

8.3 Aquaculture

As fisheries of wild stocks decline amid growing demand for high quality fish as food, can the farming of fish contribute to food security? The UN Food & Agriculture Organisation defines aquaculture as “farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants”.¹

Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies ownership of the stock being cultivated. For statistical purposes, aquatic organisms that are harvested by an individual or corporate body which has owned them throughout their rearing period contribute to aquaculture; while aquatic organisms which are exploitable by the public as a common property resource, with or without appropriate licences, are the harvest of fisheries. The term mariculture is especially relevant to coastal KZN as it refers specifically to the culture of marine organisms.

Since 1950, global aquaculture output has increased exponentially, to nearly 80 million tons, while capture fisheries plateaued in 1989, at about 90 million tonnes. Growth in

aquaculture has not been uniform with only 1.8% of 2010 global aquaculture production generated by Africa, of which 0.4% was produced in South Africa.² Of the approximately 3,664 tonnes produced in South Africa in 2008, only 3.9% was reported from KZN.³

History of aquaculture in KZN

The first aquaculture-related activity in KZN can be traced to 1890, when John Clarke Parker hatched fertilized brown trout eggs imported from Scotland, and released over 9 000 brown trout fingerlings into local KZN rivers. His success led the then Natal Government to fund a trout hatchery.⁴ In 1901, rainbow trout eggs from the Jonkershoek hatchery in the Cape were similarly used to stock local rivers. After Parker retired in 1907, fish culture received little attention until Fisheries Inspector Leslie Acutt was tasked to build a hatchery at Underberg, in 1946.⁵ Two more trout hatcheries were set up by the then Natal Parks Board, one at the Royal Natal National Park, and the other at the Kamberg National Park, in 1975. A third hatchery was developed at Nagle Dam in the 1980s, to produce warm water species such as carp, tilapia and

ornamental goldfish. However, Provincial policy changed and stocking of local rivers with alien species was no longer permitted.

The state hatcheries were phased out between 1990 and 2003, with the Nagle Dam hatchery continuing as a privately owned venture until 2009. Privately owned trout hatcheries still exist in KZN, notably the Bushman’s River Trout Farm, Giant’s Cup Hatchery and the Cathedral Peak Trout Hatchery.

Prawn farming came to prominence in KZN in the early 1970s, when the Amatikulu Prawn Research Unit, established by the then Fisheries Development Corporation, was set up in order to develop prawn farming in South Africa. Amatikulu Prawns (Pty) Ltd originally planned to farm freshwater prawn, but switched to freshwater ornamental fishes after a series of technical setbacks. In 1991 the company started farming giant tiger prawns, in 6 ha of large ponds filled with estuarine water. The operation was

Harvesting cultured dusky kob from fish ponds in Mtunzini.



Photo: Gavin Carter

scaled up to 10 ha of ponds in 1997, and the species was changed to the locally available white prawn.⁶

During the early 1990s a second prawn farm was established at the Mlalazi estuary. Mtunzini Prawns (Pty) Ltd consisted of a hatchery and 24 ha of semi-intensive ponds, producing mainly tiger prawns. In 1998 it was sold to Amatikulu Prawns and operations switched to the white prawn.⁷ The combined production of white prawns from the Amatikulu and Mtunzini sites peaked at 157.7 tons in 2002.⁶ However, from 2000 competition with lower prices of prawns imported from the East forced closure of the local operations.⁶ The Mtunzini site was sold off to property developers, but in 2012 was reacquired for aquaculture by a private company. A pilot study has been initiated in which dusky kob fingerlings are reared. If successful, the operation will be scaled up to a production target of 700 tons per annum.

Although the prawn operations ceased, the freshwater ornamental farm at Amatikulu survived,⁸ producing 300-400 thousand fish per month.⁹ Most of this was exported, but the level of production could not be sustained. Rising production and transport costs forced the company to focus on the much smaller local market, and the operation has dwindled. The site now supports two companies; Amatikulu Aquatics concentrates on supplying ornamental fish, while Amatikulu Aquarium Plants initially focussed on the aquarium plant market, but is also investing in fish production facilities.

Another company producing ornamental fish in KZN is Fish Designs, set up in 1996.⁹ Originally located on a rented property near Mtunzini, Fish Designs has now moved to a site near Gingindlovu. Through a combination of focussed production of a few, high-demand species, and by importing other species to increase their product range, Fish Designs has become the largest supplier of ornamental fish in KZN.

Current status of aquaculture in KZN

Since the demise of the Provincial hatcheries, there has been little state support for aquaculture in KZN. However, there is a renewed local and national government interest in fish farming. The eThekweni Municipality has invested in an intensive tilapia and catfish hatchery. The hatchery forms part of an "Agri-Hub" that provides seedstock to the Municipality's homestead and community garden programme, aimed at assisting local communities with poverty alleviation and food security.¹⁰

Bhekie Ngema, owner of Amatikulu Aquatics, is the survivor of a remarkable socio-economic experiment undertaken by the Amatikulu group in 1992, whereby the company assisted employees to set up small-scale, owner-operated ornamental fish farms at or near the Amatikulu site. Amatikulu provided the seed stock and extension services, and bought back the on-grown fish once they reached market size, which they sold on under the Amatikulu brand.

By 1995, the operation had grown to 25 satellite farmers, funded by loans from the Small Business Development Corporation.⁸ Unfortunately, the loss of the export market and other, internal factors, led to the demise of the satellite farmer scheme by 1998.

Nevertheless, many believe the concept was sound, and could be a way in which to allow new, small-scale entrants into the capital-intensive aquaculture industry.

In addition, the national Department of Agriculture, Forestry & Fisheries (DAFF) is championing the creation of an Aquaculture Development Zone (ADZ) at Amatikulu, similar to those initiated in the Eastern Cape, at East London and Port Elizabeth. The project is listed in the Department of Trade and Industry's Industrial Policy Action Plan.¹¹ There have also been studies into the feasibility of fin fish culture in sea cages in the Richards Bay harbour.

Environmental considerations

While there is much to applaud aquaculture it may not be the panacea to food security in all cases. For example, hatcheries located in floodplains and estuaries invariably impact the natural environment and may lower wild caught fisheries. Many high quality aquaculture species have to be fed on protein, often derived from wild fisheries thereby diverting affordable fish food to high-end markets and users.

In spite of the apparent decline in aquaculture activities in KZN, there is renewed interest, and aquaculture (both freshwater and marine) is poised for another growth phase in KZN. New initiatives will have to learn from past ventures and acknowledge the limitations of aquaculture in coastal KZN. ■

