Fisheries Notes

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Research & Education

Evaluating strategies to further improve Lake Wendouree's trout fishery.

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Lake Wendouree is a very popular trout fishery. This shallow artificial lake near Ballarat, has been regularly stocked with trout since the 1870s. Today, Fisheries Victoria oversees the stocking of brown and rainbow trout into this lake in conjunction with Ballarat Fish Acclimatisation Society (BFAS).

During the review of trout fishing regulations in 2000/01 and in subsequent regional consultation meetings Lake Wendouree's anglers indicated a desire to:

- increase the quality and duration of the fishery toward the end of the season, and,
- share the harvest more equitably.

They believed that these improvements could be achieved by changing the regulations, which govern the harvest of trout from Lake Wendouree.

Fisheries Victoria commissioned fisheries scientists from PIRVic Snobs Creek, to undertake an investigation of the recreational fishery in Lake Wendouree to describe its trout fishery and to model the impacts from changing the harvest regulations.

The harvest regulations currently controlling this recreational fishery are:

- a daily bag / possession limit of 10 salmonids per person of which no more than 5 salmonids can be less than 30 cm. This regulation attempts to limit the take of newly released smaller trout to 5 whilst allowing for take of larger and older fish if anglers are good enough to catch that many in one day.
- a closed season on the harvest of salmonids from midnight on the Monday of the Queen's Birthday holiday in June to midnight on Friday before the first Saturday in September each year. This provides the BFAS with an uninterrupted period to collect broodfish from the Lake, and allows for newly stocked fish to settle in and grow before anglers can fish for them.
- there is no minimum size limit for trout in this Lake.

To model the impact of altering bag limits and imposing size limits, fisheries scientists first collected information on Lake Wendouree's harvest. They did this by interviewing anglers fishing in Lake Wendouree between December 2001 and November 2002, and gathered information about their catch including:

- the number and the species of fish each interviewed angler returned to the lake, and
- the number, size and species of fish kept.

When rainbow and brown trout were encountered they also identified when the fish were released into the lake by way of the fin clip location which uniquely identified each stocking release.

Over the year, a total of 617 fish were measured, 593 of which were salmonids (rainbow and brown trout). Based on this and other information provided by anglers, project leader John Douglas estimated anglers fishing in Lake Wendouree caught 0.39 rainbow trout per hour of angling time and 0.04 brown trout per hour of angling time.

Modelling showed that reducing the daily bag limit from the current limit of 10 salmonids to 5 salmonids would preserve about 7% of the estimated total catch of trout. However, most of this preserved catch is rainbow trout, as this species is caught in much higher numbers than brown trout.

"The modelling showed that reductions in bag limits, unless restricted to 1 or 2 fish would not preserve significant portions of the total take of either brown trout and rainbow trout, " said John Douglas. "Basically, the study showed the changing bag limits alone, in this fishery, would not achieve the desired improvements."

The impact of the introduction of various minimum size limits (35 cm, 30 cm, 25 cm and 20 cm) was also modelled.

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For brown trout, the models indicated that only the application of a minimum limit above 35 cm would preserve a significant portion of the brown trout catch. At the current bag limit of 10, a 35 cm minimum size would preserve about 12% of the harvest. Smaller size limits would only have an impact if used in conjunction with greatly restricted bag limits.

For rainbow trout at the current bag limits, the modelling indicated that a 20 cm minimum size limit would preserve about 10% of the total catch. A minimum size limit of 30 cm with a bag limit of 10 would preserve about 20% of the total catch. While a minimum size limit of 35 cm at the current bag limit would preserve about 70% of the total catch.

If the bag limit was reduced to 5 rainbow trout, then the modelling showed a minimum size limit of 30 cm would preserve about 30% of the rainbow trout harvest.

"The modelling has shown that the introduction of minimum size limits in combination with a reduction in bag limits has the potential to achieve the desired improvements for Lake Wendouree's fishery," John said.

However, John cautions that the modelling assumed that the rainbow trout preserved survive long enough to make a difference to the fishery.

The natural mortality rate for rainbow trout in Lake Wendouree is not known, though it is thought to be quite high.

The information collected in this study showed that anglers take for about a third of the rainbow trout put into Lake Wendouree during the fishing season. However, few of the remaining two thirds appeared in the next season's catches.

"If the natural mortality rates are indeed high, then preserving rainbow trout will not translate into improved catches in the following season," John says. "The fish have to survive long enough to get caught, otherwise there's no point in limiting what anglers can take."

Manager Inland Recreational Fisheries, Marc Ainsworth, said "Modelling the impacts of proposed regulation changes offers fisheries managers, and anglers, the ability to predict what outcomes can be achieved. In this instance, the apparently short life span of rainbow trout, combined with the very low catch rates for brown trout, suggest that substantial reductions in bag limits, or increases in minimum sizes, offer only marginal benefits."

"We need to balance protecting the stocked trout population long enough for them to reach a size that anglers are happy to take, with allowing anglers enough of an opportunity to catch and take them. After all, we put them there for one reason – so anglers can catch them, and take them if they so choose".

For more information about this project, please contact Mr John Douglas at, PIRVic Snobs Creek on (03) 5770 8025.

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