

# I'd like to invest in aquaculture, what choices do I have?

By **MB Surtida**

According to Yap (1999), the Philippines ranks 12th among the largest fish producers in the world and 5th in terms of aquaculture production. The Philippines has one of the highest per capita fish consumptions in the world at 36 kg per year. This makes aquaculture a very promising industry when viewed in relation to the decreasing catch from natural sources due mainly to rapid population growth.

A new investor in aquaculture has many decisions to make, foremost of which is the site for his fishfarm. If he has a property that can be developed for aquaculture, the fish species suitable to

this area should be chosen. Similarly, if he has in mind a particular fish to raise but doesn't have a property, he should choose a site that would be suitable to the fish.

Today, several aquaculture commodities are being raised profitably in the Philippines. These are: seaweeds, milkfish, tiger shrimp, grouper, catfish, carp, tilapia, green mussel, and oyster. Other species such as gouramy, rabbitfish, snappers, spadefish, lobsters, and abalone are also cultured in limited quantity.

The following table will help an investor through his initial decisions.

Species	Hatchery	How cultured	Where cultured	Extent commercialized/ economics and costing
Seaweed, <i>Kappaphycus</i>	Seedling bank in nursery stage	Fixed off-bottom monoline; bottom line	<i>Location:</i> below zero tide line in tropical intertidal and subtidal waters; in Clear, clean, pollution- free water; full sunlight <i>Substrate:</i> sandy-rocky to corally <i>Temperature:</i> 29-34°C <i>Salinity:</i> >32 ppt; <i>pH:</i> 7-9 <i>Nutrients:</i> nitrogen and phosphorus <i>Water current:</i> 20-40 m per min	Highly developed industry; for a 500 m <sup>2</sup> area with multiple raft/longlines, investment is about P43,000, **ROI is 115- 1,470%, and payback period is 0.7 years
Seaweed, <i>Gracilariopsis</i> <i>bailinae</i>	Seedling bank in nursery stage	Fixed bottom, longline	Brackishwater milkfish or shrimp pond	For a 0.1 ha farm, invest- ment is P3,100, ROI is 576%, and payback is 0.16 year
Milkfish, <i>Chanos</i> <i>chanos</i>	Developed	Brackishwater ponds*; freshwater pens/cages; marine pens/cages	<i>Location:</i> free from industrial, agricultural, domestic pollution; protected from typhoons, floods, erosion; accessible to transport; free from poachers <i>Temperature:</i> 15-43°C <i>Salinity:</i> 1-158 g per l; <i>pH:</i> 4.5-9 <i>Dissolved oxygen:</i> 3-15 mg per l	Grow-out highly developed; commercial feeds readily available; For a 1-ha modular pond, investment is P40,000, ROI is 131%, and payback is 0.76 year
Tiger shrimp, <i>Penaeus</i> <i>monodon</i>	Developed	Brackishwater ponds	<i>Location:</i> pollution-free seawater, preferably with freshwater source <i>Temperature:</i> 15-30°C <i>Salinity:</i> 8-25 ppt; <i>pH:</i> 7-8.5 <i>Dissolved oxygen:</i> 4 mg per l <i>Water depth:</i> 1.2-1.5 m	Highly developed; For a 1-ha semi-intensive farm, investment is P1.4 million, ROI is 60%, payback is 0.76 year
Grouper, <i>Epinephelus</i>	R&D stage	Brackishwater ponds; marine cages	<i>Location:</i> calm waters, sheltered lagoons, coves, inlets, bays;	Grow-out limited by fingerling supply; For a

\* brackishwater ponds are situated in estuarine environments with water arising from mixture of saltwater and freshwater and having a salinity of 0.50 and 17 ppt

\*\*ROI -- return-on-investment

A cage for grouper near a mangrove area



Freshwater tilapia culture in a dam reservoir



A milkfish sea cage in an inlet



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Species	Hatchery	How cultured	Where cultured	Extent commercialized
			accessible to cheap trash fish and shellfish supply <i>Salinity:</i> 20-34 ppt <i>Water depth:</i> >3 m for cages, 1.2-2.0 m for ponds	0.9-ha pond, investment is P195,000, ROI is 82%, and payback is 1.22 years. For 6 units of 5x5x3 m cages, investment is P192,000, ROI is 59%, and payback is 1.68 years
Tilapia	Developed; now into genetic manipulation	Freshwater /brackishwater ponds; freshwater pens/ cages	<i>Location:</i> protected from strong winds and waves (preferably beside or between hills); dams; reservoirs <i>Bottom soil:</i> soft to enable easy embedding of stakes <i>Water depth:</i> 2-6 m for the duration of culture	Developed; commercial feed available; For 14 units of 5x5x3 m cages, investment is P145,000, ROI is 80%, and payback is 1-2 years
Oysters& mussels	R&D	Lines suspended from fixed or floating rafts	<i>Location:</i> presence of natural population of parent oysters; free from typhoons, strong waves or currents <i>Water depth:</i> > 5 m during low spring tides; fast moving 0.25-0.35 m per sec	Widespread small-scale, red tide constraints; For a 6x8 m bamboo raft, investment is P18,000, ROI is 74%, and payback is 0.9 year
Mudcrab, <i>Scylla</i> sp.	R&D	Brackishwater ponds, same as shrimp and milkfish; pens in mangroves	<i>Location:</i> freshwater source necessary <i>Salinity:</i> 10-34 ppt; <i>temp:</i> 23-40oC <i>DO:</i> 3 ppm; <i>pH:</i> 8.0	For a 0.5-ha pond, investment is P165,000, ROI is 49%, payback is 2 years
Catfish, <i>Clarias macrocephalus</i>	Developed	Freshwater ponds, small-farm reservoirs	<i>Location:</i> close to freshwater source <i>Soil:</i> heavy clay or not too sandy	Limited, mostly small-scale; for a 450-m <sup>2</sup> pond, investment is P38,000 and net margin is P8,000
Carp, <i>Aristichthys</i>	Developed	Freshwater ponds, cages, pens	<i>Location:</i> close to freshwater source, sandy-clay soil	Limited; For a 1-ha pen, gross profit is P300,000

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**New environment-friendly technology.** *Mudcrab culture in pens in mangrove areas has proven to be quite profitable. At the same time, this system keeps the mangrove areas intact. The mangrove area is an important support system for aquaculture because most economically important fishes, shrimps, mollusks, and crustaceans nurse their young or feed in the area. Once grown, most move on to the sea to spawn, hence, providing seed for aquaculture*

#### REFERENCES

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## Requirements for fishpond lease: things you need to know and do\*

By **RIY Adan**

Planning to venture into aquaculture? Here are the things you need to know and do to start the operation.

Lands are classified into: the titled or private land and the government-owned land. If the area you are eyeing to use is a titled land, then there is no problem. You can now start with your fishpond operation, just make sure you obtain a business permit. This also holds true with other similar aquaculture structures such as floating cages and small farm reservoirs. Technical assistance can be sought from the Bureau of Fisheries and Aquatic Resources (BFAR) and other fisheries agencies.

On the other hand, government-owned land is another story. It is governed by the Fishpond Lease Agreement (FLA), a 25-year contract. If after five years you were not able to develop the area, your lease will be cancelled. The area will then be made available to others who are interested or willing to develop it. Actually since 1992, BFAR has not been accepting FLA applications for new areas and especially those areas covered with mangroves. **Only existing areas with FLA permits either cancelled or forfeited are open for lease.** This is to curb the increase in

environmental exploitation. The government wants to retain and restore what is left of the country's once rich resources. Besides, the number of fishponds operating in the country is already enough to provide for the needs of the people, if and only if this is well developed.

The following are the things you need to comply with before you will be granted FLA:

#### Requirements in filing (new applicants)

- 1 Duly accomplished fishpond application form
- 2 Fishpond application fee of P1,000
- 3 Bank certification that the applicant has deposited an amount of P10, 000.00 per hectare for fishpond development
- 4 Affidavit of the applicant that the amount deposited in the bank will be used in the development of the area
- 5 Sixteen sets of initial environmental examination report
- 6 Survey plan of the area by a licensed geodetic engineer
- 7 Certification from the DENR that the area applied for is within the alienable and disposable area for fishpond development

\*Interview with Dr. Sonia Seville, BFAR 6 Regional Director

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