

MAFSA currently utilises the hatchery to breed sooty grunter and to grow out barramundi fry.

Sooty Grunter

The broodstock are collected from the wild, i.e. Pioneer River, Eungella, Kinchant and Teemburra Dams. These are collected usually by normal angling techniques.

Sooty Grunter requires a fresh in the streams to come into roe and to be in an area of shallow running water (rapids). The water temperature needs to be in the range of 25 -33 degrees.

A female fish and at least 2 males are required for a successful spawning. The broodstock is generally used only once and returned to the wild. No minimum size is required.

When the broodstock are received at the hatchery, the female fish is injected with a hormone, "chorolun". The rate that the hormone is injected is 1500iu per kg. Before the hormone is injected, a sedative "clove oil" is used to sedate the fish for easy handling. This is placed in the water with the fish. The fish suffer no ill effects. The broodstock are only handled using wet rags. No skin contact is made due to the risk of infection to the broodstock.

The broodstock are kept in the tank and within 48 hours, the female spawns and the eggs are fertilised by the males. The tank conditions must represent the conditions as found in the wild. The eggs are required to be kept in suspension.

The eggs are collected, checked for condition, diameter measured and weighed to calculate the number of eggs. The following table indicates the number of eggs per litre depending up on egg diameter.

0.5mm = 9,214,510 eggs

1mm = 1,148,927 eggs

1.5mm = 339,567 eggs

2mm = 142,894 eggs

The Sooty Grunter Hatchery

The original hatchery was commenced in 1995 and consists of 2*1500 litre tanks, 1*1500 litre biofilter complete with oyster shells, 2 aquariums, 1 disc filter complete with discs to 10 micron, 1 reticulating pump and an air pump. A separate water supply tank of 15000 litres is used to dechlorinate the town supply. This is done by aeration.

The tank capacity is calculated by the weight of the fish not the numbers. These tanks have a capacity between 20 – 40kgs depending upon the species. The sedentary type fish provide a larger carrying capacity than the more active species.

The system is a recirculating system. The water from the supply tank is used to fill the system at least 7 days prior to the required date. The biofilter needs at least this time to become effective and a booster is usually used to commence the biofilter activity.

The water is pumped from the tanks through the circulating pump, the disc filter, biofilter and returns to the tank. The flow rate is approximately 1500 litres per hour. A bypass system is also installed for maintenance of the biofilter. Float valves control the water levels. The biofilter has a rotating arm for aeration and filtering purposes. The biofilter acts both as an aerobic and anaerobic filter during the normal process. This alternates depending upon water levels and flow rates in the system. The biofilter also consists of a chamber in the lower area with a vent to disperse any ammonia gas.

Operation

During the breeding and growout cycle, water quality must be monitored i.e. ph levels (7.1 to 8) water temperature (25 –33), oxygen levels >10ppm.

The tanks are cleaned at least once per day. The system is stopped that is no water flow. The fish are bathed in a salt bath each second day to prevent disease. Normal procedure is to do 1 tank per day. This is done by dropping the level in the tank to a maximum of 1/3 of the tank capacity. Approximately 2.7kg of salt is required to carry out the salt bath. The fish are left in this solution for approximately 20 minutes. It is imperative that the air supply is maintained at the highest possible levels >100ppm during this time. The fish must be closely monitored during this time. The ideal time is when the temperature has cooled.

The system has dechlorinated water added and the recirculating process recommenced.

Feeding

After hatching, the fry start to feed at approx. 2 days. The fry are fed on artemia (brine shrimp / sea monkeys). To produce 265,000 fingerlings to 25mm, approximately 14kg of artemia is required. The fingerlings require to be fed at least twice per day.

Artemia are purchased in egg form and hatched in tanks comprising of salty water, eggs, aeration and a temperature of 33 degrees. The normal hatching period is 24 hours and the life span is a maximum of 48 hours.

Monitoring

All activities including visits must be recorded and documented for the successful operation of the hatchery. No poisons, sunscreen or other pollutants can come into contact with the fingerlings or water supply system.

Release

The fish are released between 25mm and 50mm into a waterway approved by DPI & F with the authorised permit. All numbers, date and size must be recorded and submitted each year.

The Rob Symons Hatchery

This hatchery was constructed with the intention to growout barramundi fingerlings from 15mm to a larger size (up to 100mm). Other species can also be grown out in this hatchery.

The average weight for barramundi fingerlings is

25 to 30mm – 0.3grams

35 to 40mm – 0.7grams

This is the most cost effective manner for MAFSA to carry out this operation. These fish are fed on crumble the pellets suitable to their size. Again they require to be fed twice daily. This feed is commercially available.

Hatchery Operation.

The hatchery operation is similar to the sooty hatchery but a swirl filter and particulate filter replace the disc filter. The biofilter uses bioballs to replace the oyster shells. These are a plastic ball with a much greater surface area per square meter than the oyster shells.

Transport Tank

The transport tank (approx 200 litres) can carry approx 2-4kg of fish (depending upon species and distance to be travelled). Oxygen

is supplied to the tank via a bottle, regulator and air stone. The condition of the fish must be continually monitored.