

Coast as well as the Gambia) of the late 1980s to mid 1990s. It can easily be recognised in the catches by its striking size and stripes. But other farm operations introduced *P. vannamei*. Is that also to be found there? Is it just that it is not so easily recognisable in fisheries catches if no one is looking for it? But the existence of *P. monodon* does raise a number of important questions. Is there a length of time where an introduced species ceases to be regarded as exotic? What impacts



A crocodile slides into the water in a pond yet to be renovated

is *P. monodon* having on native fisheries species? Is it in any way reasonable to expect aquaculture enterprises to turn away from the desirable "exotic" species and try to farm the native species? *P. monodon* has been struck by many problems where it is native and farmed. My view is that it represents a very valuable resource for West Africa and if any further farming developments take place they should very much follow the low intensity model established by WAA and produce large healthy shrimp that command high prices. Every effort must be made to safeguard this great advantage and any attempts to introduce higher intensity culture systems should be resisted. West Africa should unite to totally control any movement of live shrimp in or out. West Africa farmed shrimp could become the market leader with its large size and evident health.

Patrick Blow was an MSc student from 1990 to 1991 and subsequently worked with the water quality monitoring group (Billy Struthers, Fiona Gavine, John Edmonson) and STAQ for about a year before getting a job with Commonwealth Development Corporation (CDC), which was the main financier of Lake Harvest and which asked him to manage it. Since then there has been a management buy-out (2002), which has not left him much time for a family (yet).

Commercial success in Africa - Lake Harvest Aquaculture (Pvt) Ltd – Zimbabwe

Patrick Blow

Lake Harvest Aquaculture (Pvt) Ltd (Lake Harvest) was established in 1997 and is probably the largest fish farm in sub-Saharan Africa, possibly in all Africa, producing around 3,000t of whole fish per year. We grow *Oreochromis niloticus* tilapia in ponds (juveniles) and offshore net cages (grow-out to market size). We then process the fish in a state-of-the-art factory that meets Europe's rigorous veterinary standards. All this happens at Lake Kariba, in northern Zimbabwe, on the border with Zambia.

Our main markets are Europe and the southern Africa region. For Europe we fly fillets three times a week to Amsterdam from Harare and then distribute to more than 20 customers across the continent but mainly in northern Europe, where



there is traditional demand for freshwater fish. We target high-end supermarkets and restaurant chains as we are focused on the high quality segment of the market. Lake Harvest is probably the leading branded fresh tilapia product in Europe. Competitive pricing is critical in the European market to achieve volume sales, and higher price / higher quality products such as ours find it difficult to penetrate. Nevertheless, we have secured regular customers for our fresh tilapia fillets, and interest grows year on year. In the region, we sell to a wide range of frozen distributors, again concentrating on the higher quality end of the market. We have been happily surprised at how demand, at acceptable prices, has burgeoned for our frozen whole fish and fillets in Africa.

We rear fry using a batch method but we are currently switching to the Asian style of hapa rearing, egg collection and hatchery spawning. This appears to offer the industrial scale farmer better controls and higher production numbers. We use semi-intensive ponds to grow fry to 25g before they get transported to the offshore net

cages, which are plastic circles. We prefer a pond start for the fish because of the extra nutrients that fish may benefit from in a pond environment. This is especially important in Africa where complete pelletised feeds are not often available. Feed availability and quality problems in Zimbabwe over the past few years have set us back considerably because of the intensive nature of our offshore cage operations, where complete and extruded good quality pellets are a must in our experience.

It has always been our intention to diversify our operations and to expand regionally. To this end, we have diversified in Zimbabwe into crocodile and poultry production, which seem to us to be highly compatible with tilapia, and they help to spread our risk. We currently have around 20,000 crocodiles and are expanding this challenging and exciting business. Having searched Africa-wide for some years for a good location, we are also about to embark on the development of a new large scale tilapia fish farm in Uganda, for which we have high expectations.

Our management team has gained much experience of aquaculture in Africa over the past nine years, and we are beginning now to take on consulting jobs for other would-be fish farmers, fish processors and



marketers, as well as for the public sector. If we have learned anything at all, it is that aquaculture in Africa is not for the faint-hearted. Mistakes are expensive and we should learn from the experience of others if we are to build an industry here. There is massive untapped potential for aquaculture in Africa but focused practical research, a focus on private sector development and cooperation among the stakeholders are needed if that potential is to be realised in the medium term. The same approach has yielded huge benefits to the industry in Asia. We see no reason why it can not happen here.