NSW GOVERNMENT | Department of Primary Industries

# Trout Strategy Framework

Initiatives to future-proof NSW's Recreational Trout Fishery -

# Introduction

Recreational fishing generates about $3.4 billion of economic activity in NSW each year and contributes around $250 million annually to inland NSW. The NSW recreational trout fishery is important on multiple levels as it not only contributes to the economy but provides historic and social significance to many communities. Salmonid expenditure overall is estimated at 40% of NSW freshwater fishing expenditure.

A survey of Recreational Fishing in NSW and the ACT showed that around 900,000 residents in NSW and the ACT fish in NSW. Each year about $15.5 million is generated from recreational fishing licence sales with around 30% of revenue (approximately $4.5 million dollars p.a.) generated to the Recreational Fishing (Freshwater) Trust for expenditure on inland recreational fishing programs. About $1 million is contributed from the Freshwater Trust towards the trout fishery program, equating to around 20% of Freshwater Trust revenue. The NSW Government invests a further $1 million towards trout fishery production, management, research and compliance.

NSW trout waters extend from the New England tablelands to the Snowy Mountains including the central tablelands and southern highlands. These waters range from snow-fed streams, upland rivers, inland lakes and tailraces below impoundments. Good trout fishing can be found within two hour's drive of most major NSW cities and towns; these fisheries range from accessible areas to remote wilderness locations. NSW's inland waters offer the chance to catch good numbers of fish or even the trophy trout of a life time. NSW is renowned for having some of mainland Australia's best trout fishing locations. Good access is available at most trout dams for boating or shore fishing, and at rivers and streams via reserves or private property (with permission).

Historically the recreational trout fishery in NSW has largely been built on the success of stocking pioneers and the efforts of trout acclimatisation societies. The trout acclimatisation societies are voluntary stocking groups which have played a pivotal role in salmonid production and stocking in rivers and streams for over a century. The trout stocking program is fully supported by the Recreational Fishing New South Wales (RFNSW) Ministerial Advisory Council and is a key plank of the NSW Government's plan to enhance recreational fishing opportunities across the state.

RFNSW is an advisory council established to provide input to the Minister for Primary Industries on key recreational fishing issues in NSW. The committee consists of members from all regions across the state to ensure views of all recreational fishing sectors.

Notwithstanding the efforts of key stakeholders, it is acknowledged that the NSW recreational trout fishery is, for a number of reasons, not what it once was. For instance, changes to climatic conditions over the past century have affected, and continue to affect, trout fishing quality and amenity. Despite these challenges, the NSW Government remains committed to creating and maintaining a world-class trout fishery. To achieve this, a comprehensive and effective strategy is required so that anglers, both now and into the future, can share in this exceptional resource.

In the past there has been an absence of strategic direction when it comes to developing, maintaining and promoting quality trout fishing. That has now changed and the NSW Government is committed to working with stakeholders and their representatives to provide a range of key recommendations and initiatives that will improve and enhance the recreational trout fishery in NSW.

# Where is the Recreational Trout Fishery at?

Predominately, NSW's trout waters are located within the higher altitude upper tributaries and streams of the eastern and western catchments. Trout fisheries are maintained by annual stocking from the Government trout hatcheries at Ebor (Dutton) and Jindabyne (Gaden). The trout acclimatisation societies continue to work closely with the Government through the planning of annual stocking events, identification of waters to be stocked, assisting with stocking events and contributing to management and policy development.

About 2 million trout are stocked into rivers and streams annually by the trout acclimatisation societies. A further 1 million trout and salmon are released into impoundments by Government hatchery staff. Freshwater fish stocking is carried out in accord with the guidelines of an Environmental Impact Statement (EIS) and Fishery Management Strategy (FMS) including risk management and quality control. Fish stocking decisions are based on access, suitable water conditions and FMS environmental considerations.

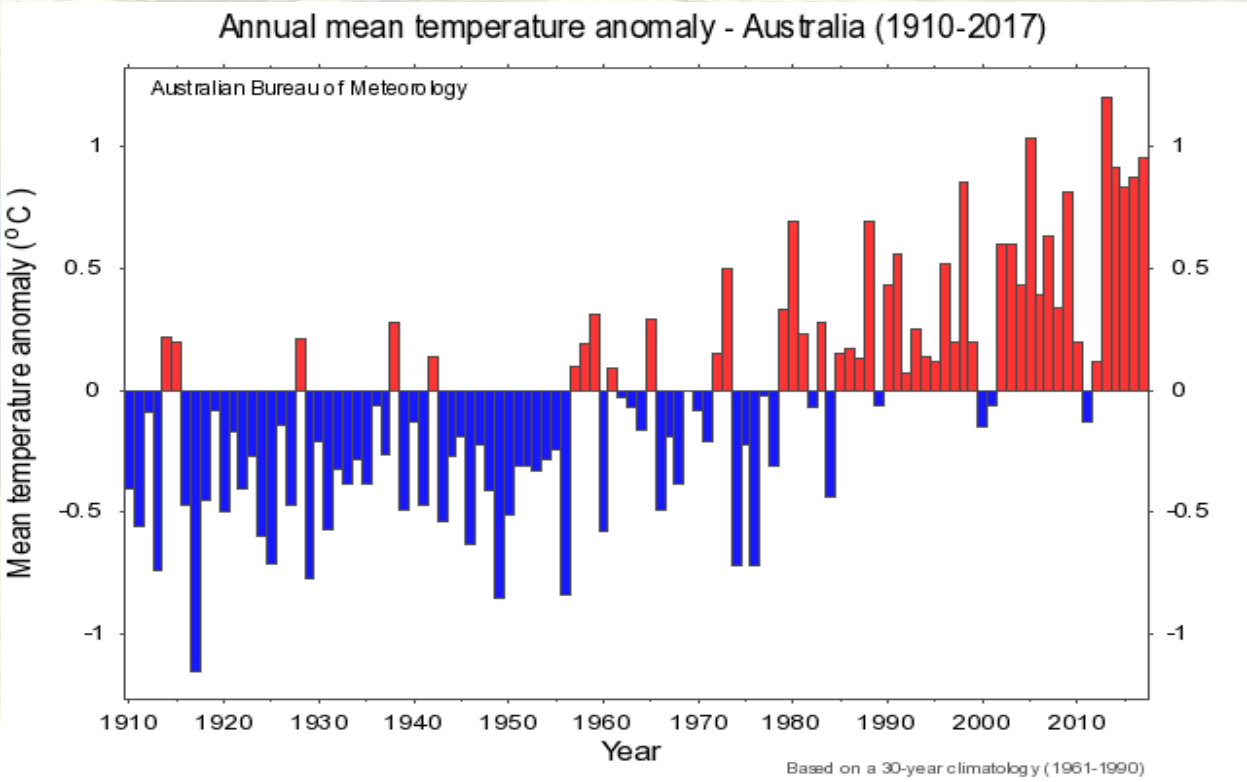
A suite of management arrangements are in place for NSW's trout fishery incorporating bag and size limits, fishing seasons and rod, line and gear restrictions. These are facilitated by a range of other activities including fish stocking, planning, research, infrastructure, access, habitat protection, education and enforcement, which assist to sustainability manage the fishery. For example, an annual fishing closure is in place between the June and October long weekends to protect trout as they aggregate and enter spawning streams. This closure enables Brown and Rainbow Trout to breed uninterrupted during their annual spawning run.

A state-wide bag limit of 5 for trout and salmon helps to make sure everyone gets a fair share of the catch, while a 25cm minimum size limit provides an opportunity for trout to spawn prior to harvest and thus contribute to the overall population. The size limit of 50cm and a bag limit of 1 for trout and salmon within the Thredbo and Eucumbene Rivers between May and June provides opportunities for anglers to target trophy-sized trout and at the same time ensures sufficient recruitment from the spawning run.

# Threats to the Recreational Trout Fishery

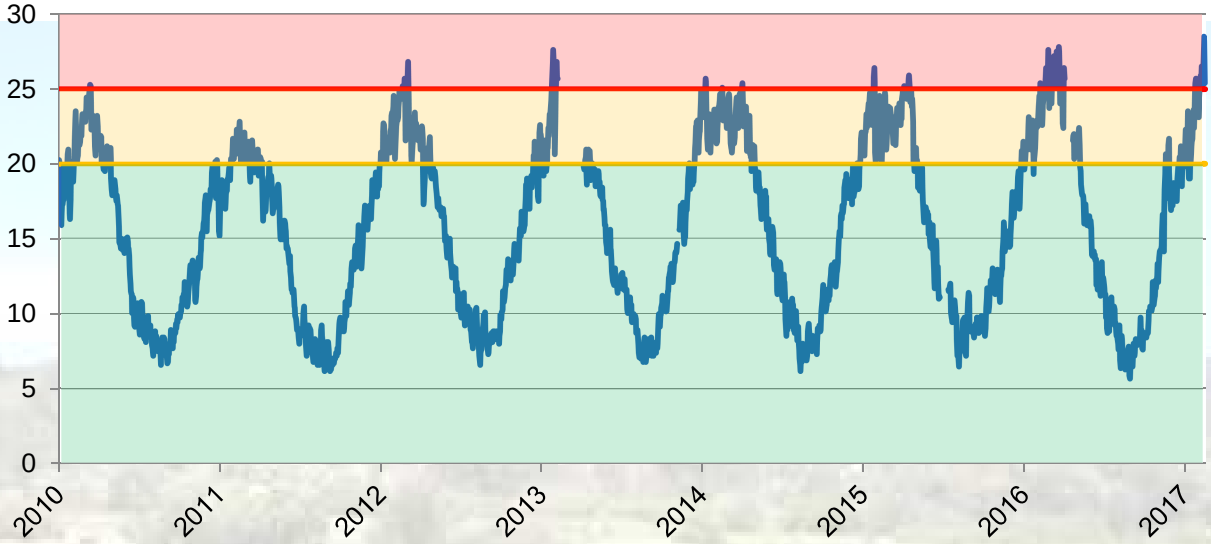
Like many other trout fisheries throughout the world, in NSW there have been reductions in trout fishing quality. Factors include: the impacts of drought, changes in water levels and flows, increasing water temperatures, unseasonal rainfall, introductions of exotic species, habitat degradation, and falling social licence (a change in community perceptions and attitudes towards trout and trout fishing).

As an indication of the risks posed by climate change particularly affecting trout fishing opportunities, the Fisheries Scientific Committee has declared that human-caused climate change is a Key Threatening Process to terrestrial, freshwater and marine biodiversity. Changes in hydrological flows coupled with increasing demands on water security is also expected to have major impacts on freshwater ecosystems. Annually, the numbers of extreme warm events is likely to increase.




The scenario for NSW freshwater aquatic systems is for increased drought occurrence, higher water temperatures and diminished water flows but with more variable and extreme flood events. All these factors are predicted to significantly affect freshwater fisheries. For instance, over the past 15 years there appears to have been a shift in spawning activity for most Rainbow Trout in the Thredbo River, which are now spawning at least once month earlier than previously recorded (from September to August).

The upper lethal temperature (about 25ºC) and lower end of the upper critical range (about 20C) limit trout distribution in NSW to the highland streams and lakes, as most lowland streams exceed the avoidance temperature in summer. For instance, water temperature data from the Turon River, near Sofala in the central tablelands, shows average summer water temperatures in this historic trout fishery exceeding the temperature avoidance threshold for trout for around four months of the year. Over the past 10 years, water temperatures have reached above the lethal range during that period.




Source, Water NSW, Real-time data 2017

Pest species such as Redfin and Carp can significantly impact trout and native fish by preying heavily on newly stocked Trout and small native species, overcrowding trout fisheries in recreational impoundments, increasing sedimentation and spreading disease Loss of riparian vegetation along river systems is particularly important for Trout species, which are more susceptible to temperature increases and have a lower upper temperature threshold than other fishes.

Rehabilitation efforts can be fragmented, with disconnection between revegetation sites. Connectivity in riparian storey cover is vital to regulate water temperatures across stream stretches and to keep overall stream temperatures down. This is especially important on east to west flowing streams and streams with gentle topography which receive maximum solar radiation during the summer months. Lack of - riparian vegetation, especially native vegetation, - also increases erosion and reduces aquatic and - terrestrial insects, a major food sources for trout. -

Access to fishable waters can also be restricted either temporally i.e. through regulation (such as closed seasons, fishing rule boundaries, road closures etc.) or permanently i.e. through barriers (such as locked gates over public lands, TSRs etc.), causing a general decline in access locations across the State.


# What can we do?

Some of the initiatives we think we need to do and are seeking input from anglers on are as follows:

- INVOLVE ANGLERS by talking and listening to trout fishers to develop the trout strategy. Continue to work with acclimatisation societies and the broader fishing community on stocking decisions and involve fishers in habitat restoration and citizen science;
- INVESTIGATE CHANGES TO TROUT WATERS AND THE TROUT SEASONS to give better access to both trout and native fishers e.g. removing areas from the trout waters tables to provide more fishing opportunities in fringe trout/native fish cross over areas and potentially changing the dates of the closed season e.g. to allow fishing in September in the north and centre of the state, where fish have already completed spawning and stocking provides for the health of the fishery;
- INVESTIGATE WAYS TO MAXIMISE FISH GROWTH / SIZES at Government hatcheries before stocking. This may include investing in re-circulation systems and heater/chiller units in order to provide a temperature controlled environment for fish in order to increase fish metabolism and to enable fish releases to be conducted when environmental conditions are at their optimum;

- CONTINUE TO STOCK LARGER TROUT in impoundments where Redfin are present to mitigate the negative effects of this pest species. Stocking larger fish is extremely popular with fishers, and provides a short-term boost to local tourism. Note: there are significant limitations on the abilities of the hatcheries to produce and transport large numbers of larger trout and the majority of trout stocking will continue to be based on fry and fingerlings;
- CONTINUE TO ENCOURAGE STOCKING OF NATIVE FISH SPECIES in areas considered marginal for trout and/or where Carp and Redfin persist, to provide year-round trout/mixed fishery opportunities for recreational fishers, provide increased competition for pest species and to help achieve an ecosystem balance. Murray Cod and Golden Perch are known to predate on Redfin. Murray Cod can also predate on juvenile Carp. There are additional opportunities for stocking Australian Bass in trout waters, as shown

by Lake Lyell and Lake Wallace. The impact on trout is case by case, but is likely to be neutral or positive and primarily climate dependent. Mixed fisheries are always better than trout fisheries dominated by Carp or Redfin;

- ENCOURAGE FUNDING GRANTS FOR FISH HABITAT rehabilitation projects to areas that offer integration/linkages between rehabilitation sites, and which concentrate on upland western facing stream reaches (greater shading provides trout refuges and helps to reduce downstream water temperatures). Grant funding will also available for projects that involve anglers in rehabilitation projects.

- TARGETED RESEARCH TO MONITOR AND ASSESS TROUT. The NSW Government undertakes and facilitates monitoring and research on a range of aspects of the trout fishery in order to provide data for informed management decisions. Where possible, fishery management decisions should be backed by research. Once management strategies are implemented, they need to be monitored to determine if they reach the desired outcomes.

Monitoring and research priorities for the trout fishery include: monitoring recreational fishing catch, effort and harvest; investigating the management implications of trout temperature requirements; understanding habitat requirements; development of indicators to predict trout populations using temperature, lake levels and food availability and assessment and evaluation of natural spawning and recruitment.

For instance, DPI research staff currently undertake coded wire tagging of trout fingerlings prior to release to identify stocked fish returns in spawning runs and to measure fish survival and age structure. Tagging programs will also allow assessment of stocking strategies such as the effectiveness of stocking larger fish to improve return or to reduce Redfin predation. The Government will continue to involve stakeholders in research and monitoring where possible (e.g., creel surveys in major rivers and lakes to measure status of fish stocks and fishery performance) and a monitoring and research plan will be developed for the fishery following community consultation.

# Where to from here?

NSW DPI Fisheries is committed to working cooperatively with stakeholders to develop and implement an effective and multifaceted strategic framework based on the above initiatives. The strategy will outline key threats facing the fishery and present an action plan based on providing ongoing maintenance and development of high quality trout fisheries in NSW.

A number of public consultation meetings are planned during the year in regional centres. Stakeholder consultation will provide key recommendations to guide the development of the trout strategy. NSW DPI Fisheries will then seek broader community feedback on the strategy prior to its implementation.