

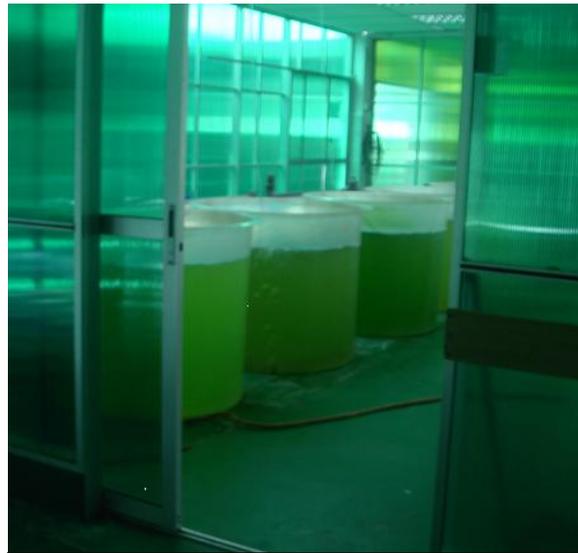
7.0 Human Resource Training

7.1 Staff Training at Tanjung Demong

A science officer, Zuliana was sent to Tanjung Demong for training in technique of isolating and culturing microalgae on agar plate to obtain a monoculture. She learnt how to culture microalgae and rotifer by using the standardized method generally practiced by the centre. This training was monitored by staff of PPPIL Tanjung Demong; Pn. Che Salma bt. Che Mahmood, En. Abdullah bin Embong, En. Wan Azmi bin Wan Daud and En. Ahmad Daud bin Om.



Microalgae in 2 Litre flasks



Microalgae in 400 Litre tanks.



Rotifer in 60 Litre tanks

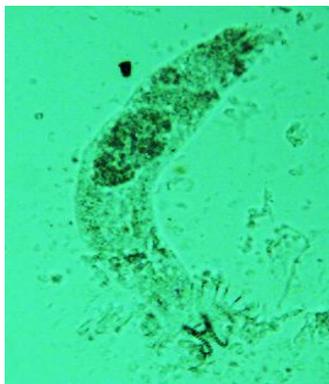


Rotifer in 20 tonnes tank

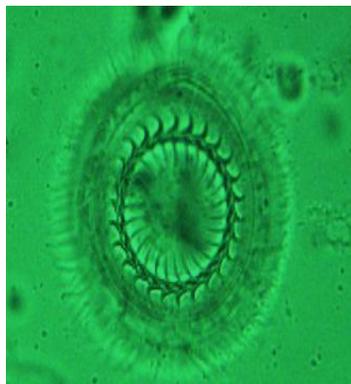
7.2 Staff Training at National Fish Health Research Centre in Batu Maung, Penang

On 4th of February 2007 Assistant Science Officer, Wahidah Wahab attended a two weeked training at National Fish Health Research Centre in Batu Maung, Penang. Her training focused on parasite examination methods especially on different staining methods including fixation and staining experiments.

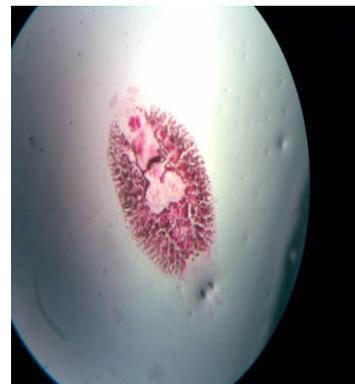
She learned the method of examining *Lates calcifer* (Sea Bass) for ciliated protozoan known as *Cryptocaryon irritans* which is the main cause of white spot disease in marine fishes. She also examined and stained *Turbellaria* sp., a flatworm from mussels, the monogenean capsalid, *Benedenia* sp and *Gyrodactylus* sp. Among the staining solution that she experimented on are Gower's Carmmine, hibiscus extracts, food colorings, Dylon Mexican Red and silver nitrate. The last experiment was done on *Trichodina* sp. with silver nitrate as a staining substance and this method gave a good result. Puan Wahidah gained theoretical and practical knowledge through her training. These experiences have helped her to improve her knowledge on fish disease.



Gyrodactylus sp.



Trichodina sp.



Monogenea

7.3 Kelah Breeding (*Tor Tambroides*) in Pusat Pengembangan Akuakultur Perlok, Jerantut, Pahang

Imran Affandi, a contract science officer and Mohd. Shafiq, assistant science officer, participated in a breeding program on Kelah (*Tor tambroides*) at Pusat Pengembangan Akuakultur (PPA) Perlok, Jerantut Pahang. This research center which is under the Department of Fisheries was established to do R&D and conservation of freshwater fish species in Malaysia. At this centre there are many indigenous freshwater species namely Kelah (*Tor tambroides*), Tengas, Temoleh and others.

According to PPA Perlok Head of Department, En Muhammad Hatta, PPA Perlok is also involved in induce breeding program on local freshwater species such as Jelawat and Lampam as one of their activities. These fishes are normally supplied to the local market, to fish farmers and also restocking for conservation purposes.

To achieve their goals as aquaculture development center, PPA Perlok is equipped with hatchery building filled with concrete culture tanks, incubation tanks, grow out tanks and treatment tanks. The main water source for PPA Perlok is from the nearby hill.

According to En Muhammad Hatta, most of the broodstock here were reared from the juvenile stage in captive ponds. Induced breeding was used for the spawning program in PPA Perlok.



Briefing and introduction session by En. Mohd Hatta.

Healthy broodstocks were selected from the culture pond. This is to ensure the broodstocks are in good condition. A total of 10 pairs of broodstocks were selected.



Broodstocks selected from the culture pond.

Several characteristics were observed such as size of abdomen and reddish color of genital pore of female. The selected broodstock was injected with 250 iu/kg of HCG hormone and kept in a separate tank. After 24 hours, the broodstock was injected again with ovaprim hormone. Both of these hormones were used to induce the broodstock to release the eggs. All the injected broodstocks were released in the separated tanks.



Pictures of HCG hormone that was used to inject the broodstocks



Broodstock was injected with HCG hormone



Officers preparing ovaprim hormone



24 hours after HCG hormone injection, the broodstocks were injected with ovaprim hormone



After 24 hours injection the broodstocks were observed to ensure the eggs had been released



Stripping the broodstocks

Normally after 24 hour, stripping process can be carried out. The two hormones will stimulate the ovulation cycle and enhance the fish to release their eggs. The fish need to be observed every 12 hours to see whether the fish is ready to release their eggs. The male and female broodstock were stripped to collect their sperms and egg and placed in a bowl. The eggs and sperms were stirred using a feather with saline water to help eggs mix well with the sperms. After several minutes, these eggs were scattered on the substrate made of mosquito net in an incubation tank and gently aerated. Observation was done frequently to remove unfertilized eggs which may affect the fertilized eggs.



Eggs were scattered on the substrate made of mosquito net in an incubation tank



Observation was done frequently to check for unfertilized eggs

These eggs take about 72 hours to hatch. Larvae will feed on their yolk for 3 days. Three-days-old larvae were then transferred into rearing tanks and fed with frozen artemia and nauplii until the larvae reach 1 inch in size.



Newly hatched larvae

When these larvae reach the size of 1 to 2 inches, they will be transferred to earthen ponds or released to their natural environment or habitat for conservation purposes. Usually, it takes about two months to reach this size.



Nursing tanks