

AQUA CULTURE

A s i a P a c i f i c

Barramundi in Thailand

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Marine shrimp in Asia in 2012

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Driving barramundi in Thailand

By Zuridah Merican

A revival of barramundi farming but now in freshwater ponds.

Thailand's hatcheries produce fry and fingerlings to feed the demand for Asia's grow-out of the Asian sea bass *Lates calcarifer* or barramundi. Recently, demand for this seed stock has been increasing with the reported change from marine shrimp to barramundi farming in brackish water ponds in Malaysia, Vietnam and Thailand. At home, demand is also increasing with the relatively recent interest in farming the fish in freshwater ponds, in particular in Chachoengsao province in Eastern Thailand. In 2012, the estimated production will be 20,000 tonnes, with almost 15,000 tonnes production from this province and the rest, barramundi farmed in brackish water and marine cages in South Thailand.

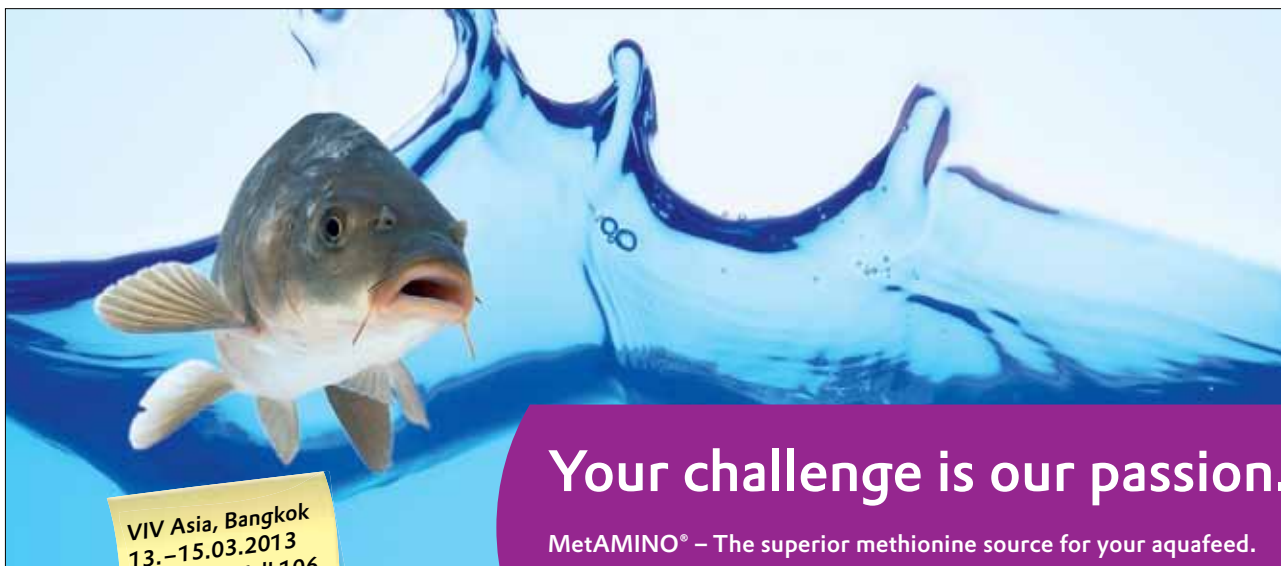


Live fish are sold to restaurants around Pattaya in the north and Bangkok to the east. These are held in containers on trucks. Some two hours before, salt is added to the water and aerated to increase dissolve oxygen in the water.

Cage to pond culture

Some 30 years ago, barramundi farming centred in the brackishwater cage farms in the estuary of the Bang Pakong River. As recent as 2009, the small group here produced almost 4,000 tonnes annually. But as water quality declined with pollution from agricultural and industrial effluents, so did the number of cages. Today only 20% of the original number of cages has remained. Most of the grow-out activity has moved to inland freshwater ponds.

According to Khun Sutin Wuthisin, who started farming the barramundi 32 years ago, "Usually stocking will begin early in the rainy season, but nowadays, the weather is too unpredictable. We stop our hatchery production using brood stock kept in the cages in winter from October to February and will resume in summer again."



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Harvesting and sorting is by a specialised contract team. Sorting by size at the pond side.



TFM's team, from left Dr Suttisak Boonyoung, Manager Product R&D, Supis Thongrod, Preecha Bangnokkhwaek, formulation manager and Chin Boripon, with Khun Toy (centre left) and Suthi Mahalao (centre right).



Sutin Wuthisin



Pond showing feeding enclosure



7.5 cm fingerlings at Khun Chan's nursery

In this province, the R&D team from Thai Union Feedmill (TFM) is leading this recent development in the farming of this fish. The feed mill in Samutsakorn began production of extruded floating feeds for the barramundi and the grouper in 2007. The initial introduction of the feeds to cage farms did not work well because of the change in season, strong currents and infections with parasites, all of which resulted in high feed conversion ratios (FCR). The 4mX4m and 2.5 m deep cages stocked 50 fingerlings/m² whereas in ponds, the density is lower at 2 fingerlings /m².

"Our first success came later with the same group of farmers who had moved to farm the fish in freshwater ponds in 2009. The better feed performance and FCR at 1.4 instilled farmer's confidence in using extruded feeds, especially when they are well versed in farm management," said Dr Supis Thongrod, manager R&D Department, TFM.

"This collaborative work with the farms also gave us the opportunity to make improvements to the feed. Initially we received complaints on fatty fish with soft flesh and scale damage during harvest. Our feed is now well accepted by farms in this region, even though we have the highest price at an average of THB 47/kg for the large size pellets. The protein composition is more than 38%, fat >10 % and fibre below 4% for feeds for the later stages of culture.

Today almost 40% of the national production of the barramundi is based on extruded feeds, manufactured by three other local feed companies in addition to TFM. In Chachoengsao and the eastern provinces, some 50% of production is with extruded feeds whilst only 20% production is with extruded feeds in the south.

Grow-out in freshwater ponds

In Pimpha district, Amphur Bang Pakong in Chachoengsao, Khun Toy is achieving success in the farming of the barramundi in ten ponds, each of one rai (1600 m²). Culture starts with stocking of 3,000 fingerlings/rai of 18 g or 10 cm (4 inches). Within 135 days, fish is harvested at 500-700 g. During the nursery stage of 25 days, stocking occurs in half to a third of the

pond, depending on the size of the pond, which has been sectioned off with a net. A 1 HP long arm aerator is used in the pond.

The common practice is feeding in a floating net enclosure of 10 m² where only 45 cm of the 90 cm deep net is under water. Feeding is twice a day in the early morning and early evening at 4- 5 pm. The feeding rate is 3-5% of body weight per day. Throughout the culture period, fish uses 7 feed sizes, starting with pellets of 2 mm with 42% crude protein and ending with those of 10.5 mm with 38% crude protein as finisher feeds for fish of 500-700 g.

An extension of the grow-out is the production of jumbo size fish of more than 3 kg each which takes a year from an initial size of 1 kg. Larger size feeds such as 18-22.5 mm are used with 36% crude protein content. "In general, Khun Toy is managing very well in this current crop, as survival is 80% and FCR is 1.3. Her production is 1.7 tonnes/pond/crop and she manages two crops per year. One issue is the limited availability of fry, especially in December. The current ex-farm price for live fish is THB110/kg for fish of 500-800 g range. Outside of this range or for dead fish, fish prices come down by THB 5/kg. Jumbo fish of 3 kg are sold at THB 160/kg," said Chin Boripon, assistant sales manager, TFM.

Most of the barramundi farmers depend on private hatcheries or nurseries to supply weaned fry such as that run by Suthi Mahalao, who also exports barramundi fry to Vietnam, Malaysia, Singapore, Taiwan, Australia and Israel. In addition, Suthi runs his own farm and is a feed distributor to farms in the province. In his nursery comprising earthen ponds, he nurses 1 cm fry to 10 cm (4 inches). He bundles fingerlings with feed and his customers such as Khun Toy, get a reduced price of THB 1.5/2.5cm (1.5/ inch) of fingerling. The 10 cm fingerlings will cost THB 6 each. In contrast in the free market, fingerlings are sold at THB 2 for each inch (2.5cm). According to Suthi, the farming of the fish and hatchery production have not been easy. Apparently, he has been in the fish farming and hatchery business for the past 17 years and has only achieved success in the past 5 years.



Khun Chan (left) and Suthi. In the background are the 5-tonne rearing tanks

From shrimp to fish

After 12 years of running a black tiger shrimp and freshwater prawn hatchery, Khun Chan has given up because of persistent low prices arising from low demand. She now uses the 5-tonne tanks to nurse barramundi from 1 cm fry to 7.5cm (3 inch fingerlings). This is the first cycle and the learning curve is difficult as the first crop gave a survival of only 30% instead of the average 60-80% in the more established nurseries. This increased her cost of production to THB 7.5/fingerling. In comparison, the cost should be only THB 4.5/fingerling of 7.5cm with 80% survival.

“Nonetheless, this is only her first crop and she is learning how to manage a fish nursery. Soon she will be able to produce 100,000 fingerlings (10cm) per month. The stocking is 14,000 fry/tank,” said Suthi.

Khun Chan’s feeding protocols include the use of artemia and various sizes of microencapsulated feeds. She also uses the starter feeds produced by TFM which are 1 mm to 2 mm. The general FCR range for these feeds is from 1.17 to 1.25.

Exporting and flesh quality

“Previously, some farms have sent their harvests to a major fish processing plant, and with Good Aquaculture Practise (GAP) and movement documents (MD), it was possible to export frozen products. In the culture of the barramundi in the region, a contentious issue is the taste and flesh quality of fish farmed in freshwater versus that in seawater cages. We do not have any report of any sensory evaluations but we know that fish farmed in freshwater have firm flesh. We have reports that some farmed large size fish of 3 kg have ended up in markets at the jetty in Surat Thani posing as wild caught fish. I would assume that this is an attestation of the similarity in taste to fish farmed in marine ponds or cages,” said Supis.

“The potential for expansion of barramundi farming is not only here in Thailand especially in the north east, but also in neighbouring Laos and Myanmar, where the barramundi can replace the Indian carp such as the rohu.”

Note: In the sales of fingerlings, hatchery and grow-out farmers quote in inches. Conversion: one USD=THB30.4.



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