

Explain hatchery techniques used in the New Zealand aquaculture industry

Level 4

Credits 15

Purpose People credited with this unit standard are able to explain: the conditioning and management of brood stock; spawning methods for the selected aquatic species; the principles of larval rearing in a hatchery for the selected aquatic species; the appropriate food and feeding system used for growth of the selected aquatic species for the period after hatching or spawning; the use and cleaning of hatchery plant and equipment for the selected aquatic species; and the hatchery layout and water quality parameters for the selected aquatic species in an aquaculture hatchery facility.

Subfield Seafood

Domain Aquaculture

Status Registered

Status date 12 December 2008

Date version published 12 December 2008

Planned review date 31 December 2013

Entry information Open.

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) Primary Industry Training Organisation

Accreditation and Moderation Action Plan (AMAP) reference 0123

This AMAP can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Special notes

- 1 Definition
Spawning refers to induced spawning in a hatchery situation.
- 2 Safe working practices meet the obligations of the Health and Safety in Employment Act 1992 and its subsequent amendments. This includes practices such as use of tools, safe lifting, protection from the sun, correct use of protective clothing and equipment.

- 3 For the purpose of this unit standard one aquatic species must be selected from one of the following categories: molluscs, fin fish, crustaceans, and echinoderms in the New Zealand aquaculture industry. The same species must be described for each element.

Elements and performance criteria

Element 1

Explain the conditioning and management of brood stock.

Performance criteria

- 1.1 The explanation includes the requirements and procedures for the conditioning and management of brood stock.

Range may include but is not limited to – selection methods, brood stock quantity, male to female ratio, grading, gonad development, feed requirements, hormone manipulation, photoperiod.

Element 2

Explain spawning methods for the selected aquatic species.

Range spawning methods may include but are not limited to – hydrogen peroxide system, UV systems, temperature system, drying system, manual system; evidence is required for one spawning method.

Performance criteria

- 2.1 The explanation includes all of the factors relevant to the chosen spawning method.

Range may include but is not limited to – timing of fertilisation, cell division and free form swimming, counting systems for gametes, condition of gametes, washing systems, dosage of chemicals, water temperature, condition index system induction of spawning.

Element 3

Explain the principles of larval rearing in a hatchery for the selected aquatic species.

Performance criteria

- 3.1 The explanation includes the stages and timing of larval rearing from larval phase to juvenile stage.

3.2 The explanation includes the management techniques to optimise larval rearing in a hatchery.

Range management techniques may include but are not limited to – management of: stocking density, photoperiod.

3.3 The explanation includes the equipment used for larval rearing in a hatchery.

Element 4

Explain the appropriate food and feeding system used for growth of the selected aquatic species for the period after hatching or spawning.

Performance criteria

4.1 The explanation includes the food type used for the selected aquatic species.

Range food may include but is not limited to – pellet feed, crumble feed, cultured food.

4.2 The explanation includes the relevant factors for the chosen feeding system to ensure optimum larval growth.

Range cultured feeding system factors may include but are not limited to – time from set up to production of feed, lighting requirements, feeding culture systems, water flow and temperature, growth media or nutrients required for harvesting feed, plant and equipment, hygiene, feeding frequency, delivery method; pellet or crumble feeding system factors may include but are not limited to – when to begin feeding, the feed size, feed compliance tests, feeding frequency, delivery method.

Element 5

Explain the use and cleaning of hatchery plant and equipment for the selected aquatic species.

Performance criteria

5.1 The explanation includes laboratory equipment used in a hatchery for routine monitoring, in terms of what it is used for and how it is used.

Range may include but is not limited to – water sampling equipment, water monitoring equipment, microscopes, counting equipment, scales.

5.2 The explanation includes the cleaning procedures for hatchery plant and equipment.

Range laboratory equipment, chemicals, cleaning, electrical.

5.3 The explanation includes the safe work practices used in a hatchery.

Element 6

Explain the hatchery layout and water quality parameters for the selected aquatic species in an aquaculture hatchery facility.

Range water quality parameters may include but are not limited to – dissolved oxygen, nitrites, nitrates, ammonia, salinity, temperature, turbidity, suspended solids, pH and pathogens;
evidence is required for four.

Performance criteria

6.1 The explanation outlines the optimal water quality limits for the selected aquatic species.

6.2 The explanation outlines the impact of less than optimal water quality on the selected aquatic species.

6.3 The explanation outlines remedial actions for loss of water quality for the selected aquatic species.

6.4 The explanation includes the basic layout of the hatchery plant and equipment that optimises the health and wellbeing of the stock.

Range may include but is not limited to – tanks, water flow, filters, ultra violet disinfection units, pumps, chemical storage, equipment arrangement, feed culture, discharge system, waste disposal, biosecurity.

Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.