



Aquaculture Association of  
Southern Africa

## NEWSLETTER

OF

**AQUACULTURE ASSOCIATION OF SOUTHERN AFRICA &  
AQUACULTURE INSTITUTE OF SOUTH AFRICA**



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## A Word from the AASA Chairman and the CEO of AISA

**Etienne Hinrichsen**

chairman@aasa-aqua.co.za

I still haven't found my feet in this so called "2000-and great" year that has kicked off with a bang. Some people are saying 2008 marks the start of a new period of success, prosperity and all those nice things. Yet, I am battling to finish off this contribution to the newsletter due continued load shedding (that is electrical load shedding to the people outside of SA that may be reading this). Whatever 2008 means to you or whatever transpires, try and enjoy the journey – even if the road is bumpy.

What does 2008 hold for regional aquaculture? For one, I am happy to report that arrangements are being finalised for an AASA Exco meeting at the end of January. This meeting and the discussions therein will be critical to clarify and define the role and structure of AASA as we move forward. Last year was the first time the association had to survive independently in the "open economy". It happened to be a fairly successful year, but mainly due to the fantastic sponsorship received for the October conference. I look forward to report on this meeting in the near future.

I am predicting that in 2008 we will also see more collaboration with aquaculture groups and associations on the African continent and further a field. Already I am in conversation with the World Aquaculture Society and they also have a set of plans to collaborate more closely with the various groups and associations across the globe.

For now – enjoy the year ahead!

**Dr. Lizeth Botes**

lbotes@ai-sa.org.za

Welcome back to all Aquaculturists, AISA wishes everyone all the best for 2008!

It is an absolute pleasure to kick-start 2008 by announcing that AISA will spend most of this year establishing two new programmes that will contribute to growing and developing the Aquaculture Sector from strength to strength.

The two new programmes include:

1. Quality and Health Management Programme for the Western Cape (QHMP)
2. Skills Development and Training Programme for the Western Cape (SDTP)

I also would like to bring to your attention that my colleague Mr Werner Harms will continue to work on the Aquaculture Policy, Strategy and Implementation Plan process for the Western Cape, but will from 2008 be employed at the Department of Economic Development and Tourism (DEDT). This change has been brought about by the fact that Mr Edward Shalala and Mr Frank Stevens left DEDT at the end of 2007 to further their career paths elsewhere. Werner will therefore continue the process for the Province at DEDT and we wish him all the best and look forward to continue working with him.

For any further information regarding the two programmes, please contact the AISA office at 021-556 7339.

For any further information regarding the Western Cape Aquaculture Policy process, please contact Mr Werner Harms at the offices of DEDT at 021-4833859.

## The Editor's choice

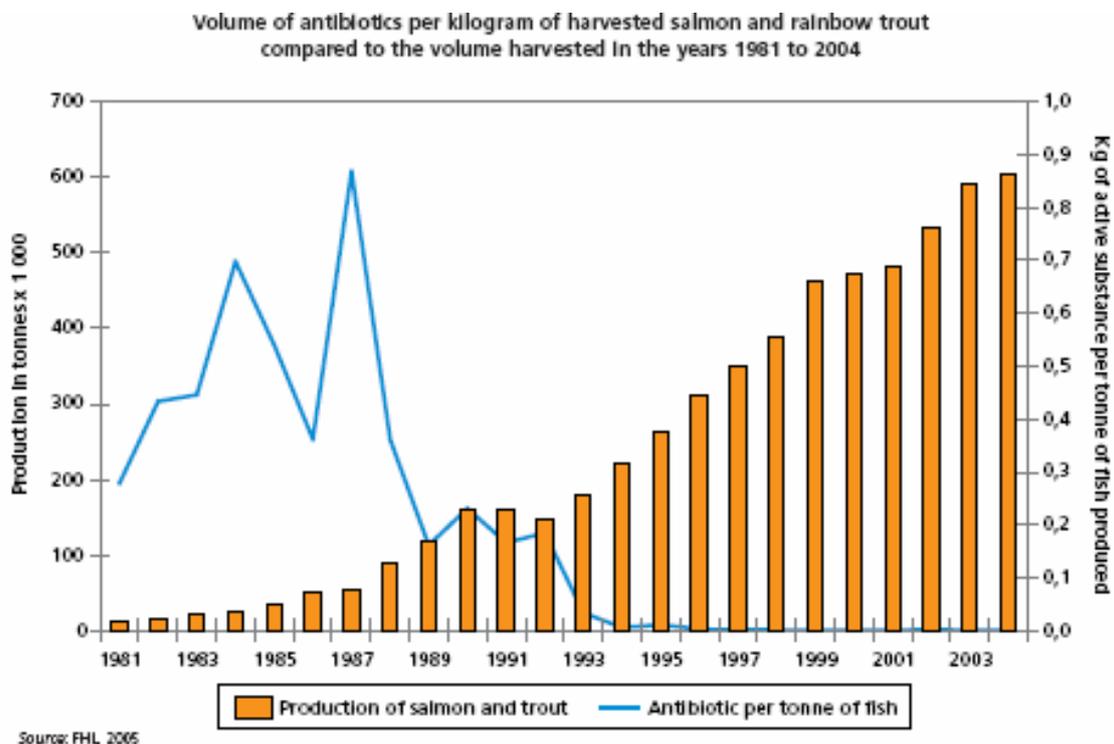
Adrian Piers

newsletter@aasa-aqua.co.za

The top of your Editors list of news items in this issue is the story of an impending boycott of Aquaculture products from Zimbabwe. Who will benefit from such a move? Definitely, not the workers and their dependants in Kariba, nor the consumers in the UK. And more pressure will be placed on wild Cod stocks that are on the verge of becoming extinct.

Let us see this for what it really is – a political agenda with an axe to grind that will not do aquaculture any good at all, and another non-tariff barrier to trade imposed on the developing world. Article with link below.

The other item of note in this issue concerns new research on antifouling. Development of an environmentally friendly solution to this perennial problem will do a lot for public relations in Aquaculture just as improved technology has virtually eliminated antibiotic use. It also makes good economic sense. An excellent example of research delivering all round benefits.



See under Research matters, Reviews & Training

## Environmental and Human Rights conflict over Zimbabwe Tilapia

By Dan Shapley in the Daily Green

A food scandal is in the making in Britain, where Waitrose supermarkets are coming under fire for selling tilapia from Zimbabwe at a time when famine is affecting millions under the corrupt rule of Robert Mugabe there, according to the Daily Mail.

But the supermarket claims buying fish from Zimbabwe meets demand for mild white fish, therefore sparing endangered stocks of cod while supporting native fishermen via a "fair trade" dealer. Add to that the need for international trade to sustain the economy (which has been in a deepening tailspin of late, and still reeling from the seizure of white-owned farms in 2000) and you have the recipe for a very complicated food scandal.

The Daily Mail article can be found at:-

<http://www.thedailygreen.com/environmental-news/latest/zimbabwe-fish-47010202>

## **Cage aquaculture - Regional reviews and global overview**

This FAO document can be downloaded at:-

<http://library.enaca.org/NACA-Publications/cage-culture-review.pdf>

## **The role of Aquaculture in Sustainable Development – Conference report**

Global production of fish from aquaculture has grown rapidly during the past four decades, contributing significant quantities to the world's supply of fish for human consumption. Aquaculture now accounts for nearly half of the world's food fish and this increase is expected to reach 50 percent in 2015. Aquaculture has now spread to all continents, encompassing all aquatic environments and utilizing a range of aquatic species. From an activity that was principally small-scale, non-commercial and family-based, aquaculture now includes large-scale commercial or industrial production of high value species that are traded at the national, regional and international levels. Although most production is in Asia and is still largely based on small-scale operations, there is a wide consensus among many that aquaculture has the potential to meet the growing global demand for nutritious food fish and to contribute to the growth of national economies, while also supporting the sustainable livelihoods of many communities.

Full report can be downloaded from:-

<http://www.globefish.org/filedownload.php?fileId=558>

## **US plans to lessen dependence on imported Seafood through Aquaculture**

Americans have a huge appetite for seafood. Forced to depend on farm-raised imports to feed the demand, some are taking a hard look at building giant fish farms far out in the Gulf of Mexico. After more than a decade of research, though, only a handful of operations exist in the United States, largely because of no lack of action in Congress. But as the nation's hunger for seafood swells and wild fish stocks continue to decline, the federal government could allow the Gulf of Mexico to be the nation's proving ground for offshore aquaculture. Whatever is decided, researchers and government experts aren't expecting a surge in applications. Start-up costs are estimated at about \$10 million, and it could take years for a company to operate in the black.

But with the United States importing 80 percent of the seafood it consumes, the pressure is coming from high levels of government to find alternatives.

"We are already consuming a tremendous amount of farm-raised fish," U.S. Commerce Secretary Carlos Gutierrez said at a conference on offshore aquaculture earlier this year. "We might as well do it ourselves under our terms, under our conditions, under our standards, and take the market."

<http://www.nola.com/news/t-p/frontpage/index.ssf?/base/news-9/1197182395104270.xml&coll=1&thispage=5>

## Letters to the Editor

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### Year round Trout ova supply

Molapong Aquaculture recently took over ownership and management of the trout hatchery at the Keerom farm in the Western Cape. This facility is the only EU approved South African trout hatchery with full disease free status for export to the European Union.

As part of the company's drive for a fully integrated operation, Molapong has entered into cooperation with a Danish company Aquasearch. This company operates several broodstock farms in Denmark and operates under strict EU regulations. The company produced in excess of 100 million ova in 2007 and has a genetic breeding program in place. It offers disease free ova at very competitive prices.

Through this agreement Molapong will now be able to offer its South African customers a year round supply of mixed sex and all female rainbow trout ova. Locally produced ova from May till August and imported Danish ova for the remainder of the year. Triploid rainbow trout ova, brown trout mixed sex, all female and triploid, as well as steelhead ova will all be available during the period September to April.

Interested parties are welcome to contact Molapong Aquaculture for more information, a pricelist and order forms.

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### O. niloticus in the Changane river Mozambique

Forwarded by Tom Kocher  
Subject: Oreochromis niloticus hybrids

Dear Tom,

I have done a fish biodiversity study on the Changane River (Limpopo system, Gaza, Mozambique) which has apparently been invaded by *O. niloticus* and has subsequently hybridized with the local *O. mossambicus*. Both original species seem to be now absent from the system with only the hybrid form being present. I have great difficulty in getting people interested in this subject.

I took DNA samples from individuals throughout the system with pictures and also kept the reference species preserved initially in formalin, then alcohol.

I am inclined to be more interested in ecology than taxonomic studies, and would like this information to be available who could be interested? I am looking for a Mozambican scientist who would like to get himself into a PhD on taxonomy, as the subject would be great. But for the moment I haven't found anybody yet. May be you could be of good advice?

Thanks, Michèle. [losseau@tvcabo.co.mz](mailto:losseau@tvcabo.co.mz)

## Abalone



### Farm plans to dry Abalone

By Nicolette Scrooby

Haga residents yesterday gave the thumbs up for a multi-million rand plan to start an abalone drying plant near the seaside hamlet. The operation would be an extension of an existing abalone farm near Haga Haga. Following a meeting with Wild Coast Abalone at the Haga Haga community hall yesterday, residents applauded the fact that income and about 100 new jobs would be generated.

Full story:-

<http://www.growfish.com.au/content.asp?ContentId=10736>

### Ganglioneuritis virus spread – Map available

The spread of the Abalone Viral Ganglioneuritis epidemic to aquaculture facilities in Australia is available on the Web. Go to:-

<http://www.vada.com.au/Virus/CodeMap.htm>

### Advertisement

## Deep Blue Aquatic Systems

Aquaculture & Live-holding Systems  
Reg. No. 2000/023584/07



We have the pleasure of introducing our new technology company, Deep Blue Aquatic Systems. Our aim is to be the top supplier of aquaculture and live-holding systems in the SADC region. We specialize in design, manufacture and installation of aquaculture and live holding systems.

We have a number of years combined experience within the Aquaculture industry and in supplying the Aquaculture and Fishing Industry. We believe that we can add value by supplying appropriately designed systems to enhance productivity, efficiency and product quality.

We look forward to working with you on any new project, large or small.

We aim to exceed your expectations.

### **Brynn Simpson & Grant Brooker**

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## Catfish



### Giant Catfish artificially spawned in Nigeria

Induced spawning of African giant catfish *Heterobranchus bidorsalis* was successfully carried out using synthetic hormone (Ovaprim) and natural hormone (homoplastic hormone-pituitary extract from *H. bidorsalis*). The study which was carried out at Aquafish Farm, Ihiala, Anambra State, Nigeria. Sixty gravid females and twenty mature males of *H. bidorsalis* were used for the study. In all, 10 trials were carried out with a control. The results showed that ovaprim performed significantly better in almost all the parameters investigated. Cost benefit analysis showed that ovaprim which recorded better results, was also relatively cheaper. Because of its relatively cheap cost, ease of handling and better survival of hatchlings from *H. bidorsalis*, ovaprim was highly recommended for hatchery users.

Full report as PDF at:-

<http://www.academicjournals.org/AJB/PDF/pdf2007/3Dec/Nwokoye%20et%20al.pdf>

## Crayfish and Lobsters



### Lobster aquaculture in Tasmania

From ABC News

There are hopes a scientific quest to farm the highly prized rock lobster could be realised within 10 years. The Tasmanian Aquaculture and Fisheries Institute has spent the past decade working on techniques to breed rock lobsters in captivity. The Institute is now successfully breeding more than 100 juveniles a year thanks to improved diet and water treatment techniques. But tens of thousands of captive bred rock lobsters would be needed to move from a research phase to commercial production. A senior research scientist at the Institute, Arthur Ritar says the next step is a commercial trial. "We haven't produced large numbers and we're not really geared towards that, we're a research facility, not a production facility, so we have no intention of producing large numbers at this place, but what we will do is develop the appropriate technologies in conjunction with commercial partners to allow them to do that." he said.

The Institute's director, Colin Buxton says commercial production of farmed rock lobster would complement the wild fishery, but they will be smaller and similarly priced to their wild counterparts.

### US Crayfish harvest gets underway

From Delta Farm Press

Harvesting is the most expensive part of producing crawfish, so reducing that cost can mean the difference between profit and loss, according to Robert Romaine, LSU AgCenter aquaculture specialist, who spoke at the 2007 Crawfish Farmers Association 2007 Expo at Rayne, Louisiana. Romaine said three quarter inch square mesh pyramid traps are the most effective. Bait fish work best in colder water, less than 70 degrees, while manufactured bait works better at warmer temperatures and is less expensive. Traps should be baited with no more than one-third pound of material, he said. The most effective number of traps is 10 to 15 per acre in a low-density pond common to Louisiana, but 18 traps to 22 traps per acre are recommended for high-density ponds.

Harvesting every other day provides larger crawfish. Fluctuations are common in harvests, with the catch declining around the time of a full moon, which stimulates the molting phase for crawfish. "That's true of other crustaceans, such as crabs," Romaine said. "They won't feed until their shells harden." Flushing a pond sometimes prompts moulting. Catches generally decline after a cold front and improve after rainfall.

## Eels



No submissions

## Ornamentals



No submissions

## Oysters & Mussels



### Western Cape project has Oyster component

See under Trout and Salmon.

## Prawns



### Sea Ark sells its prawn technology to China

By Ronnie Morris in Business Report

The local fishing industry has welcomed an announcement by broad-based black economic empowerment company Sea Ark Africa that a hi-tech prawn farming facility at Coega would go ahead following a very successful pilot phase. The 1 200ha prawn farm is expected to create 11 000 direct jobs by 2014, and Sea Ark announced this week that a partnership agreement had been signed with a Chinese firm to export the technology. Papa Leshabane, communications director for Sea Ark parent Bosasa Group, said US and local scientists working in Coega had perfected the world's first closed biosecure prawn farming system. The advanced technology, combining computer-driven control systems with biological science, would dramatically change the way prawn and shrimp were produced. The innovative system had the ability to grow the jumbo prawns faster, with a lower food consumption rate and greater densities, than in any other facility operating worldwide. When fully rolled out by 2014 the Coega plant would have the capacity to produce 20 000 tons of prawns a year, most of which were expected to be exported.

Leshabane said when the facility reached full capacity, it would have created 11 000 largely semi-skilled and unskilled direct jobs, with a total investment value of R9.2 billion. An economic impact study has shown that the Coega facility has the ability to generate indirect employment for 88 000

people in a range of support services and industries, ranging from construction and maintenance, to security, to transport and catering for the facility's workforce. Besides 1 000 jobs in processing the prawns, there would be significant numbers of skilled posts for laboratory technicians, marine biologists, software specialists and engineers. According to Leshabane, the decision to roll out the massive Coega facility over the next six years was taken after the tremendous success of the pilot project within the industrial development zone near Port Elizabeth. It was subject only to the completion of the environmental impact assessment, which was expected within weeks.

Gavin Watson, the chief executive of Sea Ark Africa, this week signed an agreement with China Direct chief executive Sean Ding to provide the advanced mariculture technology to the Chinese firm, and manage a facility in China remotely from Coega. Dave Wills, the president of Sea Ark International, said: "Through our biosecure indoor ponds and by using our proper nutritional system, we are able to maximise size, growth, survivability and biomass, and through this obviously we are able to maximise productivity. What prawn farms across the world do in three to four months, we do in ten to eleven weeks. We can literally grow a prawn to the same size as our competitors two to three times faster," he said.

*Litopenaeus vannamei*, known as the white prawn because of the blond colour of the meat, is in high demand in US, Japan and Europe.

Original article and other stories on this:-

<http://www.busrep.co.za/index.php?fArticleId=4173961>

<http://www.growfish.com.au/content.asp?ContentId=10629>

[http://www.engineeringnews.co.za/article.php?a\\_id=123635](http://www.engineeringnews.co.za/article.php?a_id=123635)

## **Canadian University begins Shrimp aquaculture program in Mozambique**

By Patty Pitts

The Southern Oceans Education and Development project led by the University of Victoria will establish sustainable shrimp and mollusc aquaculture programs that preserve Mozambique's coastal ecosystems. The Canadian International Development Agency, CIDA, recently provided \$1 million for the project.

It will build on expertise developed during previous CIDA-funded University of Victoria projects in Brazil. Since Mozambique and Brazil share a common language (Portuguese) expertise can easily be shared between institutions in Brazil and the School of Marine and Coastal Sciences at the satellite campus of Eduardo Mondlane University (UEM) in the coastal city of Quelimane, Mozambique, as well as the Ministry of Fisheries.

<http://ring.uvic.ca/08jan10/aquaculture.html>

## **Australian Prawn prices will rise due to protectionism importers claim**

By Brad Crouch in the Sunday Mail

Prawn importers are suggesting approximately half of the usual prawn catch will not be available in Australian markets because of security implementations by Biosecurity Australia, enforced by the Australian Quarantine and Inspection Service. The measures are intended to reduce the risk of contamination of local prawn stocks by transmission from infected imported prawns. Importers say prawn prices will rise dramatically, and local jobs will be placed at risk. Seafood Importers Association president Harry Peters advises the biosecurity on Thai prawn farms far outstrips that on Australia's farms. He states, "This is about protectionism by the Liberal and National parties, to

look after about 30 local prawn farmers." Meanwhile, a group of Australian chefs have toured Thailand's prawn farming industry to examine the potential risk to Australia from imported raw prawns. Glenn Austin, Asia Pacific director of the World Association of Chefs Societies, states, "It's an appalling myth that Asian export prawns are grown in unhygienic conditions and are not properly scrutinised for residues or disease, and those Australians who are propagating such rubbish should be ashamed." Harry Peters observes that the international scientific community has pointed out there has never been an exotic disease incursion from commodity prawns (frozen dead prawns for human consumption) anywhere in the world. At overseas sites, incursions have resulted from prawn farmers importing infected live prawns as broodstock and in Australia, live imports are prohibited.

## Tilapia



### Fishy flavoured Fish! - Taste manipulation of Tilapia

By Charlie Foster in the New York Times

As stocks of ocean-caught fish dwindle in the face of overfishing and environmental changes, farmed fish has flooded the market, helping to meet our growing appetite for seafood. But one sector of the seafood industry has remained elusive. Fast-food restaurants, which serve hundreds of millions of deep-fried-fish sandwiches every year, have always chosen wild species over farmed ones, because the flavor is better.

But now even these piscine purists may start buying from the farm. This spring, after 10 months of testing, the aquaculture company HQ Sustainable Maritime Industries created what it calls "sea-flavored" tilapia, the first farmed fish manipulated to taste like a wild fish. "It met 10 out of our 10 taste parameters," says HQ's president and C.E.O., Norbert Sporns. The company, which is negotiating distribution deals with several fast-food chains, employs good old-fashioned food-processing technology to imitate the industry standard. It uses flavoring compounds to replicate the mild taste of Alaska pollock, a northern Pacific whitefish that holds a near-monopoly over products like fish sticks, imitation crabmeat and frozen fish fillets. HQ has even found a way to replicate the mushy texture of cooked pollock.

Can imitation pollock help conserve the real thing? Finding an alternative whitefish, ecologists say, could curb market demand for wild pollock if rising temperatures in the Bering Sea cause their numbers to decline. In other words, the trend in farming seafood could help the wild species endure another trend: global warming.

[http://www.nytimes.com/2007/12/09/magazine/09\\_20\\_fish.html?\\_r=1&ref=magazine&oref=slogin](http://www.nytimes.com/2007/12/09/magazine/09_20_fish.html?_r=1&ref=magazine&oref=slogin)

See also:-

<http://www.growfish.com.au/content.asp?contentid=9310>

### Fears for US\$ 15 million project in Uganda as partner pulls out

By Michael Wakabu in the East African

A \$15 million commercial fish farming project hangs in the balance now that one of its key partners, fish multiplication specialist Genomar, has pulled out. Absence of a local, cost-effective source of fish feed accelerated the action, said project manager Deogratius Kasozi. "The feed itself is cheap but the cost of freight and the short shelf life of only three months limited our options. Bringing it in by air was too expensive, while the long procurement cycle make imports by sea equally unviable as the stock expires before it even gets to the ponds," said Mr Kasozi.

The Sungenor project, a joint venture between Genomar and its Ugandan partners Sunco and Ngege Ltd., was launched in 2005 to develop an integrated aquaculture operation with a fish hatchery and commercial fish farming aiming at yields of as much as 30,000 tonnes of tilapia annually by 2009. It was expected that commercial rearing of fast growing strains of tilapia would take pressure off Lake Victoria, which has recently suffered declining yields in the face of overfishing and a degraded habitat.

Mr Kasozi says that Sungenor was trying to work with USAid to mobilise the industry to a point where it can support local manufacturing of fish feed. Although there are many people currently growing fish in ponds, they have not been very successful because they are using poultry-based feeds, which impacts on yields. Initial estimates have put the cost of a fish feed plant at \$2 million, an investment Mr Kasozi says would be justifiable only if it allowed the plant to achieve optimum output. "It is this apparent stalemate that forced Genomar to suspend its involvement; but USAid is trying to mobilise donors to contribute towards establishing local manufacture of fish feed," he added. However, he said the objectives of the pilot project undertaken in 2005 had been realised with the fingerlings reaching the target weight of one kilogramme in six months. The project was premised on the need to supplement fisheries from Lake Victoria, which, besides supplying a fish processing industry that has grown rapidly in the past 10 years, is exposed to massive demand for tilapia, the preferred fish in Uganda and most of the Great Lakes region.

Uganda's earnings from formal fish exports surpassed the \$136 million mark last year; it is estimated catches are over 250,000 tonnes annually. Growing demand for fish has led to more aggressive fishing methods that threaten the sustainability of the industry. The project was expected to meet demand for fish in Uganda and neighbouring countries such as Kenya, Tanzania, Rwanda, Congo and Sudan.

Sungenor says widespread commercial fish farming is the only way of saving Lake Victoria as it would absorb some of the pressure by using fast growing species to supply the domestic and export market.

Compared with the strains developed by Genomar, wild tilapia can take as long as three years to reach a kilogramme of weight. In trials undertaken in Masaka, 130 kilometres south of Kampala, control samples comprised of indigenous varieties took 12 months to achieve just 300 grammes of weight while the genetically developed varieties had achieved weights of 1kg in half that time. According to the original plan, the project was expected to yield 10,000 tonnes of tilapia fish in the first year, beginning January 2006, before rising to 30,000 tonnes annually by 2009. Results from the pilot project indicated that annual output levels of between 10 tonnes and 40 tonnes per hectare were achievable in Uganda but production had stagnated at the current level of one tonne per hectare mainly because of poor feed and water quality. At least four fish processing factories have closed down in Uganda during the past year, citing difficulties in getting fish supplies.

## Trout and Salmon



### Year round Trout ova supply

Molapong Aquaculture is offering South African trout farmers year round supply of mixed sex and all female rainbow trout ova comprising of locally produced ova from May till August and imported Danish ova for the remainder of the year.

See under Letters to the Editor above for more details.

## **New R 17 million project for the Western Cape**

From the Cape Business News

South Africa's biggest ever fish farming project is being planned at the mouth of the Berg River, at Velddrif on the Cape's West Coast. It is expected that once it has been developed to full capacity, at a cost of some R18 million, it will play a major role in creating jobs in the West Coast's ailing fishing industry. It will also have a strong BBEE component to allow the historically disadvantaged community of Velddrif and environs to participate in the management and ownership of the project.

The company spearheading the project is Denmark-based UNI Aqua, and will take on local partners as well.

The land-based aquaculture project is intended to comprise three main components: a high-density Atlantic salmon production unit with an initial capacity of 800 tons per year, a cob production unit delivering at start-up about 50 tons a year, and a pond-based seaweed farming project, producing 24 tons a year. The importance of the seaweed lies in its ability to absorb metabolic waste products from the fish-farming units as part of the purification of the recirculating sea water. Extending the aquaculture project to include oyster and abalone farming is also being investigated. For the highly intensive production of salmon the latest Scandinavian water recirculatory technology and expertise will be used. Prof Danie Brink of the Division for Aquaculture of the University of Stellenbosch, says the salmon production unit is being designed in a modular way, making it possible to increase production over time to 4 000 tons per year.

"South Africa currently imports close on 2 000 tons of salmon a year at a cost of about R80 million. From the outset, the new facility will reduce substantially and in time eliminate the importation of high-value Atlantic salmon into the country," says Brink, who has been appointed a consultant to the project.

The production of cob could also be increased from the initial 50 tons a year to 2 000 tons a year by introducing the same intensive production system used in the case of salmon. "The present demand for cob in the local market is about 2 000 tons per year, but catches to meet that demand are not sustainable. To breed cob in captivity will take enormous pressure off the source," Brink says. The aquaculture facility will be located inland on the planned Flamink Vlei property development and not close to the river or the sea. Sea water will be pumped to it. Once the facility is running at full capacity of 6 000 tons per year, 235 people will be working on site and, based on the industry formula of one job for every 5 to 6 tons of fish, 1 000 to 1 200 people will gain employment downstream in existing factories, it is expected.

"Due mainly to dwindling catches, unemployment in Velddrif in 2006 was 31.6%, up from 12.9% in 2001. However, because the fishing industry and agriculture have been by far the biggest employers over many years, people's skills are geared to the needs of those industries. Only the revival of the fishing industry really offers a solution to the high unemployment," says Chris Mulder, who is responsible for the design and management of the planned residential property development. Mulder says in addition to the aquaculture project the Flamink Vlei development of 600 erven itself would create substantial employment in an area starved for jobs. "During the construction period, which takes six to eight years, the project will create 3 280 direct and indirect job opportunities while in the operating period, which is the life of the development, it will generate 1 266 sustainable, permanent jobs.

## **US Trout restoration project put on hold**

Excerpt from article by Brett French

The use of chemicals to poison fish in the name of restoration of native species and to ease the stocking of game fish has been a hot-button issue across the United States for years. The poison is seen by fish management agencies as the cheapest and easiest way to remove unwanted fish.

Although study after study has shown the effects of the poison to be minimal, its use hasn't been without problems.

Former philosophy professor and author Alston Chase, who lives south of Livingston, criticized the heavy-handedness of human management of Yellowstone National Park in his book, "Playing God in Yellowstone." He said the idea of keeping species genetically pure is, "frankly, rather silly, and *no convincing case has been made that it's good science*." "If one looks at the natural history of North America, one sees there's been a tremendous mixing of aquatic species for 20,000 years." He noted that huge lakes, formed in the last ice age by ice dams, were bigger than today's Great Lakes and often burst, flooding the surrounding land for hundreds of miles. "The result was a mixing of various species," he said. "The notion that we need to keep these species apart is a quaint idea which has no basis in evolutionary history."

"But recent court rulings say a fish is a fish is a fish and we'll never get hybridization out of the drainage," he added. "It may not be as critical an effort as in the past." Such arguments may have gained more steam after it was discovered in September that the Colorado Division of Wildlife had been stocking the wrong trout for 20 years!

The group Montanans for Multiple (resource) Use sees the restoration of native species in a different light, saying predators and fish draw attention and money and enable environmentalists to "lock up" more land because they have large habitat requirements. The group's Web site states "The Endangered Species Act is the engine of social change being used by environmental elitists, socialists and envious urban muggers to destroy rural America. The wildlife that they pretend to care so much about are but tools of conquest."

Full article and other website at:-

<http://www.billingsgazette.net/articles/2008/01/06/news/state/28-fish.txt>

[www.mtmultipleuse.org](http://www.mtmultipleuse.org)

## **Brown Trout escape from farm**

By Richard Alleyne and Gary Cleland in the Times

The owners of a trout farm were left baffled when fish were going missing. But then a wildlife photographer caught their extraordinary escape route on camera. He pictured the trout making giant leaps out of their pond straight into the metal feed pipe three feet above the water level.



They then fought against the current for 30 feet until they reached the end of the eight inch wide pipe, which emerges underwater in a tributary of the River Itchen in the UK. Wildlife photographer Dennis Bright, 59, captured the amazing aerobic fish earlier this week at the trout farm. The Brown Trout belongs to the same family as the Atlantic salmon. They are medium sized fish, growing to 20 kg or more, although in many smaller rivers a mature weight of 1 kg or less is common. They prefer cold (15.5-18.3°C), well-oxygenated upland waters, especially large streams in mountainous areas. Their natural diet includes invertebrates from the streambed, small fish, frogs, and insects.

Full article:-

<http://www.growfish.com.au/content.asp?contentid=10593>

## Other



### US \$ 550,000 aquaculture project in Ghana

From Morgan Owusu

AngloGold Ashanti, the largest Gold mining company in the country, as part of its social responsibility, has invested a whopping amount of \$550,000 in an ultra-modern aquaculture project at Humasi, a small farming community in the Obuasi municipality of the Ashanti Region, Ghana. The project which was commissioned on May 25, 2007 is expected to be operational in the next three years.

Full story:-

[http://www.modernghana.com/GhanaHome/NewsArchive/news\\_details.asp?menu\\_id=1&id=VFZSVmVVOVVSWSG89](http://www.modernghana.com/GhanaHome/NewsArchive/news_details.asp?menu_id=1&id=VFZSVmVVOVVSWSG89)

### Australian vaccinations for Barramundi developed

Hundreds of thousands of small barramundi have recently been vaccinated at the Darwin Aquaculture Centre (DAC) before being sent to fish farms throughout the Top End. Department of Primary Industry, Fisheries and Mines (DPIFM) DAC senior aquaculture scientist Jerome Bosmans said twelve staff from across the department and from local fish farms spent six days inoculating over 200 000 fish, each measuring only 10-12 cm. "Each day we inoculated around 30,000 – 40,000 fish, one by one over a six hour period," Mr Bosmans said.

The fish are vaccinated against the bacteria *Streptococcus iniae*, which can be a major threat to fish farming. *Streptococcus iniae* is now considered to be the most significant bacterial pathogen affecting farmed barramundi in Australia and has the potential to limit successful production of plate sized fish or fish for fillets both in freshwater and marine systems of farming. Mr Bosmans said once the fish have been inoculated they are delivered to local fish farms a few days later as stock for their ponds. The fish are harvested and sold whole, fresh-on-ice to interstate and international markets.

The vaccine costs about nine cents per fish and is like insurance for fish farmers, by reducing the chance of the barramundi contracting the bacterial disease by 95-99 per cent. This inoculation practice is common throughout the world but the DAC has been the first to adapt the practice to barramundi in Australia. Mr Bosmans said that hatchery/nursery production is on the rise with a projected fingerling requirement for 2007 in excess of 1.5 million.

“Barramundi fetch nine to ten dollars per kilogram and were worth \$4.8 million to the Northern Territories last year, production has increased ten fold since 2001, with a projected increase to over 1,000 tonnes in 2008 and to over 1,500 tonnes within the next three years. The Industry has a long term-vision of developing a barramundi farming sector of over 10,000 tonnes per annum. The DAC is currently helping the Industry to develop a fourth pond farm located near to Channel Island. The farm has been operational since mid 2007. “We are an internationally renown research and commercial facility and constantly review hatchery and nursery production protocols to improve the fingerling quality supplied to the Industry.” Bosmans said.

<http://www.growfish.com.au/content.asp?ContentId=10619>

### **Sustainably Farmed Cod offered for sale**

A Company called NOCATCHCOD is promoting farmed cod as an environmentally sustainable aquaculture product to replace the collapsed North Sea wild fishery catch at this website:-

<http://www.nocatchcod.com/index.html>

### **Ladies handbags from Nile perch skins**

From fashion catalogue “FabSugar”

Handbag designer, Devi Kroell, spent her formative years jumping between Indonesia, the Philippines, Singapore, France, and Italy, and as a result, her look is at once very far-flung and highly luxurious. Kroell's minimalist bags are constructed out of python, anaconda, and other reptilian skins in bright colors. The brand counts Ashlee Simpson, Sienna Miller, Selma Blair, Kate Hudson, Reese Witherspoon, and Demi Moore among its fans.



Devi Kroell Nile Perch Shoulder Bag, list price US\$2,261-00

See also:- <http://www.new-ag.info/99-4/develop/dev03.html>

### **Three processing Companies suspend Nile perch export operations**

From the New Vision in Kampala, by Macrines Nyapendi

Three fish exporting companies in Uganda have suspended operations due to high production costs caused by the post-election violence in Kenya. The plants are Oakwood based at Kansensero landing site, Wild Catches in Butiaba, Lake Albert and Marine and Agro. "Skyrocketing fuel prices and lack of packaging materials has forced us to temporarily close down. If the violence in Kenya continues, all processors will halt operations," a source said. Solid packaging boxes imported from South Africa, which come into the country by road through Kenya, have not arrived.

Dick Nyeko, the commissioner for fisheries, said the processors who suspended operations use generators because they are not connected to the main power grid. He added: "But even those who are connected to the main power grid may be affected by the surging prices of the Nile Perch at the landing sites and the depreciating dollar." "The fuel crisis has severely affected fish exports because boats fishing Nile Perch use petrol engines. Nile Perch prices at the landing sites have been rising by 10% daily," Nyeko said.

A kilogramme of Nile Perch at the landing sites was at Kenyan shillings 3500 before the crisis.

Hundreds of fishermen in Butiaba and Kasensero landing sites are stuck with fish. "The situation is getting worse by the day. Our main buyers have stopped us from supplying them, yet the other processors are in Kampala. We cannot take fish to Kampala plants because we don't have contracts with them," a fisherman in Butiaba said.

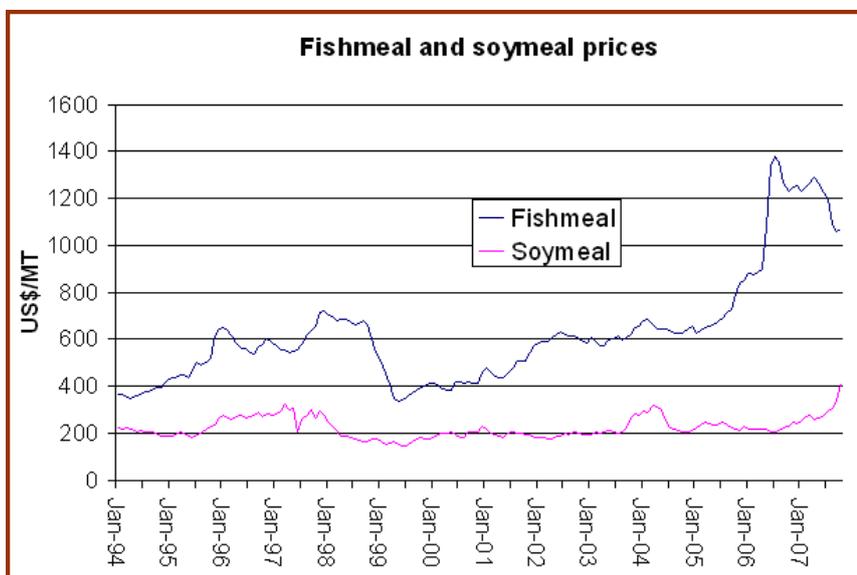
Fish export earnings stand at over \$150m (sh255b) annually with fish being the second largest forex earner after coffee.

## Feeds

### Fishmeal production down

By Helga Josupeit Globefish

Fishmeal production in the five major exporting countries declined in 2007. In the first ten months of 2007, some 2.0 million tonnes were produced, 5% less than in the same period of 2006. This was mainly due to lower production in Chile and the Scandinavian countries.



Fishmeal prices declined in the course of the year, due to the sluggish demand in China. In early November 2007, fishmeal prices were US\$ 900/tonne, which compared to US\$ 980/tonne one year ago. In addition to the bleak market situation in China, the salmon disease problem in Chile and seasonal downturn of aquaculture activities created a stale market environment for fishmeal. However, with the sudden buying interest of China, prices went up within days to over US\$ 1 000/tonne.

Further price increases are likely to materialize over the coming months, in view of supply problems. La Niña, the cold Ocean current, is expected to hit the Peruvian anchovy fisheries in the coming months, which should lead to lower catches than anticipated.

## Environment, Health and Disease issues

### Organic fish-farming standards

From the Soil Association

The Soil Association's organic fish farming standards took top place and scored 90 % in a World Wildlife Fund (WWF) study of 24 international aquaculture certification schemes. The study analysed existing certification programmes against criteria that WWF believes are important to achieve sustainability and credibility in the aquaculture sector. The four key issues examined were environment, social issues, animal welfare and the standard setting and certification process. Ten

organic standards were included in the study and gave the top ten scores. Soil Association Aquaculture Programme Manager Peter Bridson said that they had always been committed to developing the highest standards possible for farmed fish, particularly for salmon and trout in the UK, and that it was very encouraging to get international recognition from an organisation such as WWF. Despite having the highest score, the report still highlighted areas for further improvement. He continued that some of these had already been achieved since the report was drafted, but they were continuously working to improve the standards even further.

The study can be downloaded as PDF from here:-

[http://www.panda.org/news\\_facts/publications/index.cfm?uNewsID=119260](http://www.panda.org/news_facts/publications/index.cfm?uNewsID=119260)

## **Nile Perch receives protection through newly proclaimed Reserve**

From the New Vision, by Gerald Tenywa and Joyce Namutebi

Uganda has declared its first ever water reserve, aimed at protecting the disappearing Nile Perch and other species in Lake Victoria. Agriculture minister Hilary Onek said the protected area would be called 'Commonwealth Lake Reserve', in commemoration of the 2007 Commonwealth Heads of Government Meeting, which was held in Kampala. He said the protection of the new marine park would begin in December and be spearheaded by the agriculture ministry until funding from donors is found. The reserve occupies about 100 square kilometres out of the Lake Victoria's 34,800 square kilometres. It covers the islands of Mukusa, Sanga, Kawaga Light House, Tavu, Kizima, Miru, Mukusa and part of Kimmi, which are all uninhabited. Commercial fishing will not be allowed in the area, while sport fishing will only be permitted under strict conditions.

The marine park is meant to protect biological diversity, as fish will be able to breed undisturbed.

"Similar reserves worldwide regularly see a five-fold increase in fish stocks compared to nearby commercial fishing areas," Onek said. "Excess fish populations within the marine park will in time migrate or spill out into nearby commercial fishing grounds, thereby increasing the catch for neighbouring communities on a sustainable basis." He noted that fish exports were one of the biggest foreign exchange earners in Uganda. Besides protecting fish, the reserve is expected to lead to a growth in the number of bird species and wild animals, such as otters and hippos. In addition, it will have an area where scientific research can be carried out.

The State Minister of Fisheries, Fred Mukisa, said the surrounding fishing communities would be sensitised about the new protected area. "We expect the community to embrace this concept because it will help them secure their future," Mukisa said.

Dick Nyeko, the fisheries commissioner, revealed that the measure came as a result of concerns over the depletion of the wild Nile perch and other fish stock in Lake Victoria. "We have been consulting for three years on the establishment of the reserve," Nyeko told The New Vision. "The protection of fish is important because the Nile Perch, which is under pressure, will get replenished and the communities near the reserve will benefit from increased catches."

Uganda is a signatory to the Convention on Biological Diversity, which requires it to protect endangered species from extinction.

## **IUCN warns of threat to Oceans**

From Newswise

At the United Nations General Assembly, the World Conservation Union (IUCN), the only conservation organization with official observer status at the UN, called for the rapid development of a network of marine protected areas to help the oceans cope with climate change. Overfishing

has left most global fish stocks perilously close to commercial collapse whilst global warming is putting increasing pressure on fragile ecosystems, such as mangroves, coral reefs and seagrasses, upon which so many people's livelihoods depend.

"The need for nations to agree on urgent action has never been more acute," says Carl Gustaf Lundin, Head of the IUCN Global Marine Programme. "Measures introduced over the next few years will determine what the future will hold in terms of food security, species survival and the ocean's ability to withstand climate change, and those measures have to include a robust network of marine protected areas, in national and international waters." IUCN is recommending a rapid acceleration in the establishment of marine protected areas to help the oceans become more resilient. Currently only one percent of the oceans enjoy some level of protection, a long way short of the 10% target the United Nations Convention on Biological Diversity set itself to achieve by 2010.

Full article and other IUCN links:-

<http://www.newswise.com/articles/view/536166/>

<http://www.iucn.org/themes/marine/pdf/iucn-unga-statement-dec07.pdf>

[http://www.iucn.org/en/news/archive/2001\\_2005/ocean\\_blues\\_06\\_2006.pdf](http://www.iucn.org/en/news/archive/2001_2005/ocean_blues_06_2006.pdf)

## Research matters, Reviews & Training

### Antifouling research

By Kerri-Ann Hobbs in the Geelong Advertiser

Scientists are turning to nature to bust barnacles from the hulls of ships. The CSIRO staff have teamed up with Townsville's James Cook University marine biologists to mimic the way mussels and barnacles prevent growths from fouling their shells, and they hope the non-toxic treatment could be used on any submerged surface, including undersea pipes, aquaculture farms and even recreational boats.

CSIRO Textile and Fibre Technology's Dr Andrew Poole said the shells of certain molluscs have two characteristics which we think stop it from biofouling, the first is they have really fine ripples on the surface that stops anything sticking to it but bacteria can come along and fill in the gaps to make a smooth surface, so the shells have a protein coating that keeps the organism clean, preventing that from happening.

In the past anything kept in the ocean was coated with a toxic paint that slowly leached out as the vessel moved, but that was banned world-wide after the toxin began showing up in bays and harbours in alarming levels, Dr Poole said. It's estimated over seven million tonnes of fuel were saved each year by using toxic paints. That's 20 million tonnes of greenhouse gas saved each year. Research shows biofouling has the potential to cost the shipping industry US\$3 billion annually if left unchecked, and affected ships use 40 per cent more fuel and can spread marine pests between ports. This is a new endeavour for the Belmont CSIRO division, which once focused entirely on wool research but now also investigates high-tech and eco-friendly fibres. In addition to shipping, the technology would benefit Australia's aquaculture industry and may even be used to prevent bacteria sticking to contact lenses or medical instruments.

## A thorny solution to biofouling

Thorn-D® is a patented non-toxic antifouling technology that provides a physical barrier for biofouling. By applying very specific short fibres (“thorns”) on a surface, the surface becomes prickly and unattractive for fouling organisms to settle. By using excellent water based adhesion techniques, Thorn-D® is expected to last for the lifetime of the current nets in the case of use in Aquaculture. During this period, Thorn-D® treated surfaces will be free of especially the hard type of biofouling. Thorn-D® has proven to be effective against both hard and soft fouling by testing at different locations of the world. Thorn-D® has been researched and refined for years. The product is patented. It can be applied on a variety of materials and currently there are three major substrate materials for the Aquaculture market that Micanti is developing further. Dyneema® as a high-end high strength material, Nylon as the bulk material being used for aquaculture nets and tests have started to apply the material to steel nets for special purposes. In addition test are being done on foils that have proven to be very effective and the product can also be applied directly to for instance buoys.

<http://www.micanti.com/html/aquaculture-products.htm>

## Mind the Gap

From the Economist.com

Mankind's transition from hunting and gathering to farming began about 12,000 years ago, when people decided to stay put and cultivate the plants they liked. Although people have since domesticated a vast array of the world's animals and plants, in one area at least we have never really shaken off our hunter-gatherer roots. Most of our fish is still caught in the wild, much as it was in our ancestors' time—albeit with a few more fancy bits of gadgetry to tip the balance in favour of the hunter, rather than the gathered.

The thrill of the chase, though, may increasingly be a thing of the past. Fish farming has been the world's fastest growing food-production sector, with output rising 8.8% a year since 1970, according to the Food and Agriculture Organisation. By comparison, livestock production increased at a rate of 2.8% a year. Today, some 45% of all fish consumed by humans—around 48m tonnes—is raised on farms. That is still only half of what is caught in the ocean (much of which goes to feed livestock), but at this rate, in eight years farming will produce as many fish as are caught at sea today. Part of the solution? Levels of wild-fish catches have been stable since the mid-1980s, and the vast majority of the world's capture-fisheries are fully exploited—or indeed over-exploited: we cannot, therefore, catch more wild fish than we do today. But the demand for fish is booming, thanks to growing numbers of people, and their increasing affluence.

By 2030 a whopping 37 million extra tonnes of fish will be needed to maintain current levels of fish consumption per person. The missing fish that needs to be found to sustain levels of consumption has been dubbed the “fish gap”, and it will have to be filled by fish farming.

But fish farming has its problems, too. It does not, for instance, always increase the total amount of fish available. Carnivorous farmed fish must be fed wild fish; for every pound of salmon eaten, several pounds of wild fish must be caught. Currently, much of this fishmeal can be obtained by using industrially caught fish to feed fish rather than animals, but what happens after that? Fish farming already uses up most of the world's fish oil and a hefty chunk of its fish meal. Many aquaculturists are now eyeing krill, a small crustacean found in the cold waters of Antarctica. It is an excellent source of nutrition for farmed fish. Unfortunately, krill is central to the Antarctic marine food-web, and it is also an excellent source of nutrition for all of the species in the Southern Ocean.

Another problem with salmon farming has been revealed in a recent paper that shows the damage salmon farms can do to nearby wild fish populations. Farmed salmon, kept in unnaturally high densities, are a breeding ground for parasitic sea lice. When young wild salmon on their way to the ocean swim past pens of farmed salmon at the mouths of rivers, they get infested with these lice.

The scientists say that lice infestations could drive some salmon populations they studied in British Columbia to extinction in four years. Such problems seem likely to worsen as fish farming grows. But there are solutions. One is to farm more vegetarian fish such as tilapia and catfish. Another is to move salmon pens to better locations. Earlier this year, John Fredriksen, the main shareholder in Marine Harvest, the world's largest salmon farming company, said that salmon farms ought to be moved away from wild salmon runs. A better, although more expensive, solution would be to make fish farms self-contained. OceanBoy Farms, a company in Florida, produces organic inland shrimp using cleverly designed ponds that avoid another environmental side-effect of fish-farming—the dumping of fish faeces and uneaten food onto the bottoms of sensitive marine environments, such as Scottish lochs. Some have linked this filth to the growth of toxic algal blooms.

Compared to terrestrial agriculture, fish farming is young, and it has a lot of growing up to do. Like farming, it causes environmental problems but offers great benefits. The world will have to find solutions to the first in order properly to enjoy the second.

[http://www.economist.com/world/international/displaystory.cfm?story\\_id=10414316](http://www.economist.com/world/international/displaystory.cfm?story_id=10414316)

And comment on the European Fisheries policy

[http://www.economist.com/world/europe/displaystory.cfm?story\\_id=10286025](http://www.economist.com/world/europe/displaystory.cfm?story_id=10286025)

West African fish being exploited by European fleets

[http://www.nytimes.com/2008/01/15/world/europe/15fish.html?\\_r=1&em&ex=1200546000&en=1343f47d6fff7011&ei=5087%0A&oref=slogin](http://www.nytimes.com/2008/01/15/world/europe/15fish.html?_r=1&em&ex=1200546000&en=1343f47d6fff7011&ei=5087%0A&oref=slogin)

## **Aquaculture Training via distance learning**

Stellenbosch University is offering an Aquaculture Certificate Course that is suitable for persons in full time employment to complete at home. The course covers the following and takes one year.

Applied Biology of Aquaculture Species - Trout, Carp, Tilapia, Catfish, Abalone, Prawns, Mussels, and Seaweed.

Lectures on Physiological Systems and Applied Biology, Respiratory and Recirculatory systems; Digestive and Endocrine systems, Nerve, Skeletal and muscle systems.

Nutrition and Feeding of Aquaculture Species.

Lectures on Nutritional requirements, live feeds, Formulation and manufacturing of artificial Feed, Feed management: Application and Monitoring.

Water Ecology: Monitoring and Management

Lectures on Water quality parameters, Monitoring and Management of water quality.

Production Systems: Design and Management.

Lectures on Site selection & System design; Pond management.

Processing and Product Development.

Lectures on Processing, storage & Quality control, Product development

Fish disease and Fish Health Management.

Lectures on Disease recognition and identification, Disease treatment and prevention, Common diseases of fish and shellfish.

Presentation. The course is presented in English through the use of multimedia, which includes: printed course material; study guides; access to websites; video material, DVDs, and interactive television. Examinations and tasks may also be submitted in Afrikaans. Closing date for applications is January 31.

Enquiries can be directed to Lorette de Villiers, Division of Aquaculture, Stellenbosch University,

Tel.: +27 (21) 808 5832

Fax: +27 (21) 808 5832

Email: [lorette@sun.ac.za](mailto:lorette@sun.ac.za)

<http://www.sun.ac.za/distanceeducation>

## Regulatory matters

### Nambia commended on Aquaculture legal framework

By Charles Tjatindi

The Government has been praised for prioritising its aquaculture programme, as well as achieving a great deal through the programme within a short space of time. The Marketing Information and Technical Advisory Services for the Fisheries Industry in Southern Africa (INFOSA) in its publication on Africa's fishing industry noted the Namibian Government had managed to put in place a legal and institutional framework for the development of aquaculture. It attributed this to a policy for the development of the sector initiated in 2001, followed some years later by an Aquaculture Act, and eventually the creation of an official Directorate of Aquaculture. A formal licensing system was also subsequently developed.

The latest edition, in which Namibia received accolades for the development of the country's aquaculture sector, contains reports on the performances of the various fishing nations on the continent over the year. The publication was distributed at a workshop on international trends in the seafood industry in Swakopmund.

Full story at:-

<http://allafrica.com/stories/200712170639.html>

## Conferences & Upcoming events

### Aquafeed Horizons Asia 2008

Queen Sirikit National Convention Centre  
Bangkok, Thailand  
March 6, 2008

Website at <http://aquafeed.info/index.html>

## 7<sup>th</sup> International Aquarium Congress IAC 2008

Shanghai International Convention Center

20 – 24 Oct 2008 (Conference)

21 – 23 Oct 2008 (Exhibition)

Theme -Progress and Conservation - The role of aquariums in protecting the aquatic environment.

SECOND CALL FOR PAPERS ! Deadline for Paper Submissions 31 January 2008!

Email to [Secretariat@iac2008.cn](mailto:Secretariat@iac2008.cn)

## Employment

### Production and Hatchery Managers

We are looking for 2 candidates to employ on a catfish farm as production and hatchery managers. Aquaculture Certificate and B.Sc. students interested in the posts should send through CV's, the remuneration is R18 000-R20 000 per month.

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