



**NEWSLETTER
OF**

AQUACULTURE ASSOCIATION OF SOUTHERN AFRICA

<http://www.aasa-aqua.co.za/>

Volume 5:11 ▪ January 2011

A Word from the AASA Chairman

The Editor's Choice and Letters to the Editor

Sector Contributions

Abalone

Crayfish

Shrimp and Prawns

Trout and Salmon

Other

Regional Roundup

Feeds

Research matters, Reviews and Training

Investing in Aquaculture

Conferences and Upcoming Events

A Word from the AASA Chairman and the CEO of AISA

Etienne Hinrichsen

When you mix up a bit of excitement with a dollop of the unexpected, a pinch of nerves and some anticipation to taste.....it can only lead to good things. And no, I am not of the state of mind of

Aquaculture Association of Southern Africa

Tel: +27-(0)12 8076720

Fax: +27-(0)12 807 4946

E-mail: info@aasa-aqua.co.za

those that phone me for advice on farming trout in Uppington. I am talking about the upcoming 2011 Aquaculture Conference in Malawi.

We have partnered up with NEPAD and the NEPAD Aquaculture Workgroup housed at Bunda Collage in Malawi to see to the hosting of a great aquaculture event on the shores of Lake Malawi. Although many delegates will have to travel some way to get to the event, I believe that we are in for a great conference. We have worked hard on keeping the costs down and although it may seem more expensive than Namibia in 2009, we have now included all accommodation and meals, leading to a significant reduction in overall costs for attending delegates.

I would like to use this opportunity not only to invite each of you to this event, but in particular to encourage participants from the various marine sectors to attend this inland conference. The conference programme will be circulated in due course and will cater for both inland and marine aquaculture matters.

A conference notice has been included into this newsletter also. Furthermore, the call for papers, registration and other details has been circulated. I invite you to make contact with Natasha at the AASA office for further details and to arrange for your attendance. Insofar as travel is concerned, we are still negotiating alternative travel options with Air Malawi and hope to provide some positive feedback on this shortly.

See you at AASA Aqua-Africa 2011!!

The Editor's choice

Adrian Piers newsletter@aasa-aqua.co.za

Editorial

Aquaculture has quietly grown rapidly and consistently over the past few decades. Generally this has been without much publicity in the mainstream media. That is beginning to change, as a report by CNN shows. Below is a link to the news video. Excerpts from the report:-

According to the United Nation's Food and Agricultural Organization (FAO), the fish farming industry increased on average at an annual rate of 6.6% between 1970 and 2008.

The world population on average consumes an all time high of about 17 kilograms of food fish per person. It's no secret that marine stocks are over fished and Dr Halwart of the FAO believes sustainable fish farms are the only way to feed the global appetite for fresh fish. "I don't think we will see complete stock collapses but at the same time we cannot expect that the growing demand for aquatic products can be met form the sea. On the contrary we have to see that marine fisheries have a chance to recover."

Diet diversification is also being hailed as key to saving our seas. Instead of sticking to over-fished favorites, such as salmon or cod, Dr Halwart suggests we could help by varying our sea food diets. I got to see at first hand some of the new fish species making their way onto the UK market. I took a peek inside a 28 degrees Celsius (82 degrees Fahrenheit) hothouse at a farm in Lincolnshire, where farmers are growing the next generation of farmed fish - tilapia. Tilapia farming is already widespread in China and the U.S., but this tropical freshwater fish is still relatively unknown in Europe. Originating from Africa, the red tilapia we were shown at this Lincolnshire farm, hail from the Nile. According to Dr Adrian Hartley, the farm's Sales and Production Manager, tilapia are used to bunching up in the river during drought season and can tolerate high densities. That's just as well, because the fish we see are tightly packed at the top of the tank. It's almost hypnotic watching the thousands of tilapia swimming over and under each other. The warehouse is filled tanks and Dr Hartley tells us that each one holds between 10,000 to 15,000 fish. Tilapia has been called "the chicken of the water" due to the relative ease and speed with which it can be farmed. They breed

quickly, are relatively disease resistant and reach full size at great speed when grown under controlled conditions. Unlike salmon that needs a fish or meat based diet, tilapia are omnivorous and low in the food chain. They don't need large amounts of fish meal and can even survive on a vegetable based diet. Dr Hartley's tilapia are fed some fishmeal but it only makes up 10 to 15% of their diet.

Tilapia is already being stocked in supermarkets across the UK but for the more adventurous pallets, there's another species of sea food creeping onto the menus of London's most up-market restaurants.

The sea cucumber has long been a delicacy in Asia and I tried it at Michelin-starred restaurant Hakkasan in London. It has a texture that slightly springs under the teeth when chewed; this may just be the reason why it's so popular in Asia where foods are often prized for their texture as much as their taste. The sea cucumber's flavor was masked by the powerful garlic and chili it was fried with and I suspect it's is fairly bland in taste, but it evidently absorbs flavors well.

Researchers at Newcastle University are now promoting these animals as a fish farmer's best friend.

Dr Matt Slater, a marine biologist, told CNN sea cucumbers are a sustainable and profitable addition to an aquaculture farmer's fish tank. When kept with other fish, they help filter the water by eating the waste. Sea cucumbers can also be a lucrative export when sold to Asian countries and are becoming more popular with western pallets.

According to the FAO's Dr Halwart, there are even more new fish species currently being farmed for food purposes and the UN is calling for the aquaculture industry to double again. "With more affluent societies who want to consume more fish and more seafood, this growing demand will have to come from fish farms given the state of the world's fisheries," he said. "So there is a bright future for fish farming."

Video can be viewed at:-

<http://edition.cnn.com/2011/WORLD/europe/03/24/aquaculture.tilapia/index.html>

Deep Blue Aquatic Systems

Aquaculture & Live-holding Systems

We specialise in the supply of on-land aquaculture systems and equipment.

From design to manufacture and installation.

Complete hatcheries, shellfish and rock lobster live holding, fish & abalone culture systems, fish egg incubators and R&D facilities.

Freshwater or marine species, flow-through or recirculation.

Please take a look at our website to see examples of our work – www.deepblueaqua.net

We are agents in Southern Africa for:



Contact Details:
Tel: +27 21 8562031 (office – Cape Town)
Cell: +27 83 9763672 (Brynn Simpson)
+27 82 2909628 (Grant Brooker)
Fax: +27 86 6668583
Email: brynn@deepblueaqua.net
Web: www.deepblueaqua.net

Abalone



Abalone Project Gets R52m Injection

A South African private equity firm's environmental and new energy technology fund has invested R52.5 million (approximately \$7,5million) in a Western Cape-based abalone farm, Abagold Limited, enabling the expansion of its abalone production capacity for exports and to set the global standard for cultivated abalone production. The investment from Inspired Evolution's R700 million equity fund, Evolution One, will help protect a species that is in severe danger of depletion, having been significantly exploited by poaching. The fund also provides expansion capital to enterprises involved in cleaner energy generation and efficiency.

"We identified Abagold as one of the advocates of sustainable aquaculture backed with a long history of pioneering the breeding of abalone in captivity as well as a commitment to environmental and social responsibility," says Michael Brooks, CEO of Inspired Evolution. "The pedigree of its management team, dedication to creating value for stakeholders and increasing international demand for abalone contributed to our investment decision." Evolution Fund's investors include the IFC, Castleway, the Global Energy Efficiency and Renewable Energy Fund (GEEREF) and development funds from Norway, Switzerland and Finland. The African Development Bank (AfDB) and the Industrial Development Corporation of Southern Africa (IDC) are also investors.

"Inspired Evolution brings added value through its knowledge of sustainable investments and renewable energy technologies," says Christo du Plessis, MD of Abagold. "Understanding the cultural significance of abalone, Abagold is committed to responsible growth through innovation, science and mariculture best practice with our aim to achieve sustainable wealth for our employees and shareholders through balance." Evolution One Fund's commitment as a financier will enhance the financial viability of Abagold's export expansion from its Hermanus base. In addition Brooks added, "Investing via a BEE Trust in partnership with the IDC will benefit previously disadvantaged South Africans stakeholders."

Inspired Evolution raised its first \$94 million fund for deployment into environmental and new energy technology opportunities throughout South Africa and SADC countries. Following the execution of investments into Enviroserv, Red Cap and Abagold, Inspired Evolution is actively seeking to identify other new, compelling investment opportunities in South Africa and throughout SADC.

http://wap.cbn.co.za/dailynews.php?daily_id=5344

Crayfish

"Marbled Crayfish" breeds asexually

This marbled crayfish (Marmorkrebs) may become one of the new favourite animals for basic medical research. The reason: All animals are genetically identical. This has been suspected because all are female and produce their offspring without sex. There are no males at all. But even with such a mode of reproduction some variations in the genes are possible, depending on the exact mechanism by which the unfertilized eggs of this crayfish begin to divide and to form a new organism.

This mechanism and the genetic fingerprints of nineteen related animals have been analyzed at Humboldt University in Berlin. The researchers conclude that all offspring of a given marbled crayfish share in fact a hundred percent of their genes.

This is good news for all researchers who study the influence of the environment on organisms. If all genes are identical, any difference must be caused by the conditions of the environment, for instance a new drug that is to be tested. Of course, the marbled crayfish is very different from humans, but so are many other laboratory animals for basic research. Time will tell if this crayfish will really help us for a better understanding of our own genetics and for the development of better drugs.

<http://medjournalwatch.blogspot.com/2007/06/new-lab-animal-without-sex.html>

Shrimp and Prawns



Mozambican company exports tiger prawns to European market

Aquapesca, a fish farming company based in Mozambique's Zambézia province, in 2010 exported around 600 tons of tiger prawns to the European market, specifically to Spain, Portugal and France, the company's operations director said. Speaking to newspaper Diário de Moçambique, published in Beira, François Grosse said that the amount of tiger prawns exported in 2010 was very close to the annual average since the company had begun exporting prawns in 2005. Grosse added that the management's great objective was to reach annual production of 800 to 1,000 tons of tiger prawns.

In order to reach that target, the company plans to improve its hatcheries in Nacala, Nampula province, from where the prawns are later transported to Zambézia, where they remain during their growth period.

Grosse also told Diário de Moçambique that the company plans this year to start exporting to the United States.

<http://www.macauhub.com.mo/en/news.php?ID=10761>

Trout and Salmon



Triploid Trout

I was recently very surprised to learn that Triploid Trout can develop gonads. What exactly is Triploid Trout or Salmonids then and what are the benefits of using them in aquaculture production systems?

Triploid trout are also known as 3N or sterile trout. Triploids are infertile and thus remove the risk of genetic interaction with wild stocks in waters where they are introduced for recreation purposes. Male triploids may still develop functional gonad tissue and may participate in spawning behavior, which could interfere with reproduction of wild stock. Female triploids do not develop mature gonads and do not exhibit spawning behavior. This reduces the potential for harmful interaction with spawning wild fish, and increases somatic growth and over-winter survival. Female triploids in

an aquaculture production system will have better flesh quality, for instance color at harvesting, as compared to diploids.

You can produce triploid trout by fertilizing the normal green trout eggs with normal sperm and then heat shocking the eggs to induce polar body retention. Triploid fish contain three sets of chromosomes. One-half of the fish will be XXY, or triploid males, and one-half will be XXX, or triploid females. Both males and females should be sterile. To produce triploid fish simply fertilize the eggs with normal sperm, wait 10 minutes, and then heat shock the eggs, either at 29 °C for 10 minutes or at 26 °C for 20 minutes. Triploid males will probably show more gonadal development than triploid females. Gonads from a mature triploid male may appear similar to those of a normal fish except they will be smaller and will not produce sperm. Gonadal development should be inhibited in triploid females. Triploid females should have string like gonads. Gonads of both triploid males and females can be compared to those of normal males if they are sexed at around six months of age. All Female Triploids are normally produced to limit any form of gonad development. Development rates appear very similar, until the onset of sexual maturity in All Female/diploid trout. It is difficult to differentiate visually between triploids and diploids, particularly when both are immature. Diploids will develop spawning coloration, and the males develop kypes, when they mature whereas triploids will maintain their non-mature appearance.

You might be concerned about whether triploids are “genetically modified organisms”. No, they are not because no genes were introduced at all. A genetically modified organism (GMO) or genetically engineered organism (GEO) is an organism whose genetic material has been altered using genetic engineering techniques. These techniques, generally known as recombinant DNA technology, use DNA molecules from different sources, which are combined into one molecule to create a new set of genes. This DNA is then transferred into an organism, giving it modified or novel genes. Genetically modified organisms thus have had specific changes introduced into their DNA by genetic engineering techniques. These techniques are much more precise than mutagenesis (mutation breeding) where an organism is exposed to radiation or chemicals to create a non-specific but stable change. Other techniques by which humans modify food organisms include selective breeding (plant breeding and animal breeding). Triploid individuals should have one-third more DNA in their cells because they have three sets of chromosomes, compared with two sets in normal diploid animals. You can buy expensive equipment that can measure the amount of DNA in an individual’s blood cells, but the easiest way to verify that triploid animals have been produced is to sex them by dissection after they’re six months old and see whether all the fish have similar male like gonads. Hybrid triploids can also be produced by fertilizing eggs with sperm from closely related species.

Some of the benefits of utilizing triploid trout in your stocking program include:

- Fish are suitable for release without genetic impact, as they cannot breed with native populations.
- Better growth to large sizes as all energy is transferred to growth rather than reproduction.
- Better flesh quality as compared to diploids.

The hydrostatic pressure chamber is also used to produce sterile triploids for rainbow trout and for several other salmonid species. Pressure-treated eggs appear to have higher survival and more consistent triploidy rates than heat-shocked eggs. It is likely that this technology will replace the heat-shock bath in large-scale triploid production in the future.

Henk Stander
Aquaculture Division
University of Stellenbosch
hbs@sun.ac.za



Bluefin Tuna transferred to sea cages

An attempt by Clean Seas Tuna in South Australia to commercially breed southern bluefin tuna has overcome a major hurdle by successfully transferring its young fish to sea cages. The first transfer was undertaken on Friday and another batch will be transferred today, when a total of about 180 fingerlings will be in the waters of Spencer Gulf. Clean Seas Tuna managing director Clifford Ashby said in Port Lincoln, South Australia's seafood capital on the Eyre Peninsula, about 660km from Adelaide, that the transfer was a success.

"It is not only a critical stage for Clean Seas Tuna, but also places Australia at the forefront of technological initiatives being undertaken in global marine aquaculture," Mr Ashby said yesterday. "This shows investors and the like we are on the cusp of commercial success, so this is a significant move for the company. "No one in the world has ever transferred southern bluefin tuna into the ocean. No one has even spawned it. This is obviously a major step forward for us."

Spawning started on January 20 and batches of fingerlings were transferred to nursery tanks from February 24. The fingerlings were eating kingfish larvae and were weaned on to manufactured feeds before going into the ocean. Mr Ashby said the fingerlings were being fed "every hour, on the hour, weather permitting".

A research and development team is working on site at a hatchery at Arno Bay, a small fishing town on the east coast of Eyre Peninsula, 118km from Port Lincoln. An international team there is headed by representatives of the University of Tasmania and experts from Japan's Kinki University and the SA Research and Development Institute. A separate Clean Seas production team also is on-site. The next hurdle is developing the correct feed formula to aid the growth of the young fish into adults for commercial harvest.

"Now they are in sea cages, the challenge continues to be finding the right feeds for them at the size they are, because of course no one has ever been through this before," Mr Ashby said. It was hoped survival rates during the spawning phase would increase over time along with earlier weaning so the fingerlings did not spend so long on live feed.

<http://www.theaustralian.com.au/news/nation/breakthrough-in-breeding-of-commercial-bluefin-tuna/story-e6frg6nf-1226021384395>

Bluefin Tuna goes for record price

A bluefin tuna, prized by sushi aficionados as a high-end treat, sold on 6 January for a record price of nearly \$400,000 in the year's first auction at Tokyo's Tsukiji fish market. With the ringing of bells well before dawn, an auctioneer launched into a rapid chant as rubber-boot wearing men signaled subtly with their hands. In moments, the 342 kg (754 lb) tuna sold for 32.49 million yen (\$396,700), the highest price for a single fish since record-keeping began in 1999 -- which breaks down to a whopping 95,000 yen (\$1,157) per kg.

<http://www.reuters.com/article/idUSTRE7040QQ20110105>

First harvest after 11 years of aquaculture

By Randy Shore

Canada's only white sturgeon farm is on the verge of its first black caviar harvest after 11 long years of tender slimy care.

The Target Marine hatchery and land-based aquaculture operation near Sechelt has about 2,000 mature females nearing harvest age, according to general manager Justin Henry. About 100 fish will be harvested for caviar this year and some of those eggs will be held back for fertilization to start the next generation of sturgeon. "We had thought they would mature at eight years, because that's what we had seen in other countries, so it's been a long wait," said Henry. "No one had ever grown the Fraser River strain before." Each of the female sturgeon nearing sexual maturity this spring can weigh 40 to 120 kilograms and yield four to 10 kilos of black caviar, worth up to \$3,000 per kilo retail.

The fish are killed by percussive stunning and the roe harvested through an incision the length of the belly. Target started selling mature males for meat about four months ago and plans to sell the meat from harvested females, as well. The wholesale price of farmed sturgeon is more than \$20 a kilo. Henry has been contacted by firms as far away as China and Japan interested in purchasing the caviar when it is ready. "We have already had interested buyers from the United States come and visit the hatchery," Henry said.

The 25-year-old hatchery had specialized in producing coho salmon smolts for the aquaculture industry. But the collapse of the Soviet Union in the early '90s led to massive overharvesting of sturgeon in the Caspian Sea and the collapse of the fishery that supplied much of the world's caviar. Target was looking for opportunities to diversify and began to prepare its first generation of white sturgeon in 1999, the fish that are ready for harvest today. "We had the technology here to rear these fish on land, with recirculation technology that allows us to control their environment," said Henry. Target obtained sexually mature Fraser River white sturgeon from the Vancouver Island University aquaculture program and fertilized the eggs with the assistance of an aquaculture expert from University of California Davis.

Target's operation covers about two hectares (five acres) of a 24-hectare (60-acre) parcel of land on the Sunshine Coast. Water is drawn from a small creek and seven wells scattered throughout the parcel. Target sold off eight open-pen fish-rearing operations and a processing plant in 2007 to concentrate on the sturgeon, though the hatchery continues to rear coho smolts. Solid waste recovered from the sturgeon tanks goes to the Sechelt District compost, at least, what is left after the 20 hatchery staff take what they need for their vegetable gardens. Large outdoor tanks covering the area of a football field are equipped with scrubbing towers and filters that remove ammonia, carbon dioxide and nitrogen from the water before sending it back for recirculation. Originally designed as a flow-through aquaculture system, many of the rearing tanks now recover 50 to 99 per cent of the water for recirculation. Target is in the process of converting two more tanks to the 99-percent standard with \$100,000 in matching funds from the federal government.

The only remaining impediment to Target's plans to harvest caviar on its hatchery site is a rezoning application to the District of Sechelt. Although the district had already changed the zoning to allow processing on site, a group of local residents opposed to the change had the rezoning overturned by the court for a procedural error. A new application is in process.

"We can send the fish out and have the roe harvested, but we really need to be in control of the process to ensure the best quality product," said Henry.

<http://www.vancouversun.com/business/Sunshine+Coast+sturgeon+farm+prepares+harvest+caviar+after+years+nurturing/4102031/story.html#ixzz1AupMHbqP>

<http://www.vancouversun.com/business/Sunshine+Coast+sturgeon+farm+prepares+harvest+caviar+after+years+nurturing/4102031/story.html>

Regional Roundup

Uganda WAFICOS Symposium 2011

By Brynn Simpson

A colleague and I attended the Fourth WAFICOS Symposium held in January 2011 in Kampala Uganda. WAFICOS is hosted by the Walimi Fish Co-Operative Society on an annual basis and is a gathering of farmers, researchers and service providers to the Aquaculture industry. Over the period of the 2 day symposium and day of technical tours, we got to know some of the highly competent organising team including Ben, Nelly, Rita and Tom among others. We also rubbed shoulders with various international delegates (Kenya, UK, Belgium, US) as well as many enthusiastic and experienced local players in the aquaculture industry.

The two day symposium covered a variety of topics including research related topics, marketing, practical operational farming advice (including detailed feedback on what and what not to do from farmers who have “been there and done that”), pond construction advice and finance. There was a broad range of talks given ranging from fairly simple practical talks to more complex talks largely covering research related issues.

There was limited input from Government, although they must be commended for being there. They will need to take a greater interest in the industry in future and it was evident from discussion with delegates that there was disappointment at the limited resources Government dedicates to development of the industry in Uganda.

There appears to be a significant amount of energy applied to the industry by various Aid organisations as well as the local aquaculture cooperatives. There is an extremely strong “help yourself” attitude in the industry and in Uganda on the whole. I think most foreigners visiting Uganda will attest to their “can do” attitude – quite refreshing.

The field day was extremely interesting. We visited a small scale earth pond operation and watched the fish being netted as well as a demonstration on the proper techniques for small scale slaughtering and smoking of catfish. We left well fed on fish by the farm owner and his family.

Perhaps the most impressive thing about the WAFICOS Symposium is its Aim – to disseminate information, knowledge and experience to the people on the ground (at the pond side) farming fish. It certainly achieved its goal and will do so again next year, driving the growth of the Ugandan aquaculture industry.

Well done to the organisers and all involved at WAFICOS 2011!

Uganda Carp

Justus Rutaisire of Uganda's Makerere University is reversing the decline of Uganda's aquaculture industry. Once teeming with native carp, the African Great Lakes provided jobs and a source of protein to residents. Overfishing and the introduction of non-native fish for the past 60 years have devastated the carp population, causing a collapse of fisheries and a near disappearance of carp from their former habitats.

After the USAID-funded Uganda carp project began producing solid technical results, the World Bank Millennium Science Initiative awarded the researchers a \$770,000 grant in late 2007, acknowledging the initial effort's widespread impact and success. Of 160 submitted proposals, only 12 were selected for funding. For this new effort, researchers are focusing on the Nile perch. While Nile perch is a predator of carp in the Great Lakes, it has become a principal export of Uganda,

Kenya, and Tanzania. The perch is a voracious feeder and can reach 400 pounds; making it too large to be caught by local fishermen in their boats. With the depletion of the smaller fish in the lakes, the Nile perch has no food source and are themselves becoming depleted. Researchers are now working to find better ways to culture the Nile perch in man-made ponds away from the lakes, thus helping to boost Uganda's fish export industry as well as the nutrition of the local population.

In an effort to provide jobs and a source of protein to the most people, Rutaisire, head of aquaculture research at Makerere, collaborated with Israeli researchers to find a way to sustainably produce the locally preferred fish at a distance from the lakes in small ponds run by village farms in Western Uganda. The answer, according to research supported by USAID's Cooperative Development Research (CDR) Program, a joint effort between Israeli and developing country scientists, was aquaculture, which involves raising the carp in a controlled environment in the small farm ponds.

The research team found that the fish could be induced to spawn by simply adjusting the water flow where they lived. After perfecting this technique, researchers taught Ugandan fish farmers how to induce spawning under the country's particular climatic conditions. Over four years, the research team developed robust technologies for induced spawning, reproduction, and growth. But there was a catch—these techniques required that the carp consume specialized feed for proper larval-stage development. And it was unavailable in Uganda.

Researchers contacted an Israeli feed company that produces a high-quality larval fish feed for help. The feed is now used in Ugandan fish farms and aquaculture centers to support rapid larval growth. Moreover, by the conclusion of the research effort, the technology to manufacture the majority of the fish feed, which is used after the early larval growth stage, was transferred to private Ugandan industries and is now produced locally.

The researchers cite the United Nations Food and Agriculture Organization's estimation that 40 million tons of aquatic food will be needed to feed the world's population in 2030. Sub-Saharan Africa is the only region in the world where fish consumption is falling. By improving the ability to produce carp and other fish in ponds away from the environmentally stressed African Great Lakes, the research serves to address food security in Uganda.

Using the same techniques as with carp, the team also improved aquaculture techniques related to spawning of fish such as the Nile tilapia and African catfish, which are already being farmed in ponds by Ugandans. The success of their USAID-CDR project helped them win a new \$770,000 grant from the World Bank's Millennium Science Initiative to adapt the Nile perch to aquaculture as well.

Although Rutaisire accomplished his research goals, his impact on development in aquaculture continues.

"This project demonstrates how a \$200,000 research grant can lead to significant development impact, build local technical capacity, and catalyze new partnerships with the public and private sectors," observed David O'Brien, the CDR program manager.

Now Uganda has four large fish farms that produce enough fingerlings to populate hundreds of small village ponds, providing high-protein food to the local populace. Technology transfer of fish feed production and aquaculture has also provided jobs and increased income to farmers.

http://www.usaid.gov/press/frontlines/fl_feb11/FL_feb11_AQUA.html

South Africa proposal for smallholders

South Africa's Economic Development Minister Ebrahim Patel has called for the restructuring of land reform to support smallholder schemes, with comprehensive support for infrastructure, marketing, finance and extension services. His document also envisages speedier land claims

processes and support for new farmers after settlements; programmes to ensure competitive pricing of inputs, and support for fishing and aquaculture.

<http://www.businessday.co.za/articles/Content.aspx?id=130865>

Kenya opens Aqua shops to support farmers

More than 28,000 farmers have joined the industry in the last two years as the government implements a Sh4.1 billion project to build fish ponds in the 210 constituencies. The move has seen production grow from 4,000 metric tonnes worth Sh560 million in 2006, to 12,154 tonnes worth Sh3.6 billion last year.

The Fisheries Development ministry anticipates production to reach 20,000 tonnes by June. However, the growth in production has had little impact on poverty alleviation because supporting infrastructure such as training and extension services, supply of fingerlings, refrigeration, processing, and market access have not grown in tandem. "There has been a ripple effect and many people are doing it on their own," said Mr Maina Gichuri, the chief fisheries officer at the Fisheries Development ministry. Demand for quality fingerlings has shot up from one million to 28 million in less than a year, and is expected to peak at 100 million soon, presenting a huge challenge to the ministry's hatcheries. The trend has forced the government to turn to the private sector, while upgrading its more than 30 hatcheries across the country.

Rising production without value addition will inevitably lead to oversupply, hurting prices. This calls for the creation of value addition processes. Value addition in terms of refrigeration and processing was planned for in the Sh3 billion set aside in the 2010/2011 budget for the second phase of the project. Through the allocation, the Fisheries ministry is building 80 small refrigeration centers which will help farmers sell their fish beyond their neighborhood. Mr Gichuri said the ministry was constructing processing plants in every constituency.

Other ways of value addition being promoted include production of fish meal, canning, fingerling production, rearing of ornamental fish, and tourism attraction.

Without refrigeration facilities that can allow them to sell beyond local centres, fish farmers have had to depend on unreliable rural markets. Some of the communities engaging in fish farming have traditionally not been ardent consumers of the fish, further narrowing the market. This highlights the need for awareness creation on benefits of fish consumption. In major towns like Nairobi, a kilogramme of fish fillet costs about Sh350 which is more expensive than other available types of meat. A whole Tilapia costs between Sh250 and Sh320 per kilogramme.

The growth of aquaculture has created demand for 28 million fingerlings and more than 14,000 tonnes of fish feed. Farmers have had to contend with delayed supply of supplementary feeds, while some feed stockists have reportedly been using sub-standard ingredients like rice husks rather than rice bran causing stunted growth of fish. With the raging drought in most parts of the country, some fish ponds have dried up leaving farmers exposed to losses.

Mr Gichuri said there are plans to construct three rain water retention dams in every constituency.

<http://www.businessdailyafrica.com/Lack+of+support+hurts+fish+farming+as+numbers+grow/-/539552/1117794/-/item/1/-/3qa0c6/-/index.html>

Kenyan Government aqua program

By Catherine Riungu

Kenya is increasingly becoming a learning centre for development of aquaculture in East Africa.

Under the Economic Stimulus Programme, some Ksh3 billion (\$37.5 million) has been put into the sector creating what has become a case study as the world struggles with dwindling fish stocks amid growing demand.

Addressing the Lake Naivasha Basin Investment Conference in Mwanza, Tanzania, Harrison Charo-Karisa, the chairman of Aquaculture Development Working Group and coordinator aquaculture research with the Kenya Marine and Fisheries Research Institute (KMFRI) disclosed that in the 2009/10 financial year, the government injected Ksh 1.12 billion (\$14 million) into implement the Fish Farming Enterprise Productivity Economic Stimulus Programme. Under the programme, a national aquaculture suitability appraisal was conducted and suitability maps developed for each of the 210 constituencies, and over 9.5 million hectares of land was found highly suitable for aquaculture. The programme developed a fish selective breeding programme with a current capacity of over 150,000 brood-stock, developed fish feed specifications, encouraged fish feed producers and improved the feed supply chain enabling the farmers across the 140 constituencies use quality fish feeds.

The programme constructed over 27,000 fish ponds in the target constituencies, stocked them with over 13 million fingerlings, increased the area under aquaculture from 722 hectares to 20,000 hectares and increased national aquaculture production from 4,220 tonnes to 12,154 tonnes. This constituted about seven per cent of the national fish production in the first year. It is projected that the production will increase to over 20,000 tonnes in the short term to over 100,000 tonnes in the medium and long terms providing close to Ksh6 billion (\$75 million) as direct earnings to farmers.

The programme has created direct employment for over 28,000 fish farmers, short-term employment for over 280,000 youths and indirect employment of over 140,000 other Kenyans, and created a national short term demand of 28 million certified tilapia/cat fish fingerlings and 14,000 tonnes of specified and formulated fish feeds. The demand for fingerlings and feeds is expected to increase to 100 million and 100,000 tonnes respectively in the medium and long terms. The private sector is expected to be the prime mover of the seed and feed industry with government only doing regulatory functions to ensure quality of the seeds and feeds.

In the 2010/11 financial year, the Ministry of Fisheries Development has been allocated a further Ksh3 billion (\$37.5 million) under the Economic Recovery, Poverty Alleviation and Regional Development Programme to construct an additional 100 ponds per constituency in the original 140 constituencies and build some other 300 ponds per constituency in 20 new constituencies country-wide. The ministry will also construct three shallow water-retention dams in 160 constituencies, support a private sector-driven fingerling supply chain, support a rural-based fish feed development programme and employ 480 fisheries extension officers. It will also re-stock some of the country's lakes and rivers with fish, procure pond liner materials for the arid constituencies, digitise all ponds countrywide using GIS technology, and establish 80 mini-processing and cold storage facilities to serve the 160 constituencies.

These small processing plants will serve as nerve centres for aquaculture products branding, value addition and marketing at the constituency level.

Kenya Marine and Fisheries Research Institute is mandated to carry out research in all aspects of aquaculture development in the freshwater and marine environments.

The research challenges which have to be met for successful aquaculture include poor quality fish seed; lack of affordable quality fish feed; resulting from lack of formulations focussing on needs for different species and different fish stages, lack of a seed, feed certification and quality assurance system; inadequate value addition, processing and weak marketing strategies; lack of policy, strategy and regulation framework for the sector; weak culture systems research for increased production; so far pond culture dominate and weak extension and technology transfer mechanism.

To meet the above challenges, the ministry has established a National Aquaculture Research, Development and Training Centre in Sagana. The centre will be the hub of a network of regional

centres of excellence for aquaculture research and development located in Ngomeni at the Coast, Kabonyo in Western and Nyanza, and Kiganjo in Central province.

Feeds

Wild fish waste used for feeds

By Louis Garcia

The Fishery Industrial Technology Center (FITC) Agricultural Research Service seafood processing byproducts project in Alaska has resulted in a number of ways to use fish waste products, and is studying even more uses. The project, which has been going on for 11 years, was started with one goal: finding out how to convert fish processing waste into aquaculture feed ingredients.

“This was the area where there was the greatest utility for the products that we could easily make,” FITC professor Scott Smiley said.

Fish processing byproducts or waste are the parts left over after food portions are removed. The major waste components are heads, frames (what’s left of the body when filets are cut off), viscera (guts including testes, ovaries and livers) and skins. Smiley said Alaska harvested 2,090,379 tons of fish in 2008. Much of that results in waste. For example, about 35 percent of fish weight for landed salmon that is canned becomes waste. Only 65 percent goes into the can. Pollock surimi results in 80 percent of the product becoming waste.

“The amount of waste that’s generated is dependent on species on one hand but also on product form,” Smiley said. “Using appropriate numbers for each of the species and a good guess for what kind of products are being made, we generate somewhere in the neighborhood of 1.5 million metric tons of waste a year of seafood processing waste.” How do you recover value from that waste stream? That’s the question Smiley and other researchers have been working on. He said there are advantages to Alaska fish byproducts. All are from sustainable fisheries, all fish harvested is for human food, a large percent of waste from whitefish and cold water fish species contain lots of omega-3 fatty acids, and fish parts come directly from the processing line, so you are receiving inspected, quality fish.

There are four main products made from byproducts. Fish protein meal is one byproduct.

“Most Alaska fish meal is sold to eel farmers in Asia,” Smiley said. “Eels are a very popular food item in Asia both in China and in Japan. The eel farmers have no problem selling their product for a hefty price down there.” Bone meal is another way to use waste products, but currently it has limited commercial value. “It’s best option is as a soil amendment,” Smiley said. Bone meal can be pressed into bricks and used in drainages where acid rain is prevalent. The calcium phosphate in the bone meal bricks absorbs the acid and melts while releasing protein that acts as fertilizer. “It’s really a good idea but it’s at such a scale and cost that it’s got to be something only governments can do,” Smiley. “Individuals can’t really afford that.” There are also some alternative co-product options like reduced phosphate fish meal, fish gelatins derived from fish skins, fish testes meal, salmon liver meal and surimi wash water. Fish gelatins are quickly becoming popular. “Foodies, which constitutes quite a group of people in terms of designing the next hot food item that’s going to be on everybody’s menu, is a big culture centered in New York but also the European capitals as well,” Smiley said. “Fish gelatin is very popular with them.” The gelatin is made from connective tissue proteins. The major source is skin and collagen, a complex protein that all animals have.

Salmon livers could be used for the high levels of cholesterol found in them. “It turns out that if you’re aquaculturing shrimp, you need to purchase cholesterol out there in the marketplace in

order to develop your diets for shrimp,” Smiley said. Shrimp is the largest single food import to the USA. “New areas we’re looking for, the greatest value as I said, is going to be as human food,” Smiley said. “We’re looking at new food uses, like for instance the dried fish head or undried, just frozen fish heads delivered to Asia to see if there’s a market for that.”

Flavorings are also finding new uses. “As time goes on things like surimi are going to become more important rather than less important,” Smiley said. “I’d never thought I’d see the day when the French embrace surimi, but they go crazy over it now.” Omega-3 fatty acids and environmental values — such as fish byproducts not being dumped back into the ocean — are all being looked at. “In addition to all of this, one of the things we’ve done all along is to try and up the level of usage of the byproducts of seafood processing in Alaska in aquaculture feeds,” Smiley said. “I know that aquaculture is not a popular issue in Kodiak, Alaska. Nevertheless, that’s the way the world is eating fish now and any growth in the world eating fish, meaning human population growth, they’re going to be eating aquaculture fish. “Their fish, their salmon go into the processing plant, parts come out and you need to do something with them and the question is what is the highest value and value is not just cash.” Smiley said the University of Alaska Fairbanks’ FITS has a public responsibility. “But by the same token we need to be as acute about (processors’) needs in terms of profit margins and things like that as we can be because they’re the employment in these communities like Kodiak, and that’s how we pay our bills,” Smiley said. “We need to be in support of the way they do things as well.” Smiley anticipates the project continuing for a while. “I think it’s vitally important,” he said. “There are a lot of nay-sayers about this project because the original goal and the continuing goal is to develop aquaculture feeds and they feel that they’re salmon fishermen and they don’t need competition from aquaculture, and that just doesn’t work.”

Research matters, Reviews & Training

Optical DO sensor

UK-based Aquaread has launched the Aquaplug, which is a portable optical dissolved oxygen solution. Its black meter has an intuitive user interface that makes it suitable for use in the field. The tough meter features an air pressure sensor and a GPS receiver.

The device is 2.4cm in diameter and its aluminum encasing protects its single electrode, which is fitted with an Optical DO, conductivity and temperature sensors. The conductivity sensor helps automated compensation for salinity. This feature leads to exact saturation measurements that are fully compensated and needing no other user input.

It detects Optical DO saturation, Optical DO mg/L, Conductivity, Total dissolved solids, Resistivity, Salinity, Seawater specific gravity, Temperature, Air pressure, Height above MSL, Time, Date, Latitude and Longitude. It is suitable for applications such as fish farming and brewing. It offers surface, ground and waste water monitoring.

<http://www.azosensors.com/details.asp?newsID=2313>

Investing in Aquaculture

Starting an Aquaculture Business

Aquaculture has grown rapidly in volume and complexity around the world in the last several years. In South Africa a lot was said and strategies drafted on the development of Aquaculture in the near future. There are many different reasons why an Aquaculture business can fail. Aquaculture is a management-intensive business. It is a high risk industry with mostly moderate profit margins. The need for intensive and skilled management stems from the high level of capital invested in the facilities, and the high levels of operating capital required to operate a competitive and profitable business. While aquaculture has a centuries-long history as a source of food for households in Asia and Africa, the most dramatic change in more recent years has been the development of aquaculture businesses into complex industries. These industries operate on national and international levels. Throughout aquaculture, under capitalization (not having enough capital to make payments and survive the sometimes lengthy startup periods) has been a consistent problem. Individual companies must answer a series of questions that involve pricing, output and market positioning. No company can survive in the modern world unless it plans for the future. Business/Marketing planning is the technique that enables a company to decide on the best use of its scarce resources to achieve its corporate objectives. The business plan is the passport to this future. Now a days big financial institutions all have their own business plan templates which the client have to complete to apply for funding from them.

The process of developing your own business plan can look as follow:

- Step 1 – Planning the development of the business plan (structure etc.)
- Step 2 – Scanning your environment
- Step 3 – Establishing goals and objectives
- Step 4 – Developing Marketing Strategy
- Step 5 – Developing Marketing Tactics
- Step 6 – Forecasting for your Business Plan
- Step 7 – Calculating important financial ratios for your Business Plan
- Step 8 – Presenting the Business Plan
- Step 9 – Implementation

(From: The Marketing Plan, William A. Cohen)

The structure of your own complete business plan can look as follow:

- Table of Contents
- Introduction
- Summary
- Situation analysis including
 - Assumptions
 - Sales (History and/or Budget)
 - Review of Strategic Markets
 - Review of Key Products
 - Review of Key Sales Areas
- Marketing objectives
- Marketing Strategies
- Schedules
- Sales Promotion
- Budgets
- Profit and loss account
- Controls
- Update Procedures

(From: The Marketing Plan, A Step-by-Step Guide, John Westwood)

The main objective of a business plan is to explain to a reader what the nature of the enterprise is and what its business strategy for the following three or more years will be.

The business plan must indicate exactly:

- which activities the enterprise is currently engaged in;
- what the mission, objectives and goals of the enterprise are;
- what strategy must be followed to attain these goals; and
- what control measures have been taken if goals are not attained.

There are no fixed rules for drawing up a business plan; nor are there fixed rules for who should draw up the business plan. However, it is important that competent people draw up a business plan. It is desirable that a business plan is drawn up by the entrepreneur and/or the management team, because the enthusiasm for the business idea is then usually reflected in the business plan.

Henk Stander
Aquaculture Division
University of Stellenbosch
hbs@sun.ac.za

Market report on global aquaculture available

Aquaculture and Fisheries: A Global Strategic Business Report.

The global market for Aquaculture and Fisheries Market is forecast to reach 137 Million Tons by 2015. Key factors fuelling market growth include ever-growing population, increasing urbanization, and growing awareness about health benefits offered by fish and aquatic plants against red meat. Demand for Aquaculture is being driven by the highly regulated fishing activity in oceans, and continuous depletion in fish capturing levels the world over.

The volatile global economy in 2008 and 2009 resulted in an overall slowdown in demand for aquaculture and fisheries. Sales remained sluggish in key markets, and prices for most of the seafood products plunged and margins remained under pressure for manufacturers. Fish prices were down by 3.2% during early 2009, as compared to the same period in 2008. Both value and volume imports of fisheries plunged in both developing and developed countries, including the US, Europe, and Japan. The outlook for the global aquaculture and fisheries market, however, appears to be positive, with several major markets reporting gradual recovery in national trade and subsequent increase in production. With steady growth prospects, aquaculture industry is all geared up to become the major food production systems worldwide.

Developing nations represent the largest fish producers, accounting for over 92.5% of all culture harvest, and 72.6% of capture harvest (by mass), as stated by the new market research report on Aquaculture and Fisheries. China represents the leading producer, exporter, processor, and importer of aquaculture products worldwide. Key factors driving growth include growing affluence, rising consumption of seafood, and robust export industry. In addition, demand is also supported by China's encouraging governmental policies to provide necessary infrastructure and marketing support, and tax benefits to attract new entrants. Asia-Pacific, therefore, represents the largest and fastest growing market for Aquaculture and Fisheries.

Fisheries market is forecast to grow at a CAGR of 1.5% over the analysis period. The market for Tuna is highly concentrated within the fisheries sectors, typified by the presence of very few companies engaged in global production and trade. Demand for Aquaculture is expected to be propelled by new techniques being developed, and increased education being provided to aquaculturists to transform aquaculture into a profitable and sustainable industry around the world. Aquaculture production is dominated by crustaceans, mollusks and finfish variety. Nevertheless, though aquaculture is rising in stature globally, the industry is a prime target for environmental groups demanding stringent regulations to protect wild fish species.

Growing consumer awareness about environmentally harmful fishing techniques and overfishing, is fueling growth of organic aquaculture. Although accounting for a meager share of the aquaculture production, global production of organic aquaculture is increasing at an exuberant pace, exemplified by stupendous growth of over 900% during the past 25 years. The three major species of organic aquaculture production include carp, salmon and shrimp. Other species such as tilapia, trout, mussels, seabream, seabass, sturgeon, and charr are also produced.

Major players profiled in the report include Kona Bay Marine Resources, Nireus S.A., Nutreco Holding N.V., Royal Greenland, Sea Watch International Ltd., Selonda Aquaculture S.A., StarKist Seafood Company, Taylor Shellfish Inc., TriMarine International, Unima Group, among others.

The report titled Aquaculture and Fisheries: A Global Strategic Business Report provides a comprehensive review of the Aquaculture and Fisheries markets; current market trends; key growth drivers; export and import, production and consumption statistics for major countries and species; recent industry activity, and profiles of major/niche global as well as regional market participants. The study analyzes market data and analytics in terms of volume sales for the global market by the following geographic markets - US, Canada, Japan, Europe, Asia-Pacific, Latin America, and Rest of World. Key segments analyzed in the report include Aquaculture and Fisheries. Also, a seven-year (2000-2006) historic analysis is provided for additional perspective.

<http://www.companiesandmarkets.com/Market-Report/aquaculture-and-fisheries-a-global-strategic-business-report-454864.asp?prk=3a716d949f4e8525e39101fc48bfd7a7>

Conferences and Upcoming Events

Genomics in Aquaculture symposium 2011

Sep 14, 2011 - Sep 17, 2011, Heraklion, Crete, Greece

The Genomics in Aquaculture symposium will review the state-of-the-art of advanced technologies in genomics research, their applications in various aquaculture systems, their industrial integration and future perspectives.

Hosting of the GIA2011 symposium will be by the Institute of Marine Biology and Genetics of the Hellenic Centre for Marine Research in Heraklion, Crete, Greece. Scientific coordination is by Bodø University College (Norway) and the Institute of Marine Biology and Genetics of the Hellenic Centre for Marine Research (Greece).

Contact Elena Sarropoulou +30-28210-83960

sarris@her.hcmr.gr

The 4th International Oyster Symposium

15 to 18 September 2011, Hobart, Tasmania, Australia

Embracing the Future through Innovation in supply, diversification in a changing environment and innovation in promotion, handling and marketing.

Organized by World Oyster Society. Deadline for abstracts/proposals: 6 May 2011

Website: <http://www.oysterstasmania.org/>

Contact Raymond Murphy

World Aquaculture Society meeting

Conference and Exhibition, June 6 - 10, 2011, Natal, Brazil

The WAS will once again hold World Aquaculture meeting in Brazil. This time, it will be held in Natal located in the midst of many kinds of aquaculture. In 2003, aquaculture in Brazil was doing well, but now the aquaculture industry is doing even better. Aquaculture now has it's own Ministry in the Brazilian Federal Government – meaning there is a lot of government support for expansion of aquaculture in Brazil.

Website <https://www.was.org/WasMeetings/meetings/Default.aspx?code=WA2011>

9th Asian Fisheries and Aquaculture Forum

21 to 25 April 2011, Shanghai, China

This international forum will bring together leading aquaculture and fisheries scientists and key commercial stakeholders from all over the world to discuss important issues pertaining to sustainable aquatic resource production, utilization

Organized by: Asian Fisheries Society

Website <http://www.9afaf.org>

Egyptian conference on Global Sustainable Seafood industry

12 -14 April 2011, on the sidelines of Egypt International Sea Food & Fisheries Expo, Cairo International Convention & Exhibition Centre, Cairo, Egypt

The GSSIC Egypt 2011 will be preceded by a special half-day event focused on marine aquaculture industry in Egypt. On April 14, a round table discussions will take place to explore the issues surrounding the current challenges and future prospects of marine aquaculture industry in Egypt.

Contact Prof. Dr. Abd El Aziz Mousa Nour

nouraziz2000@yahoo.com or conference@egyseafood.com

Website www.egyseafood.com



AQUA AFRICA 2011

AQUACULTURE FOR A GROWING CONTINENT

**E
X
H
I
B
I
T
I
O
N**

Companies are invited to
participate in the trade exhibition of the
Aquaculture Association of Southern Africa's
bi-annual conference to be held from

13 – 16 SEPTEMBER 2011

at the Sun 'n Sand Holiday Resort
Mangochi, Lake Malawi

PROGRAMME AT A GLANCE

- 12 September 2011 : Exhibition Set-up
Conference Registration
- 13 September 2011 : Conference Day I & AGM
- 14 September 2011 : Field Trip
- 15 September 2011 : Conference Day II & Formal Banquet
- 16 September 2011 : Workshop
Disassemble Exhibition stand (1pm)

EXHIBITORS PACKAGE

- ❖ Cost: R3 500 per stand for 4 days
- ❖ Exhibition space: 5m x 5m
- ❖ Electricity, table & 2 chairs provided
- ❖ Exhibitors are responsible for their own signage/partitioning, if required.

Please contact the Conference Secretary
for exhibition opportunities

Questions/Comments? Email us at info@aasa-aqua.co.za or call +27(0)12 8076720

www.aasa-aqua.co.za



Aquaculture Association of Southern Africa