

Safe transport of fish and stocking code of practice

Fisheries and Aquaculture Management Unit

The NSW Government is committed to the ongoing sustainable stocking of fish into freshwaters as an important fisheries management tool to improve recreational fishing, cultural fishing opportunities and for conservation purposes. The activity of fish stocking has been subject to an Environmental Impact Assessment and Fisheries Management Strategy (FMS). The strategy defines the parameters within which the annual stocking events by the government and private individuals or groups will be undertaken. It demonstrates a strong commitment to continued stocking in NSW.



Figure 1. Hatchery staff retrieving a spawning box following a successful Murray Cod spawning event.



Figure 2. Murray Cod Fingerling release as part of our government stocking program (Photo Courtesy of Col Gordon)

The strategy details the species and waters that can be stocked and restrictions that apply which were developed through the assessment and consultation process.

Every year NSW Department of Primary Industries (NSW DPI) stocks millions of fish fry and fingerlings (native species and salmonid species) into NSW dams, rivers and streams. How these fish are transported and released can significantly influence their chances of survival, so it's important that best management practices are used to ensure the contribution of stocked fish to our recreational fisheries resources.

The following section provides advice on how to perform effective release techniques for any freshwater fish stocking program in NSW to maximise the survival rate of stocked fish.

Stocking permits

Every stocking event that involves the release of fish into public waters of NSW requires authorisation under a stocking permit (section 216 of the Fisheries Management Act 1994). Stocking programs are permitted subject to assessment under the FMS. The release of fish into public waters, other than under the authority of a permit, is an offence. Public waters do not cover farm dams - you do not need a permit to stock a private dam.

You will need a fish stocking permit for stocking events arranged by NSW DPI, fishing clubs, local governments, other organisations and individuals.



Figure 3. CAS Sofala branch members undertaking a Dollar for Dollar Native Fish release. Photo courtesy of Col Gordon.

Choosing release sites

The best places to release fish are where the habitat provides fish with suitable food, water quality and cover against predators, for example Murray cod prefer

a habitat containing plenty of logs or branches on the bottom whereas salmonids prefer cooler streams and lakes. It is also best to release fish where fish of that particular species is found and where angler access is available.



Figure 4. NSW DPI staff releasing fish into habitat within an impoundment.

Before stocking

It is important to discuss and plan for the logistical aspects of the stocking event including safety issues such as potential water, boating and heavy lifting hazards and any emergency procedures to be implemented should something go wrong. This should include provisions for first aid; communication, protection from the elements, food and drink and so on. All persons involved in or assisting in any fish release should first be made familiar with the authorising permit, stocking guidelines and the fish stocking code of conduct.

Pre-release

In the days before the stocking event the hatchery operator will harvest the stock from the rearing ponds and place them in quarantine tanks. This period allows for close inspection of the stock for signs of contamination while the fish 'purge' their

stomach contents thereby reducing the chance of the transport water becoming polluted.

To minimise the chance of translocating a non-target species all care should be taken by the supplier to ensure the consignment contains only those species for which the permit authorises. Any non-target species should not be stocked. If non target species are present, they should be removed. It is also important that the area approved for release is the area where the fish are stocked. Stocking incorrect species or stocking fish in areas not authorised by the permit is an offence.



Figure 5. NSW DPI staff preparing fish for release



Figure 6. NSW DPI staff transporting native fry in a tanker to a release site.

Transport

Fish survive transport better if they are undamaged and well fed. It is important that:

- The time in transport is as short as possible, as fish can become stressed in confined spaces over long periods
- Temperatures are kept stable and suitable for the species (e.g. 10–20°C for trout and 15–25°C for native fish). Fish use less oxygen and produce less waste to contaminate their transport water if temperatures remain cool.
- The fish are handled/disturbed as little as possible. Active fish use up to 3–5 times more oxygen than resting fish. So, keep them in the shade, boxes closed, use dark containers and avoid contact with nets.
- Large quantities of fish are transported in large tanks that are well insulated and with a good supply of oxygen. Hatcheries should know appropriate transport conditions for the various species, sizes and conditions.

Oxygenated plastic bags

Small numbers of fish can be transported in oxygen filled plastic bags held in bins or boxes. It is important that:

- The air in the bag is replaced with oxygen and it is sealed giving optimum conditions.
- The bags are kept sealed until stocking so that the fish have enough oxygen.
- Long stops during transport are avoided as movement helps mix the oxygen into the water.
- The containers are shaded, to help keep the temperature down on hot days. A wet hessian bag over the container will help. Hot weather should

be avoided - stock early or late in the day is possible or at least be very aware of the temperature in the transporting water.

When stocking fish

Release methods

Hatchery fish should grow into healthy adults and provide good fishing when transported and stocked with care, NSW DPI recommends the following release techniques for small scale stocking:

- Choose a suitable release site with good quality water, cover and out of direct sunlight (shade preferable). Stock should generally be released in or adjacent to structural habitat such as amongst reeds or snags close to shore. Avoid areas with turbid water or algal blooms.
- Remove bags from boxes / containers and float bags in receiving water leaving the tops sealed. Sealed bags should be floated in the water at the site for at least 15 minutes. Can utilise box lid for shade or cover during acclimation process.
- After opening a bag, add site water equal to about $\frac{1}{4}$ of the bags volume. After about 5 minutes, empty the bag gently into the water and let the fish swim out.
- With tankers, replace some water with some from the site. This also allows the fish to acclimatise to any differences in water quality, e.g. pH before release.
- pH in transport bags is usually less than 7. Lakes with algal blooms in summer may have a $\text{pH} > 9.5$. Therefore more time is needed to acclimatise the fish. Where possible, avoid stocking in the afternoons when algal blooms are present.
- Fish can be released immediately unless there is a difference of more

than 5°C between the transporting water and the stocking water. Temperature must be equalised slowly (about 5°C in 30 minutes).

- Observe fish activity and behaviour leaving bag and swimming to ground or cover. The activity of released fish can indicate how well they have been transported. Active, lively fish that quickly seek cover and deeper water have travelled well.



Figure 7. Native fish being released close to structural habitat.



Figure 8. Native fish being released close to structural habitat.

Code of practice

- All persons involved in the stocking event should become familiar with the provisions of the authorising permit, including any special conditions therein as well as this Code of Practice.
- The permit holder and stocking group must behave and conduct the Stocking Event in a responsible and professional manner so as to ensure other water users have no cause for complaint.
- The stocking permit issued does not give the permit holder a right of entry to private property. The permit holder must obtain permission to enter private property from the landholder.
- When releasing fish, the permit holder and stocking group must use formed tracks to access the water and take all care not to interfere with any stock or pastoral activities.
- The permit holder and stocking group must dispose of any waste e.g. waxed boxes / bins, plastic bags etc. appropriately
- The permit holder and stocking group must always obey boating regulations including carrying of required safety equipment and navigating safely.

Table 1: NSW DPI fish hatcheries

Murray Cod, Golden Perch, Silver Perch, Trout Cod	Narradera Fish Hatchery	02 6959 9021
Australian Bass	Port Stephens Fisheries Institute	02 4982 1232
Salmonids	Gaden Trout Hatchery	02 6451 3400
Salmonids	Dutton Trout Hatchery	02 6775 9139

Quick reference guide

- No fish stocking in public waters without a permit
- **Permit conditions:** Release fish into waters only where authorised by the permit and ensure the release is performed in accordance with all provisions of the authorising permit.
- **Acclimatise:** Acclimatise fish immediately before release, routinely at each site; particularly where temperature varies by >5°; take 10–30 min.
- **Release:** Ensure fish are released near structures or good habitat spread throughout the permit area.

For enquiries or more information about freshwater fish stocking in NSW waters, please visit the NSW DPI website: <https://www.dpi.nsw.gov.au/fishing/recreational/resources/stocking> or email fish.stocking@dpi.nsw.gov.au

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