Queensland Government
Department of Primary Industries

DPI Notes

Fish stocking in impoundments:
Frequently asked questions *and* glossary of common terms

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Frequently asked questions / do's and don'ts

Although fish stocking has been carried out in northern and eastern Australia for some years now, there are still many unknowns regarding the best methods and approaches required to provide optimum results for anglers and for the environment. This document attempts to shed light on some of these unknowns, but given the highly variable conditions experienced in different regions and impoundments, and the complex interactions that occur between different combinations of fish species, there is a need to tailor stocking approaches to suit particular situations. Despite these difficulties, it is possible to provide some answers to the questions that are commonly asked by people and organisations involved in fish stocking.

Do I need a permit to stock fish?

A permit must be obtained from the relevant fisheries authority to stock fish into public waters in Victoria, New South Wales, Queensland and the Northern Territory (*add weblinks)*. A permit is also required to stock private waters (e.g. farm dams) in Victoria and the Northern Territory—in the other states, private waters may be stocked without a permit, but there are restrictions on which species may be used.

What is the best size to stock fingerlings?

Research in Queensland has identified that, overall, fingerlings survive best in impoundments when they are released at 50 mm or larger. This is particularly so when the impoundment being stocked contains established populations of predators such as barramundi, Australian bass and mouth almighty. In the absence of large populations of predators, stocking larger numbers of smaller silver perch, barramundi and Australian bass can be just as successful.

Where do I release the fingerlings?

The best place to release fingerlings in an impoundment varies between species. Overall, Australian bass appear to do best if released in shallow water, preferably with some cover; golden perch also do well if released in shallow water, while the presence of cover may slightly improve their survival; barramundi survive marginally better if released into cover, but water depth does not appear to be crucial; and silver perch appear to do equally well whether released into shallow or deep water, with or without cover. For all species, it is a good idea to scatter-release the batch of fingerlings in several large groups around the stocking site, and to avoid releasing fingerlings where predators are likely to be most abundant.

What sort of fish can I stock?

There are limitations to the species that can be stocked due to translocation policies and availability of fingerlings. In general, impoundments can be stocked with species that occur naturally in that area. For more details, contact the fisheries agency that has jurisdiction over the area to be stocked.

ISSN 0155 - 3054
Produced by: DPI Fisheries, AFFS
Created November 2002
File No: F0139
No of pages (4)

When do I stock my fingerlings?

Fingerlings are best stocked as early in the spring/summer growing season as possible to maximise growth and minimise their vulnerability to predation over the subsequent winter period. To limit fingerling stress, it is advisable to release fish during the cooler times of the day (i.e. early morning or late afternoon).

How do I transport my fingerlings?

If fingerlings are to arrive at their stocking location in good condition, they must be transported under conditions that limit stress. That means ensuring they have an adequate oxygen supply, are not subject to temperature changes, and are not overcrowded. The hatchery that provides the fish or the local fisheries agency will be able to provide specific information to ensure a safe trip for the fingerlings.

How fast will my fingerlings grow?

Fingerling growth rates depend on many factors, including the amount of food available in the impoundment, the prevailing water temperature, the number of fish sharing available resources, the general environmental conditions of the impoundment, and of course, the species of fish that has been stocked. Growth rates can be maximised by tailoring the stocking based on all of these factors, and by ensuring that the fingerlings are transported carefully and released in an appropriate way and at a suitable location. Generally, bass are the slowest growing of the stocked species and may take up to three years to reach legal size in Queensland. Barramundi are the fastest growing of the stocked species and can reach legal size in a year if conditions are suitable. Golden and silver perch grow faster than bass, but slower than barramundi.

How many fish should I stock?

The appropriate stocking density for a given impoundment will depend on factors including the size and depth of the impoundment, the number and species of fish already present in the impoundment, food availability, and the size of the fish to be stocked. The hatchery that provides the fish or the local fisheries agency can assist in determining the appropriate number of fish to stock.

Glossary of terms

Acclimatise	Adapt to new conditions.
Carrying capacity	The maximum number or biomass of fish and other living organisms a particular water body can sustainably support.
Endangered species	Species considered to be at high risk of extinction.
Endemic species	Species that occur naturally in a given ecosystem or area.
Exotic species	Species that have been introduced (translocated) from another country.
Extrapolate	To infer what is not known from that which is known. (e.g. use data derived from a small number of tagged fish to make assumptions about the whole population or species).
Fecundity	The capacity for female fish (or other animals) to produce large numbers of offspring. A fish that produces thousands of eggs is said to be more fecund than one that produces only hundreds.
Fishway	A structure that allows fish to move up or downstream past an artificial barrier (i.e. dam or weir).
Genetic stock/strain	A population or group of populations of a species that differ in their genetic makeup from other populations of the same species. Different genetic stocks/strains are usually separated geographically (e.g. six management strains of barramundi occur in different parts of Queensland).

Hatchery selection	An undesirable consequence of raising fish in artificial ponds or tanks, whereby the artificial habitat favours the survival and growth of fish that may not be well suited to surviving in the wild.
Impoundment	A waterbody formed upstream of a dam or weir on a natural watercourse.
Pre-stocking survey	A survey of the number and variety of fish present in a waterway before stocking takes place. These surveys are undertaken to determine the number of predators present, and for comparison after fish have been stocked.
Post-stocking survey	A survey of the number and variety of fish present in a waterway after stocking has taken place. These surveys are commonly used to obtain information on the survival and growth of stocked fish.
Purge	To cleanse of waste products. Fish to be stocked are 'purged' by starving them for ~24 hours prior to transporting, so that any body wastes are expelled and thus cannot foul the transport water.
Riverine	Occurring in, or related to, a river (c.t. *lacustrine* = of or pertaining to a lake). Riverine fishes spend all or most of their life-cycle in a river.
Stock density	The number of fish present per unit area/volume of a waterway. (e.g. 1000 fish per hectare). This term can be applied to the density of fish present whether they have been stocked or occur naturally.
Stocking density	The number of fish being stocked per unit area/volume of a waterway.
Threatened species	Species considered at risk of becoming endangered.
Translocation	The introduction of a species outside its natural range.

The information in this document is taken from ***Fish stocking in impoundments: A best practice manual for eastern and northern Australia***; Fisheries Research and Development Corporation Project No.98/221, November 2002 QI02103; ISSN 0727-6273; published by DPI Fisheries, Department of Primary Industries, Queensland. Copies of the report may be obtained from the authors, DPI Fisheries or the Fisheries Research and Development Corporation.

Further information

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- DPI Call Centre: Phone 13 25 23 (Queensland residents) between 8 am and 6 pm weekdays; non-Queensland residents phone 07 3404 6999;
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- DPI's Fishweb website: www.dpi.qld.gov.au/fishweb ■