



NEWSLETTER

OF

AQUACULTURE ASSOCIATION OF SOUTHERN AFRICA

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

Volume 5:6 • January 2010

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A Word from the AASA Chairman

Etienne Hinrichsen

I have realized over the last few years that there are instances when climate, species choice, need for capital, red tape and the other common factors that we regularly refer to as causes for slow aquaculture development, are not always to blame. Sadly (and perhaps this is true for many industries), a lack of insight and “through-sight” and realism is something that has the ability to turn enthusiasm into disillusion. It is difficult to commit this to words, while still keeping you convinced that I remain positive and bullish about aquaculture development in our region.

To provide more clarity on the matter above: I have seen countless development strategies, business plans and models that fail to cement the realism of aquaculture; be it is realistic feed prices, achievable growth rates, prices and feasible market penetration etc. The fact is that putting this required realism together is quite simple. The problem is that often people base their realistic aquaculture planning and the unrealistic work of others.....and it adds up.....exponentially. Slight discount of feed prices, slightly better than possible growth and perhaps the use of first world prices to compete in commodity markets – put this together and one has a sure-fire compounded recipe for disaster. Add to this people who “sell” aquaculture as the silver bullet to create jobs, feed the poor and create common wealth – forget it!

Having written all this I question its appropriateness for the opening note to a newsletter. I'm sure you have not opened this newsletter to hear a lecture on responsible aquaculture planning, but through this newsletter I believe we can sensitize more and more people, so that we can get more and more people that development sustainable aquaculture ventures in our region.

I trust that most people have now found their stride for 2010. For Southern Africa the next few months will be dominated by the World Cup. But in aquaculture we have a host of upcoming events, meetings, workshops etc. We continuously strive to improve our communications to members and interested parties and in this we plan a revision and improvement of the website in the near future. We urge you therefore to ensure that your membership subscriptions for 2010 are up to date.

The Editor's choice

Adrian Piers newsletter@aasa-aqua.co.za

Editorial

As Aquaculturists should we be worried about climate change? And if so, what are the likely impacts on the industry? Below is a FAO report that focuses mainly on fisheries. Is this a threat to aquaculture or a new opportunity and another factor that will open up more markets? Some relevant quotes below show the debate is far from over on the facts of climate change in general, such as:-

“Climate change doubters say UN data has been tampered to grossly overstate case that the Earth is warming up. The United Nation's Intergovernmental Panel on Climate Change faces a fresh challenge with scientists casting doubt on its claim that the evidence for global warming is 'unequivocal'. Some scientists maintain the earth has heated and cooled throughout time, irrespective of man-made effects.” From a report in the news by Fiona Macrae. Also:-

"In its most recent report, the panel said there was no doubt that temperatures are rising and that man is largely to blame. But some researchers, including a former IPCC report author, say that widespread and systematic tampering of the data mean the case for global warming has been grossly overstated. The claim will further erode trust in the panel, which has been caught making unfounded claims several times in recent weeks. These include using a student's essay and an article from a climbing magazine to make claims about reductions in ice on mountains around the world, *in a report used by governments around the world to set environmental policy.*" Italics mine.

In a separate development, the academic at the centre of the Climategate email scandal, whose raw data is crucial to the theory of climate change, has admitted that he has trouble 'keeping track' of the information. Professor Phil Jones, of UEA's prestigious Climatic Research Unit, told the BBC there was truth in the observations of colleagues that he lacked organisational skills, that his office was swamped with piles of paper and that his record keeping is 'not as good as it should be'. As the scientist at centre of the row, he admits that in the past 15 years there had been no 'statistically significant' warming, although he argued this was a blip rather than the long-term trend. The BBC report here:-

<http://news.bbc.co.uk/2/hi/science/nature/8511701.stm>

So how much verity does this report contain?

Fisheries and Aquaculture Face Multiple Risks From Climate Change

A new report, published by the Food and Agriculture Organisation (FAO) of the United Nations, predicts "an ocean of change" for fishers and fish farmers. It warned that urgent adaptation measures are required in response to opportunities and threats to food and livelihood provision due to climatic variations. The study, 'Climate change implications for fisheries and aquaculture', is one of the most comprehensive surveys to date of existing scientific knowledge on the impacts of climate change on fisheries and aquaculture. Covering some 500 scientific papers, the picture the FAO review paints is one of an already-vulnerable sector facing widespread and often profound changes. The report includes contributions from experts from around the world, including Dr Tim Daw and Prof Katrina Brown of the School of International Development and Prof Neil Adger of the School of Environmental Sciences at UEA. Other contributors come from the World Fish Center, Globec, Network of Aquaculture Centres in Asia-Pacific, and Fisheries and Oceans Canada.

Dr. Daw and Profs. Adger and Brown co-authored the chapter 'Climate change and capture fisheries: potential impacts, adaptation and mitigation', which looks at the social vulnerability of fisherfolk to climate change. "Marine and freshwater ecosystems will be profoundly affected by processes like ocean acidification, coral bleaching and altered river flows with obvious impacts on fisherfolk, but it is not just about what happens to the fish," said Daw. "Fishing communities are vulnerable to sea level rise and their livelihoods are threatened by storms and extreme weather. Meanwhile, the social and economic context of fisheries will be disrupted by impacts on security, migration, transport and markets. Fisheries are already rapidly evolving due to overexploitation and globalisation. They will suffer from wide range of different impacts from climate change, which may be unpredictable and surprising. The poorest will be least able to adapt to these impacts. For example in Kenya poorer fishers were shown to be less likely to switch to other livelihoods if catches declined."

Adger added: "Climate change is going to be a huge challenge to every sector of society and what we're learning about fisheries shows how difficult adaptation will be, particularly for the poorest parts of the world."

According to the report, marine capture fisheries already facing multiple challenges due to overfishing, habitat loss and weak management are poorly positioned to cope with new problems stemming from climate change. Small island developing states -- which depend on fisheries and aquaculture for at least 50 percent of their animal protein intake -- are in a particularly vulnerable position. Some 520 million people depend on fisheries and aquaculture as a source of protein and

income. For 400 million of the poorest of these, fish provides half or more of their animal protein and dietary minerals. Many fishing and coastal communities already subsist in precarious and vulnerable conditions because of poverty and rural underdevelopment, with their wellbeing often undermined by over-exploitation of fishery resources and degraded ecosystems.

Inland fisheries -- 90 per cent of which are found in Africa and Asia -- are also at risk, threatening the food supply and livelihoods of some of the world's poorest populations. Warming in Africa and central Asia is expected to be above the global mean, and predictions suggest that by 2100 significant negative impacts will be felt across 25 per cent of Africa's inland aquatic ecosystems.

Fish farming will also be affected. Nearly 65 per cent of aquaculture is inland and concentrated mostly in the tropical and subtropical regions of Asia, often in the delta areas of major rivers at the mid- to upper levels of tidal ranges. Sea level rise over the next decades will increase upstream salinity, affecting fish farms.

A crucial issue highlighted by the report relates to how well such communities will be able to adapt to change. For example, even if African coastal fisheries do not face huge impacts, the region's 'adaptive capacity' to respond to climate change is low, rendering communities there highly vulnerable even to minor changes in climate and temperature.

<http://allafrica.com/stories/200912310667.html>

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South African Fisheries in a Flap

By Yolandi Groenewald

The transfer of part of South Africa's fisheries to the Agriculture, Forestry and Fisheries Department has not included the lucrative and controversy-plagued areas of fishing permits and marine conservation, sparking outrage in the department and among stakeholders. Academics, conservationists and fishing interests have written to President Jacob Zuma deploring the restructuring, saying it will weaken the country's fishing industry. The National Education, Health and Allied Workers' Union (Nehawu), a Cosatu affiliate, has also objected strongly.

Fisheries was effectively split when Deputy President Kgalema Motlanthe signed a proclamation transferring most of the functions of the Marine and Coastal Management (MCM) unit, which fell under the Department of Environmental Affairs, to Agriculture, Forestry and Fisheries. But environmental management of the oceans will still fall under Buyelwa Sonjica, the Minister of Water and Environmental affairs. The proclamation was signed when Zuma was out of the country. The split is understood to have been preceded by intense behind-the-scenes lobbying by environmental affairs officials. Fishing and aquaculture licences are a lucrative and powerful resource, and environmental affairs will continue to control conservation vessels, which carry a large budget.

Against this backdrop, MCM staff have written to Zuma, opposition politicians and journalists asking for former MCM head Monde Mayekiso to be investigated over alleged mismanagement, nepotism and corruption involving hundreds of millions of Rands. Agriculture Minister Tina Joemat Pettersson's officials have already held informal discussions with the Hawks about a possible probe of the MCM. Gareth Morgan, the Democratic Alliance environment spokesperson, said: "The turf war between officials and staff inside this branch of the department of environmental affairs is seriously compromising its ability to manage fisheries in South Africa." He said the accusations against Mayekiso, which were not new, were serious and required further investigation.

MCM staff wrote that "powerful politicians in the ruling party" are lobbying on Mayekiso's behalf. In its letter to Zuma, Nehawu said it believed Mayekiso, environmental director general Nosipho Jezile-Ngcaba and acting MCM head Razeena Omar are misleading Sonjica, Joemat-Pettersson and officials of the presidency and the public service department. "The only thing this proclamation ... will ensure is the creation and strengthening of fiefdoms for certain individual officials, as it seems that what is driving this process currently is opposed to what is in the best interest of our country and the management of its natural resources," Nehawu writes. Marine and coastal management sources said a "scared" Mayekiso was likely to face an investigation soon. A staff member said that even though he had moved to another deputy director general's position in environmental affairs, his shadow still loomed large over MCM.

Mayekiso said he would welcome a forensic investigation, as he had nothing to hide. He strongly denied all allegations against him. He said he had never campaigned "for anything" and that allegations that he had lobbied against the transfer of MCM to the fisheries department were totally unfounded. In their email staff accuse Mayekiso of allocating a large share of R300-million in funds intended for the Marine Aquaculture Programme (MAP) to a Hermanus aquaculture project not listed among the top four projects selected for the MAP. "All energy, effort and resources of MAP are being pumped into the Hermanus project, at the expense of development of the other pilots," the email reads. "The bulk of the R300-million is also being used to develop the infrastructure of the Hermanus project. It is not clear how much, if any, of the funds have been used on the other pilot projects." Staff allege Mayekiso and Deputy Speaker of Parliament, Noma-india Mfeketo met the Hermanus company. Both denied any links with the company and declined to speak about their relationship, saying it was private. Staff also allege that the department awarded a R9,5-million

contract for measuring fishing rights performance to the Resolve Group while Mayekiso's son was a director of the group.

The Environmental Affairs Department said the staff allegations were unsubstantiated. On allegations that Mayekiso was too closely involved in driving aquaculture, spokesperson Albi Modise said aquaculture was a government priority and Mayekiso had to take a keen interest. He said the selection of Hermanus was informed by the fact that it lies at the centre of communities affected by the abalone moratorium.

Mayekiso referred questions about the awarding of tenders to the Resolve Group back to the department, saying he was not intimately involved in tender processes.

<http://www.mg.co.za/article/2010-02-12-fisheries-in-a-flap>

Abalone Viral Ganglioneuritis biosecurity still in force in Australia

Fisheries Victoria in Australia is reminding water users of the protocols to minimise the risk of spreading the disease, known as Abalone Viral Ganglioneuritis. Although the disease is abating in some reefs that were first affected more than three years ago, it has now been detected further to the east at Cape Otway.

Full article <http://www.powerboat-world.com/Biosecurity-protocols-vital-in-abalone-disease-battle/65757/arc>

Crayfish

US crayfish harvest down due to cold weather

Minvielle, director of the Louisiana Crawfish Farmers Association, said the current Louisiana state average is less than one sack per 25 acres of land, which is much lower than the normal average of one per 10 acres. "With the conditions we had early on, we should have had a really good season," Minvielle said. "The catch did not show up."

Robert Romaine, professor at the Aquaculture Research Station, said this year's unusually low temperatures are responsible for the limited catch. "With cold weather, the catch falls quite dramatically," Romaine said. "Their metabolism slows down, they're not active and they're not hungry." The Aquaculture Research Station developed formulated bait that attracts crawfish in warm water, but doesn't have effective bait for colder temperatures. "That's an area of research that we're working on," he said.

Bill Pizzolato, owner of Tony's Seafood located on Plank Road, said he was getting quality crawfish and lower prices before the cold weather. "The consistent cold really affected the supply and slowed down production," Pizzolato said. "The prices went up in the past two or three weeks."

"Ecologically, what occurs underneath the water is a lot more complicated and advanced than other types of aquaculture," Romaine said. Unlike catfish or rainbow trout farms, crawfish ponds are stocked without being counted and without a formulated diet. Romaine said this method of farming is more unpredictable, but less costly. Rice is grown for the crawfish, which decays and produces bacteria, which snails and other organisms crawfish like to eat, Romaine said.

"Crawfish farms are almost managed like a natural environment," Romaine said. "We try to simulate what happens in the Atchafalaya River Basin under ideal conditions."

Redclaw farming in Australia

John and Val Jennings have been farming redclaw freshwater crayfish at Mareeba since 1995. In that time they have seen many changes in the industry but none as exciting as the breeding program they are now part of.

Full story with good description of the farm and business at:-

http://my.netcopi.com/viewlibrary.php?subCategoryID=5394&showFile=5394_20091216115406_022.jpg

Ornamentals



Cold weather and Diesel cause loss of lake full of Koi

A Chinese fish farm lost an entire lake of ornamental Koi carp after coming up with the bright idea of using a mechanical digger to drive over the lake and scoop off the snow to allow sunlight into the water. Staff at the Kalun Lake in Jiutai, in northeastern China's Jilin province, were worried that the thick snow covering the icy lake would stop sunlight getting into the water which in turn was needed by the plants that both oxygenate the water and which were fed on by fish. They said they had been inspired by seeing pictures of trucks that used frozen rivers as highways during winter months in other parts of the world.

But the plan came to a slippery end when the heavy mechanical digger crashed through the ice - and hundreds of gallons of diesel oil flooded into the water. A park spokesman said: "We won't know how many of the fish are dead until the ice melts completely but we can see under the ice that there are a lot." The digger driver escaped after its shovel remained stuck to the surface caught in the ice and he managed to jump out and run to the bank to safety.



Oysters & Mussels

A new breed of oyster may encourage aquaculture

From the Economist

Much of the bounty of the ocean is, these days, far less plentiful than it used to be. Scarcity has made oysters expensive, turning this unattractive mollusc into a delicacy for the rich. That could change if researchers find a way to breed a faster growing and larger oyster.

As many gardeners and farmers know, crossbreeding two wimpy specimens sometimes produces strong offspring, an effect known as hybrid vigour. Hybrid vigour is common in plants and is found in some animals. Several years ago Dennis Hedgecock of the University of Southern California and his colleagues discovered that oysters can hybridise. If a tiny inbred strain called "oyster 6" is bred with the similarly puny "oyster 7", the result is a large and fast-growing oyster—"oyster 6x7"—which is easy to open and produces tens of millions of eggs. The problem, though, is that when oyster 6x7 is bred with itself, the resulting offspring are puny again. The hybrid does not, in the jargon, breed true.

If new hybrids were easy to generate in quantity, that would not matter. But oysters 6 and 7 themselves produce only around a million eggs per adult, and their shells are hard to open. Oyster farms each need tens of billions of eggs to operate commercially. Constantly regenerating the hybrid is not a viable approach. To get around this problem, Dr Hedgecock and his colleagues took some other puny inbreds and created a second hybrid line, oyster 8x9. This is also big, fast-growing and easy to open, and, like oyster 6x7, it produces tens of millions of eggs. The trick is that although it too does not breed true itself, when it is hybridised with 6x7 to produce a super-duper 6x7x8x9 crossbreed, the outcome is just as large, fast-growing and tasty. The result of this two-stage crossbreeding process is that, though none of the hybrids involved breeds true by itself, a marketable hybrid oyster can nevertheless be turned out in large quantities. That is the hope, although the proof will come next year, when the hybrids are grown on a commercial scale.

Of course, it would help if more were known about what creates hybrid vigour in the first place. To this end, Dr Hedgecock has been looking at how hybrid oysters express their genes. He has done so by collecting and analysing the animals' messenger RNA. This molecule, as its name suggests, carries genetic information from the DNA of a cell's nucleus to the places where proteins are made under genetic instruction. If a great deal of messenger RNA for a particular gene exists in an animal's cells, it may indicate that this gene is particularly active. So far, the work has revealed that 350 genes (of the 23,000 in the oyster genome) are expressed differently in the hybrid oysters than in the parent strains. The next step is to sort out what these genes do and which are responsible for large size and rapid growth.

If hybridisation works out, oyster farming could follow the same path as salmon farming, and turn a delicacy for the wealthy into the food of the masses. Unlike salmon, moreover, oysters are filter feeders that clean up the water column, making oyster farms healthy parts of the ocean. Salmon farms are environmentally controversial. Oyster farms should please consumers and environmentalists alike.

Shrimp and Prawns



Bosasa closes shrimp farm in South Africa

By Adriaan Basson and Yolandi Groenewald in the Mail and Guardian

The company at the centre of a massive prisons tender fraud probe suffered another knock when it had to close down its controversial prawn farm due to a lack of funding.

SeaArk Africa Which is 100% owned by Bosasa Operations, closed its doors last week after a tempestuous three years trying to establish a prawn farm in the Coega industrial development zone. The Mail & Guardian exposed the project early last year for having a convicted embezzler, the American, David Wills, as its international business associate and for lying about an alleged R70-million Saudi Arabian deal. SANParks also raised serious concerns over the threat a prawn farm would pose to the marine area adjacent to Coega. SeaArks's chair and spokesperson Papa Leshabane informed the company's remaining 40 employees last week that they would be retrenched because of the decision to shut down. In a statement issued afterwards, Leshabane blamed a lack of investment and Eskom's escalating electricity tariffs for killing the investment.

"The proposed business model is extremely sensitive to power inputs and based on recent increases and further expected escalations, we have no choice but to suspend our investment plans ... the project is no longer sustainable since Eskom announced their recent increases and further intended increases." The M&G recently learned that Bosasa was struggling to obtain funding for its projects. Apart from the correctional services contracts that were probed by the Special Investigating Unit and is the subject of ongoing litigation, the company has numerous other government contracts, including managing the Lindela repatriation camp for the Department of

Home Affairs and running youth centres for provincial social welfare departments. The M&G previously reported that Bosasa's chief executive Gavin Watson originally obtained funding from American investors to start the SeaArk pilot plant. He was linked to them through a shadowy non-profit organisation, the International Foundation for the Conservation of National Resources (IFCNR), which has been widely attacked by the green movement for opposing the humane treatment of animals. IFCNR's main donors include the National Trappers' Association, the Japan Whaling Association, the International Fur Trade Association and controversial agriculture multinational Monsanto. The NGO's biggest backer is the world's largest restaurant group, Darden Restaurants, which owns the United States's Red Lobster chain. It was unclear if SeaArk would've exported prawns from Coega to the Darden group. Coega also reported SeaArk to the provincial authorities for the alleged unauthorised mining of dunes. The company recently suffered a blow when its lead scientist, the Australian Bill McGraw, resigned after allegedly falling out with the company's owners over intellectual property rights issues. Said an inside source: "Bill was the brain behind SeaArk. They could not have done it without him." McGraw was allegedly unhappy about the ownership of the project's intellectual property rights and proceeded to institute legal proceedings against SeaArk. According to Leshabane's statement the prawn farm model is an "international success" and they intend "keeping our options open regarding a site closer to warmer waters elsewhere or exploring alternative forms of energy generation".

Tilapia

INFOSA market report for Tilapia

The January Infosa report on world production and markets is out. A PDF copy can be downloaded at:-

http://www.infosa.org.za/downloads/Services/Tilapia_market_report_Jan_2010.pdf

Sustainability standards completed for Tilapia farming

By Aaron McNevin of WWF

New global standards will allow the tilapia industry to grow while minimizing its impacts, such as non-native tilapia being introduced and chemicals being released into the water. Global standards addressing the negative impacts of tilapia farming on the environment and society have been finalized. They are the first set of final standards produced through the Aquaculture Dialogues, a series of roundtables coordinated by WWF.

The standards are the final product of the Tilapia Aquaculture Dialogue, a network of more than 200 people – including producers, conservationists and scientists – created in 2005 to help transform the aquaculture industry. Many of the participants are from the world's leading tilapia producing regions, including Central America and Asia. "With almost 75 percent of the world's tilapia coming from a farm, instead of being raised in the wild, the need for credible standards is critical and timely," said Dr. Aaron McNevin of WWF, tilapia Dialogue coordinator and Dialogue Steering Committee member. The standards will allow the tilapia industry to grow while minimizing its impacts, such as non-native tilapia being introduced and chemicals being released into the water. "There are other tilapia standards on the market but these standards have staying power because they were developed by a broad and diverse group of experts through a very transparent process," McNevin said. "The standards also will have a long shelf life because they are metrics-based, which is the only way to really know if the tilapia industry is reducing its environmental footprint."

Trout and Salmon



Farmed Salmon to be replaced by wild caught fish

From FishUpdate.com

One of the largest retail chains in the United States has decided to stop selling farmed salmon, replacing it with wild caught salmon from the Alaska region. The decision by the Target Corporation, which has over 1,500 food selling outlets in North America, could eventually mean problems for Norwegian and Scottish salmon producers which have been selling heavily into the United States recently following the outbreak of fish disease in Chile. However, the move will be a major boost for Alaskan fishermen and fish producers in that region. The discount giant said it wanted to ensure that its salmon was "sourced in a sustainable way that helps to preserve abundance, species health and doesn't harm local habitats." Amy Reilly, a spokesperson for the Target Corporation, said that environmental sustainability was important to the company.

"We want to make sure that we're selling the most responsible seafood offerings that we can," she added. "Our buyers are really passionate about this and they have worked with scientists and organizations and they've really researched this. They flew out to Alaska to visit some fisheries to really see first hand the amazing quality of the salmon that comes from the salmon fisheries there."

Jim Marcotte, Executive Director of the Alaska Board of Fisheries hailed the decision as great news for the state of Alaska and its fishing industry. "I think from my perspective and as well as the Board of Fisheries perspective that's a very positive development. It highlights the importance of Alaska's role in the global seafood market, and that is that we market an excellent product with wild Alaska salmon," he added. However, the fish farming industry has hit back saying that techniques have improved and farming can no longer be considered as harmful to the environment or damaging to the natural salmon population

Other



Caviar in France

By Agnès Lascève

In the mid-1980s, a French government scientific and research organization called CEMAGREF tried unsuccessfully to reintroduce the wild sturio in France. Later, farming was tried by means of an exchange with the USSR: French trout for an adaptable Siberian sturgeon species, the baeri. But at the time few companies were inclined to experiment with farming because imported wild caviar was still abundant and farming was complicated and expensive — it takes about ten years for female sturgeon to mature sufficiently to produce eggs for harvest, but only two years to raise delicious fish for the table. Why raise fish for eggs when the wild variety was abundant and reasonably priced? At the same time, a Russian immigrant to the US had the same idea, launching a similar farming experiment with another sturgeon species, the transmontanus. Since then, as wild sturgeon have become more scarce, farmed caviar has gradually become really good. It no longer has the somewhat earthy or muddy taste, caused by microscopic algae, that initially earned it the scorn of connoisseurs. It's unfortunate that many caviar lovers still retain that first impression, because the problem has been solved, thanks to ponds more than 600 feet deep, where the water springs up pure and clear, and where the female fish are left to rest before the precious eggs are extracted. Contemporary farming operations are carefully sealed off and closely supervised.

http://francetoday.com/articles/2010/01/06/french_caviar_gray_gold.html

Otters can put fish farmers out of business

Local debate flared when Mark Simmonds declared his fish farming business had been left in ruins by the protected creatures, otters. He was horrified to discover 105 of his 122 carp dead, dying or missing. He has now moved the remaining 17 to a site protected by an electric fence and has abandoned his Romsey fish farm. He believes one family of otters was responsible for the attack.

The 54-year-old warned that unless otters are culled, river fishing across Hampshire could be wiped out within five years. However the Angling Times prefers to stress the need for scientific investigation.

“We just want some responsible, sensible research,” added Mr Whitehead. “To leave people with no management option is ridiculous. People are going to lose a lot of money, businesses are going to go under, angling clubs are going to go under. It’s just tragic.”

Full story at:-

http://www.romseyadvertiser.co.uk/news/4985044.Call_for_otter_cull_after_fish_farm_stock_wiped_out/

http://www.dailyecho.co.uk/news/4882038.Otters_under_attack/

Regional Roundup

China and Namibia in talks

Dr Abraham Iyambo, Minister of Fisheries and Marine Resources said Namibia needs assistance in the development of fisheries and aquaculture. “We need Namibians trained in monitoring and testing equipment so that with everything we do there is no toxin in the water. The Namibian sea is highly productive,” he said. He appealed to the Chinese government to help Namibia by providing professionals to assist in the area of aquaculture. Iyambo noted that the Namibian fisheries sector is steadily growing and is well managed. About 20 percent of Namibian fisheries contribute to world exports.

He revealed that China offered N\$15 million to Namibia to assist with aquaculture development. To ensure capacity training in aquaculture, 10 Namibians last year were sent to study in China. According to him, he wants at least 500 Namibians to be trained since there are few qualified experts in the field in the country at the moment. Recently, Iyambo said, they built a research institute laboratory in Kavango Region, where the Chinese assisted with equipment.

At the same time, Chinese Vice-Minister of Agriculture Niu Dun said Namibia and China are good friends and maintain good cooperation in many areas such as agriculture. He acknowledged the Namibian Government’s empowerment of more women in the field of fisheries. Dun agreed to further cooperation in food security and help detect diseases in animals as well as protect the environment to ensure agricultural development.

At the moment, China has 20 million fish farmers and is one of the biggest fishing nations in the world. “We have experience in this field and we want to share this experience with Namibia so that you develop in this field. We have experience to increase efficiency in fisheries, to increase income for fish farmers and improve life conditions. We will send technicians to work with you to push forward aquaculture,” Dun added. The Chinese delegation promised to enhance and promote

student and information exchange programmes in fisheries between the two countries through diplomatic channels. He said the Chinese Government would like to support African countries to increase production through science technology. "We will dispatch more Chinese expertise. We will also provide seeds for fisheries," said Dun. China will also provide capital, including small machinery and equipment to the fisheries ministry. "Bilateral cooperation is very good and also we can establish other new mechanisms with more technicians and equipment," he said.

It is the first time that a Chinese delegation in the fields of agriculture and fisheries visits Namibia.

Members of the business community were also present in both delegations to consult on different products and markets. The delegation visited the oyster farm at Tunacor Fisheries in Walvis Bay.

<http://www.newera.com.na/article.php?articleid=9295>

Tanzania and China sign Aquaculture and livestock deal

From PANA

Tanzania and China have sealed a five-year live stock and fish farming deal under which the East African country will open doors to Chinese investors in aquaculture and livestock development ventures.

"The agreement puts the two countries in a win-win situation. Apart from financial gains, Tanzania will be able to adopt modern livestock breeding and fisheries development techniques from China," said Livestock and Fisheries Development Minister John Magufuli, after initialing the deal here with China's deputy Agriculture minister Niu Dun.

According to Magufuli, the agreement could see the two sectors raising their contribution to the gross national product (GDP) from the current 4.7 percent for livestock and 1.6 percent for fisheries to 10 percent per year. The deal is renewable after every five years. On his part, Niu said China's decision to invest in Tanzania was propelled by the long-term cordial relations between the two countries. He called on developing countries to collaborate in order ensure their own food security instead of importing food from industrialized countries.

http://www.africanmanager.com/site_eng/detail_article.php?art_id=14442

Zambia fish production increases

By Yande Kapeya

Lusaka Province Minister, Charles Shawa says the country's annual fish production has hit 70,000 tonnes due to a number of policy interventions introduced by President Banda's administration.

Mr Shawa cited creation of the Ministry of Livestock and Fisheries, one demonstration of Government's commitment to the development of the industry. He said this in Kafue when he officiated at the opening of a new hostel for students at Kasaka Fisheries Training Institute. Mr Shawa said there is need to increase funding to the fisheries sector, as commercial fish farming is becoming a dominant economic activity in the country.

"Appreciably, Government's efforts in this regard had been well received by the private sector which has continued to invest significantly in fish farming, marketing and distribution, including the manufacturing of fishing nets and boats. Additionally, Government is restocking the lakes and rivers countrywide with fish to elevate fishing as an important occupation and source of not only income, but nutrition for the people," he said. Mr Shawa said in view of the strategic position the fishing industry now occupies in the economy, the role of fisheries training institutions such as

Kasaka had become crucially important. The minister noted that since inception in 1976, the institution has produced skilled manpower that has contributed positively to the fish industry. Mr Shawa urged students who graduate from the institute to consider forming co-operatives.

"You can approach institutions such as the Citizens' Economic Empowerment Commission for capital to enable you embark on fish farming projects.

<http://www.daily-mail.co.zm/media/news/viewnews.cgi?category=8&id=1262681078>

Uganda to Produce 320,000 Tons of Farmed Fish

By John Kasozi

In the next two to three years, Uganda aims at producing 320,000 tonnes of farmed fish per annum, the state minister for fisheries, Fred Mukisa, has said. He was speaking to stakeholders in the fish farming sector at the third annual fish farmers symposium and aqua-culture trade fair at the Uganda Manufacturers Association (UMA) conference hall at Lugogo in Kampala. The three-day conference, organised by Walimi Fish Farmers Co-operative Society, was convened to discuss the challenges of building the aqua-culture industry in Uganda. "For the last four to five years, the fish farming sector has struggled to reach 80,000 tonnes per annum of farmed fish. The share of farmed fish is increasing," Mukisa said, adding that the country still faced a problem of poor fishing methods.

"The fish stocks in lakes have dwindled. At the beginning of February, fishermen on Lake George will not be allowed to catch fish in the lake for 90 days," he said. He also said the Uganda Wildlife Authority had already put a ban on fishing in Kazinga channel and "hopefully after the period, there will be an increase in fish stocks. Lake Kyoga's fish stocks have also declined. But stakeholders around the lake are organising to salvage the lake by stamping out illegal fishing activities," he said. He added that ministers from the three countries sharing Lake Victoria met and discussed closing down the lake to fishing but postponed it. "We shall revisit the idea and the operation will be called "Save Nile Perch" aimed at eliminating illegal fishing in the lake," Mukisa said. "We appeal to fishermen to regulate themselves as Mukono fishermen have done, to thwart the bad fishing practices. The eastern and northern regions have been chosen as strategic areas for fish farming by the cabinet. These regions were earmarked as fish farming zones in the 60s. What remains now is to de-silt the fish ponds dug at that time," he said. Mukisa also said the main problem facing fish farming in Uganda was technical know-how. "The resources needed to practice it are in plenty like water and fish species unlike Egypt that faces a water scarcity problem."

"I appeal to researchers at National Fisheries Resources Research Institute in Jinja and Aquaculture Research and Development Centre (ARDC) at Kajjansi to research on our 300 fish species that are extinct as well as the threatened ones like the riverine Ningu (*Labeo victorinus*), Kisinja (*Barbus* spp), Nkolongo (*Synodontis* spp) and Kasulu (Mormyrids)," he said. "They were highly cherished dishes, but have either disappeared or their populations have been reduced to uneconomic levels due to unsustainable fishing practices. Please make these high-value fish available," Mukisa pleaded.

He said China had agreed to give technical support to ARDC and whatever is put up at Kajjansi will be used for demonstration and training. Mukisa told the farmers that oil proceeds will be used to improve agriculture.

<http://allafrica.com/stories/201001210257.html>

Malawian Aquaculture Initiative gives cause for hope

By IPS reporter Steven Lang in an interview with Tom Shipton

From time immemorial, fishermen on Lake Malawi have depended on the Chambo to help feed their families - all without upsetting the stocks of this fish species. Following the start of commercial fishing on the lake, however, the annual catch of Chambo plunged, from 3,250 tonnes in 1985 to 207 tonnes in 2002. Government was eventually forced to put a stop to the commercial operations.

The Maldeco Aquaculture company was established in 2003 to build up Chambo stocks through aquaculture and Tom Shipton of Enviro-Fish Africa, a consulting firm based in Grahamstown, South Africa, was hired as a technical advisor to the project.

Full story <http://ipsnews.net/africa/nota.asp?idnews=42610>

Feeds

Diet Formulator - an Excel-based diet calculation program

Available free for download at the website below. It is not a least-cost diet formulation program, but a tool that allows the user to select ingredients and calculate the nutritional specification of the formulated diet. The program will allow the user to insert other ingredients for which the user has his/her own chemical analysis. Also, ingredient costs can be entered in the database and the program will calculate the ingredient cost of the diet formulation.

Available at <http://www.enaca.org/modules/wfdownloads/singlefile.php?cid=111&lid=952>

Barley Protein Concentrate Could Replace Fishmeal in Aquaculture Feeds

By Sharon Durham

Agricultural Research Service (ARS) scientists and Montana Microbial Products (MMP) of Butte, Mont., have developed a barley protein concentrate that could be fed to trout and other commercially produced fish.

Physiologist Rick Barrows at the ARS Small Grains and Potato Germplasm Research Unit in Aberdeen, Idaho, teamed with MMP to apply for a patent on a new enzymatic method that concentrates barley protein and produces raw material for another valuable commodity, ethanol. This process provides a high-protein ingredient that may replace other, more expensive protein sources like fishmeal and soy protein concentrate in commercial fish feed. Currently there is no commercial production of barley protein concentrate, but MMP is producing small quantities for fish-feeding studies with trout, salmon and other species. MMP projects that the concentrate will sell for \$700 to \$1,200 per ton. Since fishmeal costs about \$1,200 per ton, the projected costs of barley protein concentrate compare favorably.

Feeding trials conducted by the Aberdeen researchers and MMP show that barley protein concentrate successfully replaced both fishmeal and soy protein concentrates in fish feed, meeting the fishes' protein requirements. Barrows and other researchers in the ARS unit also are examining the genetics of barley to modify the grain for improved protein yield and nutritional composition. According to Barrows, feed is part of a complex interplay of genetics, nutrition and economics in fish production. Barley protein concentrate could completely replace fishmeal in fish feed if other essential nutrients are provided as supplements. Using barley protein instead of fishmeal in commercial fish feed could help reduce the demand for millions of tons of fish taken from the ocean each year to produce fishmeal.

<http://www.ars.usda.gov/is/AR/archive/feb10/fish0210.htm>

Environment, Health and Disease issues

New methods to control fish disease

By Marites S. Villamo

Scientists at the Iloilo-based Aquaculture Department (AQD) of the Southeast Asian Fisheries Development Center (SEAFDEC) have developed methods and vaccines to control the viral nervous necrosis disease in economically important marine fish such as groupers and sea bass.

These methods could boost production and reduce economic losses in the marine fish industry, scientists Leobert D. de la Peña and Rolando Pakingking, Jr. said in abstracts of their studies. Viral nervous necrosis (VNN), otherwise known as viral encephalopathy and retinopathy (VER), has over the last two decades continued to inflict serious economic losses among high value marine fish species not only at the larval and juvenile but importantly at the grow-out stages, Mr. Pakingking wrote. At the hatchery, Mr. de la Peña cited an urgent need for preventive measures that include the selection of disease-free broodstocks, disinfection of eggs to control the vertical transmission of the virus from broodstocks and vaccination to enhance fish immunity. The eggs were artificially infected with the virus and were either washed with ozone-treated seawater or immersed in iodine and Virkon. The eggs were checked for the virus before and after infection as well as after disinfection using the polymerase chain reaction (PCR) test and cell culture. Mr. de la Peña said his experiments showed that the effective time exposure and concentrations using ozone-treated seawater, iodine and Virkon were 2.5 minutes, 25 parts per million (ppm) and 1.5 ppm, respectively.

Mr. de la Peña's study also determined that the groupers, *E. fuscoguttatus* and *E. coioides* were susceptible to the virus. The milkfish, *Chanos chanos* and siganid *Siganus guttatus* were not. Grouper larvae weighing eight grams and below were highly susceptible with a mortality rate of 80%-100% in four to eight days. Fish weighing 90 grams and above are no longer susceptible to the virus. The most susceptible size of the grouper was then vaccinated. The vaccine, which was prepared from a DNA plasmid encoding the capsid protein of the virus, was intramuscularly injected to the fish at 5, 10 and 100 nanograms (ng). Challenge tests using intramuscular injection of the virus were conducted after 15, 30 and 45 days from the vaccination. Mr. de la Peña reported that the results showed that fish vaccinated with 100 ng had the highest survival rate. Meanwhile, Mr. Pakingking and colleagues developed a formalin-inactivated vaccine to control the disease at the grow-out stage. Three studies pertaining to the efficacy of the vaccine were conducted from June 2007 to November 2009 under the project "Fish Disease Surveillance System" funded by the Government of Japan. The vaccines were tested on sea bass *Lates calcarifer*, grouper *Epinephelus fuscoguttatus*, and pompano *Trachinotus blochii*. The first study, which was published in the Journal of Fish Diseases 2009, focused on the immune responses of the Asian sea bass to a formalin-inactivated betanodavirus vaccine. The fish produced neutralizing antibodies at high titer levels from day 10 to day 116, with the highest titer at day 60 post-vaccination. No mortalities were reported after the vaccinated fish were challenged with the red-spotted grouper nervous necrosis virus (RGNNV, a betanodavirus).

"The present results indicate the potential of the formalin-inactivated RGNNV vaccine against viral nervous necrosis of Asian sea bass," the abstract stated. The second study, which is still under review, dealt with the vaccination of the brown-marbled grouper *Epinephelus fuscoguttatus* while the third study, the manuscript of which is still being prepared, was conducted to determine the susceptibility of hatchery-reared pompano *Trachinotus blochii* to betanodavirus and its immune responses to a formalin-inactivated betanodavirus vaccine.

AQD chief Joebert D. Toledo said the Japanese evaluators were pleased with the development of a vaccine against VNN. "The Japanese evaluators also said that research is a difficult process but that the AQD has done it in the 'correct, step-by-step process'".



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Research matters, Reviews & Training

Successful cryopreservation of fish embryos!!!

The Norwegian company Cryogenetics Ltd. has made a significant breakthrough by inventing a method for cryo-preservation of fish embryos down to -130°C . This is a major achievement as the world's scientific community has pursued a method for cryo-preservation of fish embryos over several decades without success.

The Cryogenetics Ltd. scientific team, lead by Dr. Elisabeth Kommisrud has over the past two years systematically approached the task of establishing protocols for cryo-preservation of fish embryos. An Atlantic cod embryo was cryo-preserved, thawed and developed normally before hatching. The fish was named "Coddy". Trials were repeated, optimized and patent applications were filed to protect the invention.

Due to factors such as global warming, pollution and over-fishing, several of the world's fish stocks are facing low numbers and could soon be extinct. Cryogenetic's Ltd.'s new technology may be adapted to suit cryopreservation of embryos from several fish species and thereby save a stock for future use. A frozen embryo can at a desired point of time be thawed and continue its natural development. Due to the large egg production in most fish species, a significant number of offspring can be produced at spawning. For example, an Atlantic Salmon will typically produce between 8.000 and 12.000 eggs per female salmon.

The new technology from Cryogenetics Ltd. also gives rise to the possibility of limiting the spread of diseases in fish farming, since selected genetic material can be transferred between regions with different health status in a more controlled and safe way than today.

Cryogenetics Ltd. is anticipating this invention for cryopreserving fish embryos to have a wide area of application for companies and research institutions working with fish. Breeding companies, R&D companies, vaccine producers and public conservation programs can dramatically reduce costs and increase opportunities through this method.

Forensic techniques to improve seafood safety for consumers

An unknown percentage of the fish we eat isn't what's it's purported to be and could have fatal consequences. FAO explores how forensic techniques could help address the problem.

"Identifying unprocessed fish is usually fairly easy," says Michele Kuruc of FAO's Fisheries and Aquaculture Department. "But today seafood is transported far abroad, to places where it may not be well known. Plus, as the industry has globalized, it is common that fish products are processed on floating factories before they come to shore. What inspectors see often doesn't look much like a fish in the wild." In some instances, accurately identifying fish may be beyond the abilities of inspectors. Innocent clerical errors can end up turning one type of fish into another. Or unscrupulous fishers and traders game the system to avoid restrictions or taxes. According to Kuruc, those involved in illegal, unreported and unregulated (IUU) fishing use many methods to conceal their illegal activities and get their ill-gotten goods to market. "Fraudulent product substitution and use of false labels and documentation are frequently employed to transport and market products illicitly," she says. As a result an unknown percentage of seafood on the shelves simply isn't what's it's purported to be.

This is a problem. Today's more conscious consumers are aware of the multiple health benefits of eating seafood, but are also keen to be sure they're eating fish that has been caught or farmed responsibly and is safe to eat. So FAO recently convened a workshop of experts, inspectors, law enforcement officials, scientists and academics to discuss how they might be more widely deployed in fisheries enforcement.

"We're interested in promoting wider use of available forensic techniques, in particular by developing countries", says Kuruc. "Some countries have successfully used various forensic methods in investigations and court cases, but many fisheries monitoring, control and surveillance personnel still remain unaware of their existence." DNA analysis can reveal the species of a suspect white fillet. Chemical tests on fish ear-bones reveal absorbed nutrients and pinpoint the region where they were caught.

In addition to surveying the state of the art and brainstorming how forensics might be used in fisheries and identifying needs—especially for capacity building in developing countries—the meeting also looked at best practices in handling evidence, how inspectors should be trained, and identifying laboratories capable of handling testing. (In many cases, labs in developing countries currently testing for food quality could be upgraded to conduct forensic work.) The group also agreed to operate as an ad hoc FAO reference network that can be tapped by authorities around the world for guidance and advice.

"Fish can be properly identified if samples are handled properly, get to the right labs, and checked using forensic techniques," said Kuruc. "So the idea is to help countries that don't have such

facilities and know how can access so them so they can identify and prosecute cases of malfeasance."

Conferences and Upcoming events

Global Conference on Aquaculture 2010

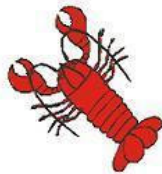
9-12 June, Bangkok, Thailand

FAO, NACA and the Thai Department of Fisheries are convening a global conference to review the current status and trends in aquaculture development.

The conference will provide an international forum to address emerging issues and advance the sustainable development of the sector.

For more information, visit:

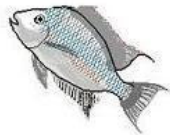
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