

SATURDAY FEATURES

Scientists work to breed a superfish

By PETER GARDINER

Some of the egg-laden Great Lake rainbow and brown trout do not know it, but they have become part of a scientific experiment to produce a superfish.

Since April thousands upon thousands of brown trout have been making their annual pilgrimage up the frothing white wash of the Liawenee Canal to spawn.

Quite a few females have not had the chance to lay their thousands of eggs in the gravel scrapes known as redds in the special fish traps made by the Tasmania Inland Fisheries Commission.

Instead these individuals have been netted by commission field officers and unceremoniously stripped of their roe before the males have had an opportunity to court and then fertilise them.

Most of these eggs will be artificially fertilised and then allowed to hatch in the normal way. They will be taken to the commission's Salmon Ponds station near New Norfolk and will develop normally for a year before being used to stock Tasmania's lakes.

But selected batches have already been taken to the laboratory of Dr Peter Davies and received special treatment.

Using a simple process pioneered by Norwegian and American scientists, Dr Davies has successfully turned a group of rainbow hatchlings in to triploids.

And earlier this month he carried out the same experiment on a group of brown trout eggs. The results from this have yet to be confirmed, but Dr Davies expects the same 100 per cent success rate among the new born browns.

Triploids are fish born with an extra chromosome which makes them sterile.



- Eggs are stripped from a brown trout to be fertilised and raised at the hatchery.

Turning diploids, or fish with the normal chromosome count in to triploids is a fairly simple procedure.

"Basically it involves immersing the eggs in hot water for a period," Dr Davies said.

The tricky part is to get the eggs in to their hot bath about 20 minutes after fertilisation and to get the water temperature right.

"Rainbow trout usually live in water temperatures of four to five degrees.

"We stick the eggs in at 28 degrees and leave them in for around 15 to 20 minutes," Dr Davies said.

If all goes well, Dr Davies can expect about an 80 to 90 per cent survival rate of newly created triploids, but if the water temperature is just one degree higher, then the survival rate can plunge to around 5 per cent.

So that explains the process, but why do the Inland Fisheries want lakes full of sterile trout?

The simple answer, said Dr Davies, is that in theory they grow to be monstrous, and monster-size fish are what the sporting angler wants.

"We will produce fish that don't have the urge to spawn," Dr Davies said.

"Just before spawning, during spawning and for a short while afterwards the trout do not feed and you find that they lose a lot of condition.

"As well the females put a lot of

their body reserves in to the laying of eggs and the fish generally get bashed about and regress during spawning.

Sterile trout would feed all the time and could be put in lakes that did not have spawning streams.

Dr Davies believes that triploids would also be a major benefit for commercial fish farmers.

He said triploid research in England, which began about two years ago, indicates that these fish will grow in to trophy size.

This research is only part of Dr Davies' work.

The 28-year-old biologist has been stationed at the Liawenee field station for a year. He has a technical assistant, Bill Thompson, to help in the laboratory and works closely with the Inland Fisheries inspectors out in the field.

Dr Davies, who was awarded his PhD for research in to the affects of pesticides on trout populations, is keen to continue this work. He has issued the inspectors with special kits that will help provide data on unexplained fish kills on the lakes.

Another ongoing project is research in to the four different species of white bait — once a popular commercial fish whose numbers declined from overfishing.

But much of his time, and that of the inspectors, is spent beside the spawning streams.

The brown trout will spawn for another month. Dr Davies estimates that in that time between 13,000 to 18,000 of them will fight their way upstream with a determination that has to be seen to be believed.

"Some will go a couple of miles up stream, but if it wasn't for the fish traps they would go as far as the Western Plateau," he said.

To force the fish into the spawning traps, the canal is blocked by a weir near the bottom trap.

But this is no barrier to some single-minded fish.



● Biologist and scientific officer Dr Peter Davies with a fine specimen brown trout at the commission's headquarters, Liawenee Canal.