of the Ouyen community. These fish will take around 3 years to grow to catchable size and will provide residents and tourists a reason to enjoy the region and wet a line with their families.



Kings Billabong – February 2018

Located only 8 kilometres from Mildura, Kings Billabong is a popular location for fishers, bushwalkers, birdwatchers, canoeists, and campers. As part of the Andrews Labor Government's Target One Million Plan – an initiative worth \$46 million designed to get more Victorians fishing, more often – the Billabong was stocked with 80,000 native fish including:

- 20,000 Murray cod,
- 40,000 silver perch and;
- 20,000 golden perch.

We plan on stocking more of these fish each summer to add depth to this developing fishery and believe they will attract more anglers to the Mallee region to cast a line in this iconic wetland.

Painkalac Reservoir – December 2017

Painkalac Reservoir is located around 4 kilometres north of Aireys Inlet and Fairhaven on the Surf Coast. The reservoir previously supplied these townships but was taken out of service when they were connected to the Geelong supply system via a pipeline from Anglesea in May 2016.

In April 2017, Painkalac Reservoir was opened for recreational use and the Victorian Fisheries Authority joined forces with Barwon Water to stock the lake with 7,000 estuary perch from Snobs Creek.

Local resident, keen angler, and Geelong Cats superstar, Patrick Dangerfield, joined the Snobs team in December 2017 to help release the fish. These fingerlings will take around three years to reach a catchable size and will provide a drawcard for anglers to try their luck in the future.

This project is a great example of how strategic partnerships can successfully deliver community asset that provide recreational and wellbeing opportunities for locals and tourists alike.



Snobs Creek Hatchery Financial Report 2017-18

The operation of the hatchery at Snobs creek and the purchase and delivery of all fish across the state is funded from a combination of state government revenue and funds raised from the sale of recreational fishing licences.

The table below summarises the key areas where funds are spent and the revenue sources for the 2017-18 financial year.

Expenditure type	RFL Trust Account	State Revenue	Total
Fish Purchases	\$1,404,954.91	\$433,006.60	\$1,837,961.51
Employee and Salary related expenses	\$387,430.05	\$309,631.00	\$697,061.05
Hatchery Operating Costs (Rent, Maintenance)	\$41,340.00	\$108,874.53	\$150,214.53
Agency Staff	-	\$122,998.55	\$122,998.55
Feedstock	-	\$94,701.47	\$94,701.47
Laboratory, Farm & Livestock Expenses - Misc.	\$110.36	\$65,153.15	\$65,263.51
Contractors	\$13,164.54	\$32,841.89	\$46,006.43
Farm Inventory & Supplies	\$104.00	\$45,599.15	\$45,703.15
Vehicle Costs (Registration, Insurance, Fuel, Tolls, maintenance and Repair)	\$594.00	\$28,526.45	\$29,102.45
Communications	\$20,733.10	\$3,409.44	\$24,142.54
Grants	\$22,727.27	-	\$22,727.27
Asset < \$5,000	\$1,603.65	\$14,224.61	\$15,828.26
Office Expenses	\$2,035.00	\$5,741.99	\$7,776.99
Events, Receptions and Meetings	-	\$4,670.97	\$4,670.97
Consultation Services	-	\$2,072.74	\$2,072.74
	\$1,894,796.88	\$1,271,452.54	\$3,166,249.42



*"Our vision is to make fishing in Victoria
better tomorrow than it is today."*

Travis Dowling,
CEO, Victorian Fisheries Authority



Target One Million
More Victorians fishing, more often

vfa.vic.gov.au