



# NSW Hatchery Quality Assurance Scheme

For the production of native fish fingerlings for recreational fishing enhancement stocking and aquaculture production.

Revision 6 - November 2010



Industry &  
Investment

## **The NSW Hatchery Quality Assurance Scheme**

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# Part 1

## Introduction

### 1.1 What is the Hatchery Quality Assurance Scheme

This Hatchery Quality Assurance Scheme (HQAS) accredits NSW fish hatcheries for the production of native fish fingerlings for recreational fishing enhancement stocking programs and aquaculture production.

Recreational fishing enhancement of native species is undertaken in NSW in accordance with the Freshwater Fish Stocking Fisheries Management Strategy (FMS). Relevant stocking programs include the dollar for dollar program, Australian bass enhancement program, impoundment stocking program and relevant individual stocking under section 216 of the *Fisheries Management Act 1994*.

The HQAS implements the Hatchery Quality Assurance Program (Rowland and Tully, 2004) for Murray cod, golden perch, silver perch and, in addition, includes Australian bass.

### 1.2 Background

Since 1999, a joint Industries & Investment NSW (I&I NSW) and community stock enhancement program has resulted in over 20 million Murray cod, golden perch and Australian bass being stocked into public waters in NSW. This program has played a major role in conservation and recreational fisheries.

A major objective of stocking programs is to maintain genetic diversity and the FMS is particularly concerned with the genetic integrity and health of consignments as well as the absence of non-target species.

The Hatchery Quality Assurance Scheme was prepared by I&I NSW to meet the requirements of the FMS. Hatcheries in NSW that produce fingerlings for stocking under the FMS, must be accredited. However, accreditation does not guarantee native fish stocking orders will be placed with the hatchery.

Silver perch is included in the scheme but may only be stocked from I&I NSW hatcheries for recreational fishing enhancement into specified impoundments. Therefore, accreditation for aquaculture production of silver perch is the only accreditation available to private hatcheries under the HQAS.

HQAS accreditation for aquaculture production is also available for Murray cod, silver perch, golden perch and Australian bass as a quality assurance measure for the production of fingerlings to supply the aquaculture industry.

## Part 2

# Commitments

### 2.1 Scheme Manager

The Scheme Manager is I&I NSW Manager Aquaculture. The Scheme Manager will:

1. Develop and update the HQAS manual, including adding or amending standards, to meet the requirements of the Freshwater Fish Stocking FMS.
2. Accredite participating NSW hatcheries under the HQAS.
3. Suspend or cancel hatcheries from the scheme.
4. Maintain HQAS records of applications and accreditation.
5. Undertake inspections of NSW hatcheries that apply for HQAS accreditation for the purpose of assessing compliance with HQAS standards.
6. Administer compliance and audits.
7. Promote HQAS to fish stockers, and publish lists of HQAS accredited hatcheries.
8. End the HQAS in consultation with Director Fisheries Conservation and Aquaculture and Director Wild Harvest Fisheries if this scheme is no longer required.

### 2.2 Accredited Hatcheries

Accredite hatcheries will:

1. Operate the hatchery in accordance with the HQAS manual.
2. Notify the HQAS Manager as soon as practicable, but within at least 21 days if the hatchery ceases to operate in accordance with the HQAS manual OR if there is an incident of variation from HQAS standards, and assist in undertaking a risk assessment to determine ongoing eligibility for accreditation.
3. Make available all relevant documents and provide assistance upon request to a Scheme auditor to enable the conduct of any audit of the hatchery's operation.
4. No longer use or imply an association with the name NSW Hatchery Quality Assurance Scheme, in the event that accreditation expires or is cancelled.

## Part 3

# Standards

### 3.1 Introduction to the HQAS standards

The objectives of the HQAS standards are to maintain genetic diversity in conservation stocking programs, so that all fish reared at hatcheries for stocking will be genetically sound, healthy, and free of non-target species.

Hatcheries that comply with these standards may apply to the Scheme Manager to be accredited.

The HQAS standards are mandatory requirements (numbered with an S prefix [for standard]). HQAS requirements are auditable and must be met for a hatchery to maintain accreditation.

Further recommendations on hatchery operation are made in the Hatchery Quality Assurance Program (Rowland and Tully, 2004) and hatchery operators should refer to this document for further information (see Appendix 1).

### 3.2 Broodstock genetic regions

Four separate genetic regions have been established for Murray cod, and three separate genetic regions have been established for golden perch and Australian bass (Table 1 and Figure 1).

No regions or zones have been established for silver perch as the stocking of this species is limited to specified impoundments where the impact on wild populations of silver perch from recreational fishing of stocked fish will be negligible.

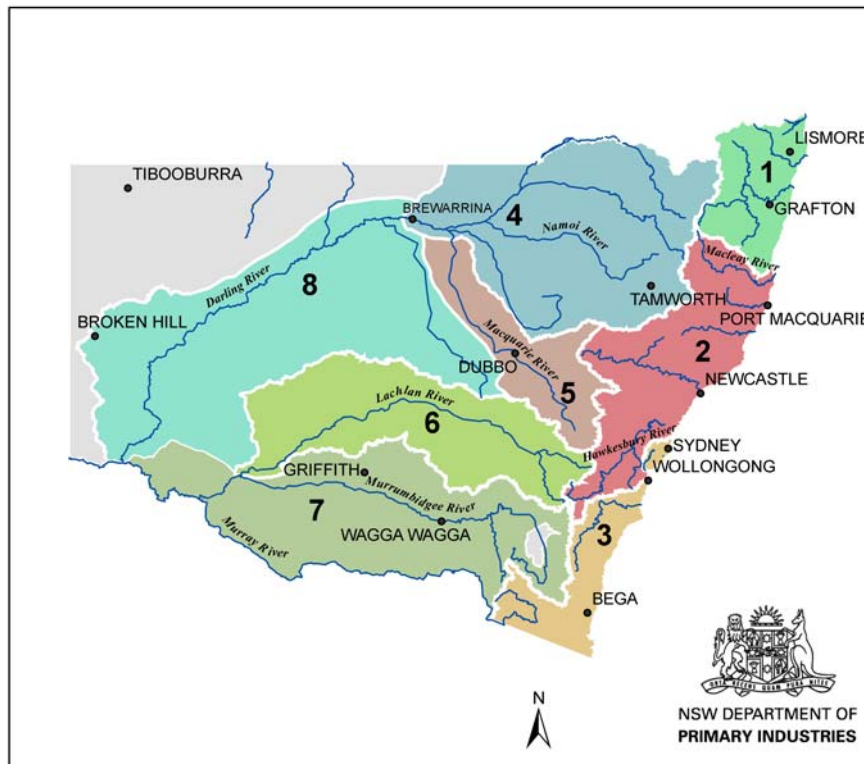
These special conditions for silver perch arise from the fact that this species is listed as vulnerable in NSW under the *Fisheries Management Act 1994*.









Recreational fishing enhancement stocking of silver perch may only be undertaken by I&I NSW into specified impoundments with fingerlings produced from Murray River broodstock at I&I NSW hatcheries.

**Table 1. Broodstock genetic regions for Murray cod, golden perch, silver perch and Australian bass.**

<b>Species</b>	<b>Regions</b>			
<b>Murray cod</b>	<b>MC1 Northern</b>  Map Zone 4  Barwon River above Brewarrina, Castlereagh, Namoi, Gwydir and Macintyre Rivers	<b>MC2 Macquarie</b>  Map Zone 5  Macquarie River and tributaries	<b>MC3 Lachlan</b>  Map Zones 6  Lachlan River and tributaries	<b>MC4 Murray and Darling</b>  Map Zone 7 and 8  Murray and Murrumbidgee Rivers  Darling River, Bogan River and Barwon River below Brewarrina
	<b>GP1 Northern, Macquarie and Darling</b>  Map Zones 4, 5 and 8  Barwon River above Brewarrina, Castlereagh, Namoi, Gwydir and Macintyre Rivers  Macquarie River and tributaries  Darling River, Bogan River and Barwon River below Brewarrina	<b>GP2 Lachlan</b>  Map Zone 6  Lachlan River and tributaries	<b>GP3 Murray</b>  Map Zone 7  Murray and Murrumbidgee Rivers	
<b>Australian bass</b>	<b>AB1 North Coast</b>  Map Zone 1  all rivers north of the Macleay River	<b>AB2 Central Coast</b>  Map Zone 2  all rivers between the Macleay and the Hawkesbury River (both rivers included)	<b>AB3 South Coast</b>  Map Zone 3  all rivers south of the Hawkesbury River	
<b>Silver perch</b>	Recreational fishing enhancement stocking may only be undertaken by I & I NSW into specified impoundments with fingerlings produced from Murray River broodstock at I&I NSW hatcheries.			

**Figure 1: Broodstock genetic regions**



Broodstock Genetic Regions		
	Map Zone 1 <b>North Coast</b>	all rivers north of the Macleay River
	Map Zone 2 <b>Central Coast</b>	all rivers between the Macleay and the Hawkesbury River (both rivers included)
	Map Zone 3 <b>South Coast</b>	all rivers south of the Hawkesbury River
	Map Zone 4 <b>Northern</b>	Barwon River above Brewarrina, Castlereagh, Namoi, Gwydir and Macintyre Rivers
	Map Zone 5 <b>Macquarie</b>	Macquarie River and tributaries
	Map Zone 6 <b>Lachlan</b>	Lachlan River and tributaries
	Map Zone 7 <b>Murray</b>	Murray and Murrumbidgee Rivers
	Map Zone 8 <b>Darling</b>	Darling River, Bogan River and Barwon River below Brewarrina

### 3.3 Marking

In conjunction with the Murray-Darling Basin Authority, Victorian Department of Sustainability and Environment, University of Adelaide and Industry & Investment NSW four marking techniques have been approved for the marking of hatchery fish which are to be released into waterways. The marking techniques are not currently mandatory under the HQAS. Details of the four marking techniques and their application can be found in Appendix 2.

### 3.4 Approvals

S1. Permit: The hatchery must have a NSW Class H aquaculture permit or exemption under Section 144(4) of the *Fisheries Management Act 1994*.

### 3.5 Site characteristics

S2. Water: The hatchery must have an adequate supply of good quality water.

### 3.6 Ponds and tanks

S3. Screens: Ponds and tanks must have functional inlet and outlet screens except for bore water inlets.

S4. Drainable: All ponds and tanks must be drainable and capable of being dried.

S5. Harvest: All ponds must have a harvest sump supplied with fresh water, or salt water for the marine culture of Australian Bass.

S6. Effluent: The hatchery must have effluent storage twice the capacity of the largest production pond/tank.

S7. Aeration: All hatchery tanks must have facilities for aeration.

### 3.7 Hatchery infrastructure

S8. Filtration: Surface water and water from earthen reservoirs must be filtered to 1 mm prior to entry to hatchery.

S9. Capacity: The hatchery must have sufficient tanks, aquaria or troughs to meet operational, breeding and quarantine requirements.

S10. Drainage: The hatchery must have a system to transfer waste water to the effluent storage.

S11. Chemicals: The hatchery must have a dedicated area for the storage of chemicals used in the operation of the hatchery. Other farm chemicals may be stored in this area. Salt may be stored in a separate area.

### 3.8 Water quality maintenance

- S12. Equipment: The hatchery must have test equipment that can monitor dissolved oxygen (DO), temperature, pH and total ammonia-nitrogen (TAN) and for Australian bass hatcheries, salinity.
- S13. Monitoring: The hatchery must undertake sufficient systematic water quality monitoring to maintain adequate water quality.

### 3.9 Disease and health management

- S14. Plan: The hatchery must have a written Health Management Plan (HMP) detailing a planned response to fish health management issues. (see Appendix 2 for an example).
- S15. Surveillance: The HMP must contain a disease surveillance routine.
- S16. Sterilisation: The hatchery must have a sterilisation procedure for hand nets, buckets and other equipment.
- S17. Microscope: The hatchery must have a binocular or monocular microscope having a powered light source.
- S18. Sampling: The hatchery must have sampling, dissection and specimen submission equipment.
- S19. Quarantine: All new broodstock entering the hatchery must be quarantined.

### 3.10 Chemicals

- S20. Inventory: The hatchery must only have chemicals prescribed by a veterinarian or approved for use by the APVMA.
- S21. Permits: The hatchery must have copies of Australian Pesticides and Veterinary Medicines Authority (APVMA) minor use permits (MUPs) and/or veterinarian prescriptions held on site.

### 3.11 Broodstock and breeding

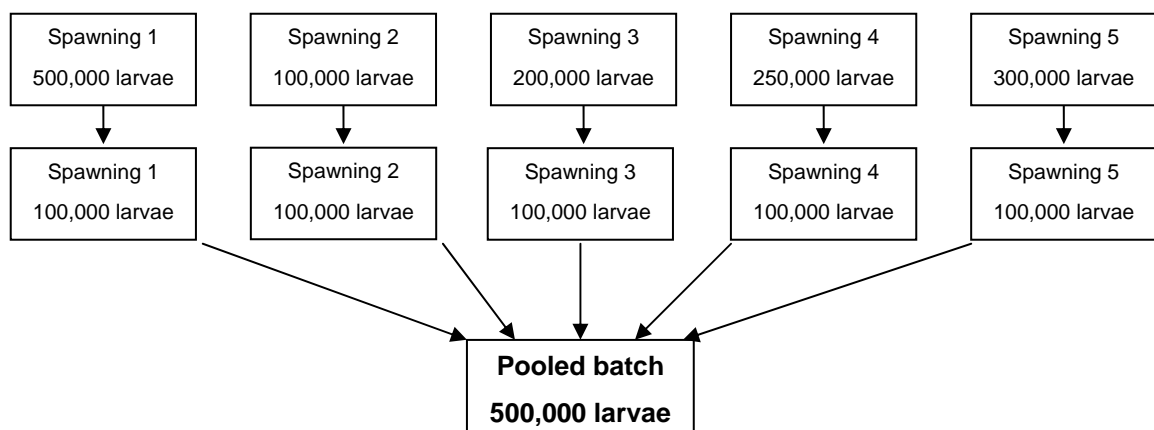
**I&I NSW may collect a sample of 30 fish at the point of delivery for subsequent genetic testing. This will enable I&I NSW to demonstrate that the standards under the HQAS are being adhered to.**

**As the I&I NSW genetic database improves, this type of testing may be used to assess the effectiveness of the HQAS and the genetic diversity and origin of broodstock.**

- S22. Broodstock: For each species where the hatchery holds the broodstock for more than one breeding season, the hatchery must have a minimum of 10 pairs of broodstock for each broodstock genetic region.
- S23. Spawning: a. For each stocking production run the hatchery must attempt to spawn at least eight separate female/male matings. The ratio of female to male in each mating may be 1:1, 1:2 or 1:3.  
b. No male is to be mated with the same female more than once in any five year period.
- S24. Breeding: a. For each stocking production run the hatchery must use the progeny of at least five separate female/male matings.  
b. The matings for each stocking production run must occur within a four week period.  
c. The progeny of each mating must be kept separate during spawning and incubation  
d. Equal numbers of larvae from each spawning (from a minimum of five successful spawnings) must be pooled to make up a batch prior to stocking a fingerling pond. (see Figure 2)

**Figure 2: Diagram showing the equal contribution from each pair of broodstock to achieve Ne50**

To make up a pooled batch the number of larvae used from each successful spawning (minimum of five spawnings) is to be equal to the number of larvae in the spawning with the lowest number of larvae. In the example below, spawning 2 has the lowest number of larvae (100,000) therefore each of the other spawnings can only contribute 100,000 to the pooled batch.



- S25. Replace: Each broodfish must only be used for a maximum of five breeding seasons.
- Additional transitional provision:**
- No broodfish held at the hatchery at the time of accreditation can be used for breeding beyond the fifth anniversary of accreditation.
- Note: S22, S23, S24 and S25 do not apply to aquaculture production**
- S26. Tagging: The hatchery must have a satisfactory system to individually identify all golden perch broodstock.
- The hatchery must have a satisfactory system to individually identify all Australian bass held for more than one breeding season.
- The hatchery must have a satisfactory system to individually identify all Murray Cod broodstock introduced to the hatchery since 1 July 2007.
- A satisfactory system for this clause is Passive Integrated Transponder (PIT) tags or equivalent.**
- S27. Separation: The hatchery must have sufficient ponds or tanks to achieve the following separation objectives.
- a. Murray cod from any broodstock genetic region must be kept separate from other species and separate from Murray cod from any other broodstock genetic region.
  - b. Golden perch and Australian bass from different broodstock genetic regions may be mixed in the same cage, pond or tank ONLY if they are individually identifiable.
  - c. Different species and strains from different broodstock genetic regions must be kept separate during concurrent production runs.

### 3.12 Dispatch

- S28. Declaration: The hatchery must complete a Hatchery Dispatch and Health Statement for each consignment destined for recreational fishing enhancement stocking programs. A copy is to be provided to stocking organisation when providing fish. Sales in small quantities (box sales) for farm dam stocking are exempt from this provision.

- S29. Examination: The hatchery must examine ten fish from each batch less than 24 hours prior to dispatch.
- S30. Quality: The hatchery must not dispatch a consignment having detected non-target species including insects, snails, tadpoles and vegetation; moribund fish or fish with signs of disease, including fungal lesions, ulcers, parasites or abnormalities; malnourished fish; or, fish with abnormal discolouration and/or markings.
- S31. Quarantine: The hatchery must quarantine each consignment for a minimum of 24 hours post harvest. The hatchery may choose to quarantine for 48 hours or longer.
- S32. Transport: Any transport tank used by the hatchery must have bottled oxygen, a regulator and a diffuser.
- S33. Salt bath The hatchery must use a salt bath prior to dispatch and/or during transport; OR,  
The hatchery must use a fresh water bath for the marine culture of Australian Bass.

### 3.13 Records

- S34. Records: The hatchery must maintain the following records for four years:

**HQAS prescribed records (copies attached):**

- a. Copies of Hatchery Dispatch and Health Statements.
- b. Copies of compliance self declaration and compliance audit reports.
- c. Broodstock records.
- d. Breeding records must be kept to show the batch number, the parentage, contribution of larvae to a batch and harvest success of a batch.

**Other mandatory records:**

- e. Disease surveillance records under S15.
- f. Water quality monitoring records under S13.
- g. Analytical test results or Veterinarian reports.
- h. Broodstock collection permits and records associated with broodstock collection permits.

## Part 4

# Accreditation

### 4.1 Application and assessment

#### **Application forms and application audits**

- A1. A hatchery seeking accreditation under the HQAS must submit a duly made application to the Scheme Manager using the Application for HQAS Accreditation form.
- A2. Prior to accrediting a hatchery, a Scheme Auditor carries out an application audit of the hatchery to verify that the hatchery complies with HQAS standards.
- A3. On completion of the application audit, applicants will be either:
  - a. advised by the Scheme Auditor of the need for Corrective Action on a Corrective Action Request Form; or
  - b. advised that the Scheme Auditor will recommend accreditation to the Scheme Manager.

#### **Applications Requiring Corrective Action**

- A4. Applicants who are required to undertake corrective actions for minor defects must submit a Corrective Action Completed Form to progress their application once the required work has been completed. The Corrective Action Completed Form must contain a written account of how the defect was rectified.
- A5. Applicants who are required to undertake corrective actions for a major or critical defect must apply for a compliance audit to progress their application once the required work has been completed.

#### **Accreditation Granted**

- A6. Applications that are determined by the granting of accreditation on the basis of an application audit or compliance audit (once corrective action has been completed) will be granted a Certificate of Accreditation.
- A7. A hatchery must maintain a current Certificate of Accreditation and make this available on request by the Scheme Manager or auditor.
- A8. A hatchery may not commence or continue certification of fingerlings under the HQAS unless it is in possession of a valid and current Certificate of Accreditation.

### Accreditation Refused

- A9. Under certain circumstances a decision may be made to refuse accreditation. Such circumstances include:
- a. insufficient knowledge of the HQAS standards;
  - b. insufficient management or control to operate according to the HQAS standards;
  - c. not in the public interest or interest of the HQAS;
  - d. application not duly made; or
  - e. applicant disqualified from holding a NSW aquaculture permit.
- A10. Where accreditation is refused the applicant will be given written notice stating:
- a. the decision;
  - b. the reasons for the decision; and
  - c. the opportunity to appeal the decision by providing, in writing, the grounds for reconsidering the decision to the Director, Fisheries Conservation and Aquaculture, I & I NSW.

## 4.2 Compliance

### Defects

- A11. A minor defect is any deviation from HQAS Standards, but one which does not jeopardise the integrity of the scheme. Examples include:
- a. minor inaccuracies; or
  - b. omissions in record keeping.
- A12. A major defect is one where there is a major deficiency in record keeping or practices, but which is not a deliberate attempt to compromise the integrity of the scheme. Examples include:
- a. failure to provide adequate documentation at audits;
  - b. failure to maintain correct identification of broodstock;
  - c. failure to report any significant fish mortality event at the accredited hatchery; or
  - d. failure to correct minor defects.
- A13. A critical defect is one which in the opinion of the Scheme Manager has the potential to seriously compromise the scheme, including findings where there has been gross incompetence, malpractice or deception. Examples include:
- a. false or misleading Hatchery Dispatch and Health Statement;

- b. false or misleading Compliance Self Declaration;
- c. non-disclosure of veterinary test results;
- d. misrepresentation of the genetic origin of fingerlings or broodfish;
- e. failure to rectify previous major defects found at audit; or
- f. failure to comply with a request from an inspector/person authorised to conduct an audit.

### **Compliance Self Declaration**

A14. Accredited hatcheries must submit a Compliance Self Declaration Form when requested by the Scheme Manager.

*Compliance self declaration will be requested annually at the same time as I&I NSW aquaculture farm production report, but may be requested at any time.*

### **Triennial Audits**

A15. Triennial audits of all accredited hatcheries will be conducted by the Scheme Manager. Auditors will make appointments with hatchery operators for these audits.

### **Compliance Audits**

A16. Compliance audits are conducted on a selected number of accredited hatcheries each year and may be conducted at any time, however if possible prior notice will be given.

A17. These audits may take the form of a full compliance audit, or audits of limited scope to components of the HQAS.

A18. Hatcheries may be chosen at random for audit although, hatcheries with a history of non-compliance, or where there are grounds to suspect non-compliance, are likely to be chosen for audit.

### **Corrective Action Request**

A19. If a minor or major defect is detected, the auditor must issue a Corrective Action Request Form, and the defect must be rectified within the time period specified on the Corrective Action Request Form.

A20. Hatcheries that are required to undertake corrective actions for minor defects must submit a Corrective Action Completed Form with a written account of how the defect was rectified by the due date.

A21. Hatcheries that are required to undertake corrective actions for major defects will be subject to a compliance audit on a date agreed with the auditor, but not exceed one month from the date the corrective action was requested.

### **Cancellation and Suspension**

- A22. Where a corrective action request has not been met by the due date, the Scheme Manager may suspend or cancel a hatchery's accreditation.
- A23. The auditor must report any critical defects immediately to the Scheme Manager. Detection of a critical defect at audit leads to the immediate suspension of accreditation.
- A24. Cancellation of accreditation will be considered by the Scheme Manager following detection of a critical defect.
- A25. Fish must not be supplied under the HQAS accreditation logo from a suspended or cancelled hatchery.
- A26. Hatcheries that have their accreditation suspended or cancelled will not be permitted to supply fish for native fish stocking programs.

### **Review and Re-accreditation**

- A27. The hatchery can appeal for a review of the Scheme Manager's decision to cancel or suspend accreditation within 21 days of receiving notice of suspension or termination, by providing in writing the grounds for appeal to the Director, Fisheries Conservation and Aquaculture, I&I NSW.
- A28. In the case of a suspended accreditation the Scheme Manager may re-accredit a hatchery following a compliant compliance audit.
- A29. In the case of a cancelled accreditation, the hatchery must reapply for accreditation.

## **4.3 Fees and charges**

Application fee (includes Certificate of Accreditation, Accreditation identification card, application audit and inclusion on accreditation register)	\$50
Triennial audit fee	\$0
Random compliance audit fee	\$0
Compliance audit following detection of a major or critical defect fee	\$250
Replacement copy of Certificate of Accreditation or Accreditation identification card fee	\$10

#### 4.4 Scheme Auditors

The following persons are authorised Scheme Auditors:

- a. The Scheme Manager.
- b. A NSW Fisheries Officer appointed pursuant to s. 243 of the *Fisheries Management Act 1994*.
- c. Employees of Industries & Investment NSW instructed by the Scheme Manager to conduct HQAS audits.
- d. NSW Class H Aquaculture Permit Holders authorised by the Scheme Manager to conduct HQAS audits.

***Note: permit holders will not be authorised to audit their own hatchery.***