WILDLIFE TRADE OPERATION RENEWAL FOR HINTERNOOSA HATCHERY

1. Introduction

Hinternoosa Hatchery is a family owned fish hatchery operation which has been entrusted with the captive breeding programs of two of Australia's most endangered and threatened fish species, them being the Endangered Mary River Cod (Maccullochella mariensis) and the Threatened Australian Lungfish (Neoceratodus forsteri). The staff have been involved in the industry for a number of years and have successfully bred Mary River Cod for conservation stockings and have also been successfull in captively breeding the Australian Lungfish. The purpose of this proposal is for Hinternoosa Hatchery to obtain reapproval to continue to operate as a wildlife trade operation, for the export of juvenile Australian Lungfish, which have been bred by Hinternoosa Hatchery. The brood stock utilized for the breeding program are collected in accordance with the attached Department of Agriculture and Fisheries (DAF) awarded General Fisheries Permit for Brood Stock Collection No. 266761.

2. Statement and General Goal/Aims

The purpose of this application is for Hinternoosa Hatchery to have their business remain registered as a wildlife trade operation for the export of Australian Lungfish. The goal of the operation is to reduce the stresses on the wild population, which unfortunately still receive pressures from illegal trade. By introducing commercially bred fish onto the market, it will dramatically reduce these pressures, as the commercial stocks become more readily available. We have also been approached to supply research material to various educational facilities, which would have previously been sourced from wild stocks.

3. Harvest Details

All Brood Stock have been collected under the DAF approved Brood Stock Collection Permit No. 266761. The Brood Stock have been collected using the approved collection methods and techniques, strictly adhering to industry best practice methods. The permit is valid till 30 August 2026, and a small number more brood stock will be collected in the coming years, to supplement the captive breeding program. The Brood Stock are to be housed in accordance with the hatcheries Development Permit 2012BI0453. For further harvesting information refer to attached Fisheries Permit 266761.

4. Impact of harvest on the taxa and the relevant ecosystem

Under the guidance of the DAF approved Brood Stock Collection Permit, brood stock are only to be collected from populations that were translocate many years ago. The Lungfish's natural range is the Burnett and Mary River catchments, but part of the collection guidelines state that brood stock are only to be collected from the translocated populations of the Pine River Catchment and the Brisbane River Catchment, from below the Wivenhoe Dam wall to the Mount Crosby Weir, therefore, no impact is made on the wild remnant populations, and associated ecosystems.

5. Monitoring and Assessment

Under the conditions of the DAF approved General Fisheries Permit for Brood Stock Collection, Hinternoosa Hatchery must fill out a logbook and compile a comprehensive monthly brood stock collection report. This report also details capture methods used, and pest species etc captured. As the hatchery will only be using a small number of brood stock to breed from, and as these fish are sourced from a translocated population, we believe there isn't a requirement for further monitoring.

5.1 Has there been a resource assessment of distribution and abundance for the harvest area?

Department of Agriculture and Fisheries officers have carried out the required surveys on the fish populations, distribution and abundance of the collection sites. The officers have also surveyed the collection areas and collection techniques, which are stipulated in the approved General Fisheries Permit.

5.2 Will there be independent supervision of the harvesting?

The applicant will conduct the collection in accordance with the approved General Fisheries Permit. The permit does not require independent supervision, but we welcome any interested parties to be present, should they wish.

5.3 Outline the methods to be employed to monitor the harvesting of the specimens to identify whether the species or other species in the ecosystem are affected by the harvesting?

The harvest methods utilize DAF approved, industry best practice procedures and protocols, this combined with knowledge of the Lungfish habitat and habits, it is quite easy to target specific areas that are utilized by the fish. Once the fish are captured, they are quickly transported to holding tanks which have ample clean, oxygenated water. The brood stock are then transported, housed and monitored in accordance to the Development Permit 2012BI0453.

5.4 Describe any other biological and environmental monitoring proposed for the harvesting area?

No additional biological and environmental monitoring is proposed, as the harvest sites are in the areas of the translocated populations, and they have been extensively studied by numerous agencies.

6. Management Strategies

Hinternoosa Hatchery envisage keeping a proportion of each year's offspring to grow out, and later utilize for future breeding stock. It is hoped, that in time, there will not be a requirement to source brood stock from external populations. We also believe that it is critical that selected hatcheries be able to develop the required techniques to be able to breed these magnificent fish, as there may be a need to repopulate certain areas in the future, if the need arises.

7. Compliance

Hinternoosa Hatchery will adhere to the stipulated details of the General Fisheries Permit. These conditions include all brood stock be PIT tagged and fin clipped, to allow DAF to determine the population where they were collected. All progeny are to be PIT tagged prior to sale and a sale invoice recording the associated PIT number to be issued upon sale. A comprehensive annual report is to be compiled for DAF annually, this will include production numbers, brood stock mortalities, if any, and specific brood stock collection activities. Only fish bred by the hatchery, using approved brood stock, will be available for sale.

Hinternoosa Hatchery has concurrently applied for the Department of Environment to have their existing aquaculture operation registered as an approved aquaculture program, under the EPBC Act.

Hinternoosa Hatchery will also supply the Department with a list of the PIT tag numbers to be used on the progeny upon sale. This will allow the relevant authorities to easily monitor stock destined for export against the PIT tag inventory list.

8. Reports

An annual production report will be compiled for the DEWHA. This will include production numbers, and specimens exported and those to be retained onsite at the approved aquaculture facility. The report is to be made public, and further requirements can be added at the DEWHA's discretion.

9. Background information

The Queensland lungfish (Neoceratodus forsteri), also known as the Australian lungfish is a surviving member of the family Neoceratodontidae and order Ceratodontiformes. It is one of only six extant lungfish species in the world. Endemic to Australia, the Neoceratodontidae are an ancient family belonging to the class Sarcopterygii, or lobe-finned fishes.

Fossil records of this group date back 380 million years, around the time when the higher vertebrate classes were beginning to evolve. Fossils of lungfish almost identical to this species have been uncovered in northern New South Wales, indicating that Neoceratodus has remained virtually unchanged for well over 100 million years, making it a living fossil and one of the oldest living vertebrate genera on the planet.

It is one of six extant representatives of the ancient air-breathing Dipnoi (lungfishes) that flourished during the Devonian period (about 413–365 million years ago) and is the most primitive surviving member of this lineage. The five other freshwater lungfish species, four in Africa and one in South America, are very different morphologically from N. forsteri. The Queensland lungfish can live for several days out of the water, if it is kept moist, but will not survive total water depletion, unlike its African counterparts.

Queensland lungfish are olive-green to dull brown on the back, sides, tail, and fins, and pale yellow to orange on the underside. They have been described as having a reddish colouring on their sides which gets much brighter in the males during the breeding season. This colouration is the only distinguishing sexual characteristic of the lungfish. They have stout, elongated bodies and flattened heads with small eyes. The mouth is small and in a subterminal position. The lungfish can grow to a length of about 150 cm, and a weight of 43 kg. It is commonly found to be about 100 cm and 20 kg on average. Both sexes

follow similar growth patterns, although the females grow to a slightly larger size. They are covered in slime when taken from the water.

Juveniles have different body proportions from mature adults. The head is rounder, the fins are smaller, and the trunk is more slender. The mouth is initially terminal, but shifts back as the fish grows. The dorsal fin typically reaches to the back of the head in young juveniles, and gradually moves caudally until it only extends to the mid-dorsal region in adults. They show a gradual change in body form as they develop, but no metamorphosis is externally detectable, and no obvious point occurs at which they can be termed adult. As a juvenile, the lungfish is distinctly mottled with a base colour of gold or olive-brown. Patches of intense dark pigment will persist long after the mottling has disappeared. Young lungfish are capable of rapid colour change in response to light, but this ability is gradually lost as the pigment becomes denser.

The Queensland lungfish is native only to the Mary and Burnett River systems in south-eastern Queensland. It has been successfully distributed to other, more southerly rivers, including the Brisbane, Albert, Stanley, and Coomera Rivers, and the Enoggera Reservoir in the past century. The Queensland lungfish has also been introduced to the Pine, Caboolture, and Condamine Rivers, but current survival and breeding success are unknown. Formerly widespread, at one time at least seven species of lungfish were in Australia.

This species lives in slow-flowing rivers and still water (including reservoirs) that have some aquatic vegetation present on banks. It occurs over mud, sand, or gravel bottoms. Australian lungfish are commonly found in deep pools of depths between 3 and 10 m and live in small groups under submerged logs, in dense banks of aquatic macrophytes, or in underwater caves formed by the removal of substrate under tree roots on river banks. The lungfish is tolerant of cold, but prefers waters with temperatures between 15 and 25 °C.

The Queensland lungfish is incapable of surviving complete desiccation of its habitat, although it can live out of water for several days if the surface of its skin is constantly moist.

The Queensland lungfish is essentially a sedentary species, spending its life within a restricted area. Its home range rarely extends beyond a single pool or, occasionally, two adjacent pools. It does not follow a set migratory path, but may actively seek out suitable spawning habitats between July and December.

Australian Lungfish export trade is still very much in its infancy. In 2002 fish were legally exported by the original producer, who was situated in Howard, Qld. There have been numerous illegal attempts of trade made throughout the years, and this is the type of trade we believe will be eliminated with the approval of Hinternoosa Hatcheries wildlife trade operation.

References: Wikipedia; Retrieved 16.1.17

Fisheries Act 1994

General fisheries permit

30 August 2023

[redacted]

Issued by: Fisheries Licensing

Permit Number	Issue Date	Expiry Date
266761	30 August 2023	30 August 2026

Authorised Activities

Fisheries

1. The holder is authorised to take and possess broodstock of the following approved species, up to the specified maximum number, at any one time:

Common Name	Scientific Name	Quota
Australian Bass	Macquaria novemaculeat	20
Barcoo Grunter	Scortum barcoo	20
Barramundi	Lates calcarifer	20
Eel tail Catfish	Tandanus tandanus	20
Firetail Gudgeon	Hypseleotris galii	60
Golden Perch (Cooper Creek/Lake Eyre strain)	Macquaria ambigua n.sp	20
Golden Perch (Dawson strain)	Macquaria ambigua oriens	20
Golden Perch (Murray Darling strain)	Macquaria ambigua ambigua	20
Gulf Saratoga	Scleropages jardinii	20
Hyrtls Catfish	Neosilurus hyrtlii	60

Mouth almighty	Glossamia aprion	60
Northern purplespotted gudgeon	Mogurnda mogurnda	60
Rainbowfish	Melanotaenia spp.	60
Rainbowfish	Glossolepis spp.	60
Rainbowfish	Chilatherina spp.	60
Silver Perch	Bidyanus bidyanus	20
Sleepy Cod	Oxyeleotris lineolatus	20
Southern purplespotted gudgeon	Mogurnda adspersa	60
Southern Saratoga	Scleropages Leichhardt	20
Freshwater shrimp	Macrobrachium rosenbergii	500
Freshwater shrimp	Macrobrachium australiensis	500
Redclaw crayfish	Cherax quadricarinatus	500
Yabby	Cherax destructor	500

2. The holder is authorised to take and possess 20 Murray cod at any one time, with no more than 40 individuals to be taken during the duration of the permit.

3. The holder is authorised to take and possess 12 Mary River cod. An additional four broodstock may be taken each year during the duration of the permit to rotate stock or replace lost stock up to a maximum possession limit of 12 at any one time. No more than two broodstock are to be collected annually from the Tinana/Coondoo catchment.

4. The holder is authorised to take and possess a maximum of 20 Australian Lungfish during the duration of the permit (Neoceratodus forsteri).

5. The holder may collect Australian bass and Barramundi during closed seasons.

6. The holder is authorised to take the broodstock from the following Queensland waters:

    a. Australian Bass: Burnett Basin Catchment, Mary Basin Catchment, Noosa River Catchment, Moreton Catchment, Logan Basin Catchment and Gold Coast Catchment.

    b. Australian lungfish: Brisbane River between the wall of Wivenhoe Dam and the Mount Crosby Weir and Pine River Catchment.

    c. Barcoo Grunter: Georgina and Diamantina Catchment, Bulloo

Catchment.

d. Barramundi: Mitchell Catchment, Barron Catchment, Draft Wet Tropics Catchment, Gulf Catchment, Burdekin Basin Catchment, Whitsunday Catchment, Pioneer Valley Catchment, Fitzroy Basin Catchment, Calliope Catchment, Boyne River Basin Catchment, Baffle Creek Basin Catchment, Burnett Basin Catchment, Mary Basin Catchment and Noosa River Catchment.

e. Eel Tail Catfish: Burnett Basin Catchment, Mary Basin Catchment, Condamine/Balonne Catchment, Moreton Catchment, Logan Basin Catchment, Gold Coast Catchment, Moonie River Catchment and Border Rivers Catchment.

f. Firetail Gudgeon: Mary Basin Catchment.

g. Golden Perch: Mary Basin Catchment, Condamine/Balonne Catchment, Moreton Catchment, Logan Basin Catchment, Gold Coast Catchment, Warrego/Paroo/Bulloo/Nebine Catchment and Border Rivers Catchment.

h. Gulf Saratoga: Gulf Catchment and Mitchell Catchment.

i. Mary River Cod: Mary Basin Catchment excluding Obi Obi Creek from Baroon Pocket Dam wall downstream to Obi Obi Crossing No.4.

j. Murray Cod: Cooper Creek Catchment, Bulloo/Nebine Catchment, Condamine/Balonne Catchment, Moonie River Catchment and Border Rivers Catchment.

k. Hyrtls Catfish, Mouth almighty, Northern purplespotted gudgeon, Southern purplespotted gudgeon: Burnett Basin Catchment, Mary Basin Catchment, Noosa River Catchment, Moreton Catchment, Logan Basin Catchment and Gold Coast Catchment.

l. Rainbow fish: Fitzroy Basin Catchment, Burnett Basin Catchment, Mary Basin Catchment, Noosa River Catchment, Moreton Catchment, Logan Basin Catchment, Gold Coast Catchment, Warrego/Paroo/Bulloo/Nebine Catchment, Condamine/Balonne Catchment and Border Rivers Catchment.

m. Silver Perch: Burnett Basin Catchment, Mary Basin Catchment, Condamine/Balonne Catchment, Moreton Catchment, Logan Basin Catchment, Gold Coast Catchment, Bulloo/Nebine Catchment and Border Rivers Catchment.

n. Sleepy Cod: Draft Wet Tropics Catchment, Barron Catchment, Burdekin Basin Catchment, Whitsunday Catchment, Pioneer Valley Catchment, Fitzroy Basin Catchment, Calliope Catchment, Boyne River Basin Catchment, Burnett Basin Catchment.

o. Southern Saratoga: Burdekin Basin Catchment, Whitsunday Catchment, Pioneer Valley Catchment, Fitzroy Basin Catchment, Calliope Catchment, Boyne River Basin Catchment, Burnett Basin Catchment, Mary Basin Catchment, Moreton Catchment, Logan Basin Catchment, Gold Coast Catchment.

p. Freshwater Shrimp: Settlement Creek Catchment, Nicholson River Catchment, Leichhardt River Catchment, Flinders River Catchment, Norman River Catchment, Gilbert River Catchment, Staaten River Catchment, Mitchell River Catchment, Burdekin Basin Catchment, Whitsunday Catchment, Pioneer Valley Catchment, Fitzroy Basin Catchment, Calliope Catchment, Boyne River Basin Catchment, Baffle Creek Basin Catchment, Burnett Basin Catchment, Mary Basin Catchment, Noosa River Catchment, Condamine/Balonne Catchment, Moreton Catchment, Logan Basin Catchment, Gold Coast Catchment and Border Rivers Catchment.

q. Redclaw Crayfish: Burdekin Basin Catchment, Whitsunday Catchment, Pioneer Valley Catchment, Fitzroy Basin Catchment, Calliope Catchment, Boyne River Basin Catchment, Burnett Basin Catchment, Mary Basin Catchment, Moreton Catchment, Logan Basin Catchment and Gold Coast Catchment.

r. Yabby: Burdekin Basin Catchment, Fitzroy Basin Catchment, Condamine/Balonne Catchment, Warrego/Paroo/Bulloo/Nebine Catchment and Border Rivers Catchment.

7. The holder is authorised to use the following apparatus to collect broodstock:

a. prescribed apparatus as detailed in Chapter 4, Part 4 (Division 1 and 2) of the Fisheries Declaration 2019. All prescribed apparatus detailed in this section can be used in both non-tidal and tidal waters; and

b. use up to three (3) gill nets for the purpose of culture stock collection. The nets must not:

i. have a mesh size less than five (5) centimetres;

ii. be joined together;

iii. exceed one hundred (100) metres in length (each net);

iv. be greater than fifty (50) meshes or three (3) metres in drop;

c. use seine nets for the purpose of culture stock collection. The nets must not have a mesh size of more than five (5) centimetres; and

d. use up to three (3) dip nets. The nets must not:

i. exceed two (2) metres in length along any side.

ii. have a mesh size greater than twenty-five (25) mm; and

e. up to three (3) fyke nets. The nets must not:

i. have a mesh size less than three (3) mm;

ii. exceed three and one half (3.5) metres in length (each

net);

iii. have wings exceeding fifteen (15) metres;

iv. be greater than one and one half (1.5) metres in drop;

and f. a boat mounted electrofisher.

CONDITIONS

1. The holder may authorise a total of three (3) persons to conduct activities on the holder's behalf by providing to each of those persons:

   a. a copy of the Permit; and

   b. the Permit conditions; and

   c. written authorisation signed by the holder which states the name of the person undertaking the collection activities and the period of authorisation.

   The authorised persons must immediately produce the above documentation any time on request for inspection by an officer authorised under the Fisheries Act 1994.

2. This permit authorises the use of boats identified as P028 collection activities authorised under this General Fisheries Permit.

3. The holder must ensure that the boat mark complies with Chapter 2, Part 4, Division 1, 2 and 3 of the Fisheries (Commercial Fisheries) Regulation 2019.

4. The holder must ensure that all prescribed apparatus (as detailed in Chapter 4, Part 4 (Division 1 and 2) of the Fisheries Declaration 2019) used during authorised activities is marked in accordance with the requirements of Division 1 and 2.

5. The holder must ensure that all apparatus used during authorised activities is marked clearly with the holder’s name, address and DAF permit number and be in attendance of such apparatus at all times.

6. The holder must ensure that broodstock collected to be used to produce fingerlings to be stocked into Queensland waters are tagged with a Passive integrated transponder (PIT tag) and a genetic sample taken at the expense of the permit holder. The details of each tag and genetic sample must be provided to DAF within 1 month of collection or when the broodstock enters a breeding program for each individual.

7. All protected and or listed species of broodstock collected are required to be tagged with an approved permanent identifier and a genetic sample taken at the expense of the permit holder. The details of each tag and genetic sample must be provided to DAF within 1 month of collection for each individual.

8. In regard to the collection of Mary river cod under this permit:

   a) The holder must report any broodstock which are collected under this permit to the Department of Agriculture and Fisheries (DAF) within 24 hours;

   b) All broodstock to have a Passive Integrated Transponders (PIT tags) for identification. The details of each tag must be provided to DAF.

   c) All broodstock losses must be reported to DAF immediately;

   d) An annual production report must be complied specifying details of broodstock collected, any broodstock mortalities and fingerling production numbers. This report must be completed by the end of December annually and provided to DAF; and

   e) The holder must contact DAF if they wish to replace or remove any unwanted broodstock, DAF will decide on the fate of all broodstock not required.

9. In regard to the collection of Australian lungfish under this permit:

   a) The holder must report any broodstock which are collected under this permit to DAF within 24 hours;

   b) All broodstock are to be PIT tagged and fin clipped at the expense of the permit holder. Details of PIT tags and genetic samples of fin clips must be provided to DAF for each broodstock within 1 month of collection for each individual.

   c) All broodstock mortalities must be reported to DAF within 24 hours. All deceased broodstock must be retained on site for DAF, preferably frozen to preserve the sample.

   d) All successful spawning events must be reported to DAF within one week of the spawning event.

   e) An annual production report must be compiled specifying details of broodstock collection, any broodstock mortalities and fingerling production numbers. This report must be completed by the end of December annually and provided to DAF.

   f) A minimum of five percent of all fingerlings from each spawning event must be fin clipped and the clips provided to DAF prior to the sale of the fingerlings; and

   g) All progeny are to be PIT tagged prior to sale and invoices are to include a record of the tag number of those specimens included.

10. A sign, minimum dimensions of 30cm x 50cm, with the message "Broodstock" collection in progress under DAF permit number 266761 is to be displayed and visible for public scrutiny on board any vessel used or within 15 metres of collecting activities when seine nets and fyke nets are in use.

11. The holder must ensure that when gill nets are in use, that the nets are attended at all times, attendance means within 100 metres of the set net/s. The holder must also ensure that gill nets are checked at regular intervals no greater than 30 minutes.

12. The holder must not place nets across the width of creeks or rivers, in a navigation channel or any other areas where the placement of nets may be hazardous to boat traffic.

13. The holder must ensure that within the Mary River Catchment (with the exception of creeks listed in condition 13), use of gill nets is restricted to nets of a maximum length of 25m and maximum mesh size of 75mm.

14. The holder must ensure that within the Tinana Creek, Coondoo Creek and Obi Obi Creek, use of gill nets is restricted to nets of a maximum length of 10m and maximum mesh size of 75mm.

15. The holder must ensure that floats are deployed in the cod ends of fyke nets and ensure that fyke nets are set in such a way that part of the cod end is above the water to allow air breathing animals access to air.

16. The holder must ensure that the use of electrofishing apparatus is in accordance with the Australian Code of Electrofishing Practice. Boat Mount Electrofishers must also comply with the Marine Safety (Domestic Commercial Vessel) National Law Act 2012.

17. The holder must not collect approved species:

    a) from closed waters as declared under Chapter 2, Part 5, Divisions 3 and Division 4, Section 33 of the Fisheries Declaration 2019; or

    b) during closed seasons unless specifically authorised by condition of this permit.

18. Collected broodstock must be transported to the areas approved on the Development Permit Development Permit 2012BI0453.

19. The holder must ensure that all broodstock taken are used for aquaculture purposes in accordance with the Development Permit 2005BD0328, and must not sell collected broodstock for any purpose.

20. The holder must ensure that all fisheries resources (with the exception of fish listed as restricted matter under the Biosecurity Act 2014 or non-indigenous fisheries resources listed under the Fisheries Act 1994) taken unintentionally during authorised activities are returned to the water as soon as practicable with as little harm or injury as possible.

21. Saratoga broodstock collection only to be conducted between the months of December to August.

22. Lungfish broodstock collection must only be conducted between the months of March and June.

23. The holder must ensure that all fish classified as restricted matter under the Biosecurity Act 2014 or non-indigenous fisheries resources under the Fisheries Act 1994 captured during authorised activities are to be destroyed and disposed of by burial or placing in a rubbish bin.

24. The holder must comply with:

    a) the requirements of all relevant legislation and obtain approvals from the relevant administering organisations, including Local Authorities; and

    b) any Codes of Practice or management arrangements relevant to the approved species (e.g. Translocation Policy).

25. The holder must immediately obtain a copy of the approved fishing logbook form 'Qld Broodstock and Culture Stock Collection Logbook (BR01 Version 01)' ("the logbook"), and upon receipt of it:

    a) Ensure that the permit holder or nominee engaged in broodstock or culture stock collection completes the logbook as per the "Instructions for Use"; and

    b) Ensure that the logbook is kept in accordance with the instructions contained in the logbook and any written instructions the chief executive may, from time to time, provide. The logbook must remain with the permit holder during fishing activities and at the place of residence of the permit holder when not fishing; and

    c) Gives the completed logbook to the chief executive in accordance with the instructions contained in the logbook. In particular, this instruction requires that the completed logbook returns be forwarded to the chief executive within a specified time period after the fishing to which they relate has occurred.

26. The holder must notify the nearest office (to the collection location) of the Queensland Boating and Fisheries Patrol, by phone, prior to any broodstock collection trip, with details of the places and times of the collection activity and the identity of any vessels used during collection.

27. The holder must carry this permit (or a copy) during authorised activities and produce it at any time on request for inspection by an officer authorised under the Fisheries Act 1994.