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. 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.

Sarah Martin
Wild Harvest Fisheries, Tamworth

Figure 1. NSW DPI personnel working with anglers to disperse fry across an impoundment. Releasing fry at a number of sites can reduce predation by other fish and thus help to improve their survival.
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 conducted by NSW DPI 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 private waters such as farm dams and you do not need a permit to stock a private dam.

You will need a fish stocking permit for the following stockings:

- Dollar for Dollar Native Fish Stocking Program
- Stocking events arranged by NSW DPI, fishing clubs, local governments, other organisations and individuals.

Choosing release sites

The best places to release fish are where:

- Fish of that particular species are found.
- Access to anglers is provided.
- 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 like cooler streams and lakes.

Before stocking

It is important to discuss and plan for the logistical aspects of the stocking event including safety issues such as: water hazards for children and non-swimmers, boating hazards, heavy lifting hazards and any emergency procedures should something go wrong. This should include provisions for first aid; communication, protection from the elements, food and drink or any other provisions that may be required. Before releasing any fish, all persons involved in or assisting in the release should 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 disease or 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, if they can not be removed the supplier should be notified and the fish returned. Digital photos or specimens of the non target species should be sent to NSW DPI for identification. 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.

Transport

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

- The time in transport is as short as possible, as it stresses the fish and can kill them even after stocking takes place.
- Temperatures are kept stable and suitable for the species (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 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.
Plastic bags

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

- The bags are kept sealed until stocking so that the fish have enough oxygen. The air in the bag is replaced with oxygen and it is sealed giving optimum conditions.
- 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 or at least be very aware of the temperature of the fish.

When stocking fish

Release methods

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

- Use the broadcast method where fish are released throughout the target area in small lots to maximise their chance of survival during this critical phase.
- Stock should be generally released in or adjacent to structural habitat such as amongst reeds or snags close to shore.
- 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).

Sealed bags should be floated in the water at the site for at least 15 minutes. After opening, add site water equal to about ¼ of the bags volume. After about 5 minutes, empty the bag gently 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. Release is usually through a pipe.
- pH in transport bags is usually less than 7. Lakes with algal blooms in summer may have a pH>9.5. Therefore more time is needed to acclimatise the fish. Avoid stocking in the afternoons when algal blooms are present.
- 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. Sluggish, disorientated fish have not travelled effectively.
- Releasing an entire consignment in a single location may result in predation by other fish.

Figures 4 and 5. Stocking into key habitat areas with suitable water quality has ensured the survival of fingerlings and resulted in excellent fishing and fish such as the Australian bass (left) and the brown trout (right).
species or birds due to the concentration of the stocked fish.

**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/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.

- Any illegal, inappropriate or reckless activity by any person or persons that may cause adverse ecological impacts or bring the activity of fish stocking into disrepute, whether by a permit holder or not, should be reported to NSW DPI.

- 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/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/stocking group must take all fishing line, plastic bags and any other rubbish home with them and dispose of it properly.

- The permit holder/stocking group must obey boating regulations including carrying of required safety equipment and navigating safely at all times.

**Quick reference guide**

**NO STOCKING** 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.

**Fish health:** Report any fish mortalities and non target animals at the time of stocking to the Peel Fisheries Office 02 6765 2781.

For enquiries or more information about freshwater fish stocking in NSW waters, please contact NSW DPI staff at the following addresses:

**NSW DPI fish hatcheries**

<table>
<thead>
<tr>
<th>Species</th>
<th>Hatchery</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murray Cod &amp; Golden Perch</td>
<td>Narrandra Fish Hatchery</td>
<td>02 6959 9021</td>
</tr>
<tr>
<td>Australian Bass</td>
<td>Port Stephens Fish Hatchery</td>
<td>02 4982 1232</td>
</tr>
<tr>
<td>Salmonids</td>
<td>Gaden Trout Hatchery</td>
<td>02 6451 3400</td>
</tr>
<tr>
<td>Salmonids</td>
<td>Dutton Trout Hatchery</td>
<td>02 6775 9139</td>
</tr>
</tbody>
</table>

**Stocking Permits / Dollar for Dollar Native Fish Restocking Program**

**Fisheries Management Officer**

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