# DRAFT - Queensland hatchery standards for fish stocking

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Queensland Government

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# 1 Policy Statement

This policy describes standards for native fish hatcheries in Queensland, to manage risk around accidental introduction of pests and disease, and to maximise genetic diversity where fish are being stocked into Queensland waters.

Minimum standards are to be implemented through a condition on General Fisheries Permits required for anyone wishing to stock fish into Queensland waters.

# 2 Background and Context

The hatchery minimum standards are intended to improve confidence in Queensland's fish stocking program, and to provide evidence to enable movement of stock from within and external to Queensland for stocking and for aquaculture grow out.

The concept of hatchery standards is not new. New South Wales Fisheries developed a hatchery quality assurance scheme in 2007. According to the managers of that scheme, it has been a success, and so the principles have been used as a starting point for development of this document. It is acknowledged that Queensland has a more diverse and more privatised system of hatchery supply for stocking, which brings unique challenges.

The Aquaculture Association of Queensland has also provided foundational work through the Commercial Hatchery Code of Best Practice, published in 2007. This optional program has been used together with the Queensland Government Fish Health Certification Program to facilitate interstate and international movement for many years.

Finally, National Biosecurity Plan Guidelines have been drafted for freshwater aquaculture. These were finalised in April 2023 and will further inform individual farm biosecurity plans and expectations for freshwater aquaculture across Australia.

The current document was developed after the need for minimum standards applicable to all hatcheries involved in fish stocking was discussed in the Queensland Freshwater Fisheries Working Group meeting in May 2022. After consultation with some hatchery operators, the concept was supported and a draft was provided to the Working Group the following year.

Note that there is some overlap with issues that are covered in existing mechanisms such as conditions on Development Approvals. This document does not replace or supersede any existing requirement but is intended as a complement. The overlap is required to enable comprehensive and meaningful audits.

## 2.1 Queensland freshwater fish hatcheries

Fish stocking and aquaculture in Queensland includes Murray cod, Mary River cod, mangrove jack, silver perch, golden perch, Australian bass, barramundi, sooty grunter, sleepy cod and saratoga. Species under development or trial include jungle perch, sea mullet, giant trevally and big eye trevally. All of these are important for recreational fishing, particularly in impoundments, but for silver perch, the southern strain of jungle perch, Murray cod and Mary River cod, the stocking is also a way to help recovery of species that have come close to extinction in their natural range. For these species, hatcheries must also demonstrate how they contribute to any existing recovery plans. Although it may seem counter-intuitive, working with the recreational fishing community has potential to improve community awareness and resourcing to support recovery of these species.

### 2.2 Risks requiring management.

#### 2.2.1 Introduction of pests to new areas

Pest fish cause significant damage to the economy, social amenity, and our freshwater ecosystems. The most common and destructive pest fish are carp, gambusia and tilapia that are declared as restricted matter under the *Biosecurity Act 2014*. Of those, tilapia are the highest priority for risk management because they have not yet spread to the Murray-Darling or Lake Eyre catchments. Although some physical barriers protect particular waterways, tilapia are considered established across most catchments of the east coast of Queensland, excluding Cape York.

There is a large and growing list of introduced species in Australian freshwater habitats, which is mostly a result of dumping unwanted aquarium pets. These include a range of aquatic plants and invertebrates such as snails.

Unfortunately, there is also historical evidence of introduced pest species being deliberately stocked for recreational fishing such as rainbow trout. Native fish have also been moved outside their natural range, which can also cause ecological harm. Examples of this in Queensland are sleepy cod, redclaw crayfish, barred grunter and sooty grunter.

#### 2.2.2 Disease

Following basic disease management precautions is important to protect Queensland's native fish populations and aquaculture sector. It is common for fish to carry disease agents without showing signs of disease. Expression of disease and/or death may only occur in previously unexposed populations, with certain species/populations, or with environmental triggers or stress such as temperature.

Since freshwater fish populations are often separated by historical natural barriers, it is also possible that populations in one catchment will carry a disease which has never been introduced to an adjacent catchment.

Requirements for disease management associated with the movement of aquatic animals are also provided in protocols for moving live aquatic animals in Queensland. These protocols are designed to meet the requirements for demonstrating a disease-free status to enable movement of fish without testing each batch. Specific details depend on the species and relevant diseases, along with the requirements of receiving jurisdictions.

#### 2.2.3 Quality and social license

The ongoing operation of the fish stocking program in Queensland relies on the support of the public, and water managers such as Sunwater and Seqwater. It is important deliveries of fingerlings are healthy to maximise survival, but also to avoid negative perceptions and concern from stocking groups, fisheries officers, water managers or members of the public involved in the release of fingerlings.

Concerns have previously been raised around animal welfare and the general odour and hygiene of the water fish are transported in. As stocked waterways are often used for drinking water, there is a need to ensure quality is maintained for all stocking activity.

## 3 Scope

### 3.1 In-scope

The supply of fingerlings for mass stocking into public waterways and impoundments.

### 3.2 Out-of-scope

The supply of fingerlings for private non-tidal waters as defined in the Fisheries (General) Regulation 2019.

All other aquaculture activities captured in aquaculture authority conditions, development permits, or under the accepted development code for aquaculture.

## 4 Acronyms and Definitions

| Term, acronym | Definition |
|---|---|
| Broodstock | Live fisheries resources obtained from the wild for the purpose of breeding for an aquaculture operation |
| Hatchery | Includes both dedicated hatcheries and grow-out facilities which supply fish for stocking |
| Fish stocking | Release of fish into waters to maintain or create a population of fish |
| Fish | As per the *Fisheries Act 1994, Part 1 Section 5* |

## 5 Consistency with relevant legislative and over-arching policy objectives

*Fisheries Act 1994*, *Biosecurity Act 2014*, Policy for fish stocking in Queensland, Broodstock and culture stock collection policy.

Where broodstock are captured from the wild, relevant conditions imposed through General Fisheries Permits are summarised in the broodstock and culture stock collection policy which were updated in line with this policy. The standards in this policy are in addition to these requirements.

## 6 Key Principles

### 6.1 Maximise genetic variation

Hatcheries must ensure that genetic diversity is maximised.

- Each female must be mated with at least two males for species where this is feasible.
- Hatcheries must not use a previously mated pair of broodstock within a 5-year period, for the supply of fingerlings for stocking at the same location.
- Hatcheries must demonstrate they are actively responding to available information, including genetic test results, to avoid inbreeding. This may include cooperation with other hatcheries to swap broodstock where appropriate.

This should be achieved by hatcheries together with stocking groups to maximise benefits for stocked fish populations.

### 6.2 Demonstrate broodstock integrity

- Populations of different species or different genetic strains of the same species must be always kept separate. Each hatchery should be able to demonstrate how facilities and processes prevent the possibility of accidentally mixing related strains or species.
- All broodstock must be tagged to allow identity to be tracked and linked to progeny. A satisfactory system for this is Passive Integrated Transponder (PIT) tags or equivalent.

### 6.3 Risk of moving pests must be managed

The most effective way to avoid accidentally moving pests with hatchery stock is to exclude them from the production facility.

- Water used to supply ponds from an outdoor reservoir or waterway should be screened to at least 500µm (0.5mm).
- Tank or bore water does not require filtration.

Movements of fish from East Coast catchments to catchments west of the Great Dividing Range carry an elevated risk of introducing pests and diseases, in particular tilapia and nodavirus. A higher level of risk management may be required in these circumstances. If in doubt Biosecurity Queensland should be contacted and advice sought to ensure general biosecurity obligations are met.

### 6.4 Fingerlings leaving a hatchery must be healthy and clean

- The hatchery must complete a Hatchery Dispatch and Health Statement for each consignment destined for recreational fishing enhancement stocking programs. The statement is an assurance from the seller that they are confident the animals they are providing are free of any possible diseases and health issues e.g. swimming well and appearing healthy. A copy is to be provided to the stocking organisation when supplying fish. Sales in small quantities (box sales) for farm dam stocking are exempt from this provision.
- Risk of disease should be managed as per the health protocol for movement of aquatic animals for aquaculture in Queensland. This means that health certification must be obtained prior to high-risk movement such as movement of fish from eastern to western catchments. Note for ongoing movement, a hatchery accreditation program may save testing costs in the long term.
- Using the *Deformities and Health Observation* guideline provided by the Department of Agriculture and Fisheries, the hatchery must perform microscopy assessment to verify that health is acceptable prior to dispatch.
- Hatcheries must have a written plan for disease surveillance and response to health issues. The hatchery must have all equipment required to take appropriate samples and send to the biosecurity sciences laboratory in the event of a disease issue.

### 6.5 Records must be kept of all fish movement on and off-site

- The hatchery must maintain the following records for five years:

a) Copies of Hatchery Dispatch and Health Statements.

b) Copies of compliance self-declaration and compliance audit reports.

c) Broodstock records (for five years after they were last used for production).

d) Breeding records must be kept showing the batch number, the parentage, contribution of larvae to a batch and harvest success of a batch.

### 6.6 Demonstrated hygiene practices

- The hatchery must use a salt bath prior to dispatch and/or during transport; OR
- The hatchery must use a freshwater bath for the marine culture of Australian Bass.
- Documented hygiene procedures (i.e. a SOP) must be in place and available for inspection for DAF.
- Clean oxygenated/aerated water for transport – note that this must remain clean for the duration of transport to prevent the build-up of ammonia or odour. In general, tank water, treated town water or

bore water will be preferable to pond water.

### 6.7 Variations from policy

Exemptions and/or alternative mitigation measures may be made where it is more practical with written approval from the Freshwater Fisheries Manager, Fisheries Queensland. You can contact the Freshwater Fisheries Manager at Aquaculture@daf.qld.gov.au.

## 7 Responsibilities and accountabilities

Fisheries Queensland will provide oversight of the scheme including auditing in person every three years, with remote audit annually in other years. Following a successful audit, hatcheries will be accredited for one year.

Proof of accreditation must be provided on purchase of fingerlings.

## 8 Related and reference documents

- New South Wales Hatchery Quality Assurance Scheme https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/638400/HQAS-Hatchery-Quality-Assurance-SchemeV8.PDF
- State Development Assessment Provisions guideline – State code 17: Aquaculture State Development Assessment Provisions guideline – State code 17: Aquaculture (daf.qld.gov.au)
- National Biosecurity Plan Guidelines for Farmed Freshwater Native Finfish https://www.agriculture.gov.au/sites/default/files/documents/biosecurity-plan-guidelines-farmed-freshwater-native-finfish.pdf
- AAQ Commercial Hatchery Code of Best Practice https://www.aaq.com.au/information/aaq-commercial-hatchery-code-of-best-practice.html
- Protocols for moving live aquatic animals in Queensland https://www.business.qld.gov.au/industries/farms-fishing-forestry/fisheries/aquaculture/policies-licences-fees/moving-aquatic-animals
- Policy for fish stocking in Queensland https://www.daf.qld.gov.au/__data/assets/pdf_file/0019/1552330/fish-stocking-in-qld-policy.pdf
- Broodstock and culture stock collection policy https://www.publications.qld.gov.au/dataset/broodstock/resource/db78f29d-a5d6-4886-8a19-6c824a2fdc75