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A Word from the AASA Chairman

Etienne Hinrichsen

It is with a sigh of relief that we can now reflect back on the AASA conference of early September 2009. In my mind, and from the feedback that we have received, the conference was hugely successful. If nothing else, I believe we have achieved greater recognition for AASA in our continued efforts to build AASA into a strong regional voice for aquaculture.

Reflecting back on the conference week, allow me to highlight some key aspects:

- The conference would not have been possible without the exceptional support that was received from the Namibian Ministry of Fisheries and Marine Resources and the passionate Minister Abraham Iyambo at its helm (who was also this year's recipient of the AASA Aquaculturists of the Year Award). This level of Government support has set a benchmark for future conferences.
- Together with conference fees and the contributions of the Ministry above, the Namibian Trade Forum, INFOSA and many other sponsors, AASA was able to invest more than R 600 000 into the event.
- The conference was attended by well over 200 delegates from many countries, including a number of delegates from Europe and America.

- The field day highlighted the Namibian aquaculture initiatives, while the World Aquaculture Society (WAS) discussions emphasized the desire of African aquaculturists to establish the African Chapter of the WAS. For reference sake, the abbreviation (acronym) of WAC is now being used quite frequently, which stands for WAS African Chapter – what is becoming of us: we are now abbreviating abbreviations!!!
- The two main conferencing days saw the presentation of more than 60 papers from across Africa and the rest of the world. Well done to Dr. Deborah Robertson-Anderson for taking the award for best overall conference presentation.
- The workshop which was themed around “*Africa in the Global Aquaculture Village*”, provided direction for a document that the AASA office will compile and distribute to African Governments and stakeholders to carry across the message of which primary needs there are to take this sector forward on the continent.
- The RAS training session at the end of the conference, by leading international experts Prof Mike Timmons, Dr James Ebeling (both Cornell University) and Dr David Fletcher (International Agri Technology Centre) was undoubtedly a highlight and provided many participants with an exciting insight into the world of high density aquaculture.

The thoughts immediately start wandering to the next conference in 2011. During the AASA AGM a strong call was made to have the next conference hosted in Malawi. A process will now be followed by the AASA office to evaluate the possibility of having the conference in that country. Decisions regarding the next host country are likely to be taken by mid 2010.

With the conference behind us, there remains much administration to wrap up in the AASA office. The conference disc is being finalized, minutes are being typed, letters of thanks are being sent and meetings and tasks for the executive are being formalized.....this implies that we're back to work until we have the privilege of meeting at the next conference.

Obituary

Angling world in mourning for Benson, the celebrity carp

“We are all rocked by Benson’s death. She was an iconic carp,” Tony Bridgefoot, the owner of the Bluebell Lakes complex near Peterborough, UK, said. “We are all still trying to come to terms with her death. Money could not have bought Benson. She had that celebrity status. I can’t stress how famous she was in the angling world. All fisherman wanted to catch her. It was the size of the fish, but also the fact that she was scale perfect. It looked as if the scales had been painted on.”

See http://www.timesonline.co.uk/tol/sport/more_sport/article6737929.ece

The Editor’s choice

Editorial

Adrian Piers newsletter@aasa-aqua.co.za

Anytime now, if we have not passed this milestone already, humans will consume more fish that are the products of Aquaculture than those from capture fisheries (wild caught). The most

astonishing thing is that there are still so many people on the planet that do not even know that fish are farmed! This has been a quiet revolution and it is most certainly not over yet. Three articles have recently caught your Editors attention. The first is from TIME magazine on the situation facing capture fisheries, the second on a state of the art concept of Cage fish farming. The third is what is already happening in China. Food for thought!

Some pictures from the Conference in Namibia.



A well appointed venue - packed to capacity.



Serious discussions on the sidelines – on aquaculture in Uganda no doubt!



AASA collaboration with INFOSA and SARNISSA at new heights!

Can the World's Fisheries Survive Our Appetites?

From TIME magazine

Boris Worm, a marine biologist at Dalhousie University in Canada, made a startling prediction in the pages of *Science* in 2006: if overfishing continued at then-current rates, he said, the world would essentially run out of seafood by 2048. Worm's bold analysis whipped up controversy in the usually pacific world of marine science. One colleague, Ray Hilborn of the University of Washington, called the *Science* study "mindbogglingly stupid." But Worm held fast to his predictions: that the oceans had limits, and that marine species were declining so fast that they would eventually disappear.

Nearly three years later, Worm has joined with a wide assortment of international marine scientists, including Hilborn, after the two hammered out a truce that began on a NPR call-in show, to perform a more thorough census of the health of marine ecosystems. Their study published in *Science* is the most comprehensive of its kind, combining data on fishery catch totals, stock assessments, surveys from scientific trawls and information from small-scale fisheries and models. "It was a bit like *CSI: Fisheries*," says Worm. "We looked for evidence of overfishing and where the practice was improving."

The two-year study, which broke the world's oceans into 10 major marine ecosystems, found improvement in half of them, where efforts to limit overfishing appeared to be working. But at the same time, the study found that 63% of the analyzed fish stocks worldwide were still in decline, and that exploitation will need to be reduced further if vulnerable species like the rapidly disappearing Mediterranean bluefin tuna are to avoid collapse. "The bad news is that this analysis confirms an increasing trend of species collapse in fisheries," says Worm. "The good news is that the driver of collapse — exploitation — has been declining in many of the ecosystems where we

have data. Some have really begun to limit overfishing." Unsurprisingly, the regions where overfishing is being curbed tend to be areas that are well-off and well-governed, including Iceland, California and the Northeast Atlantic Shelf. That's heartening for those who like their fish sticks. Populations of cod and haddock in the Northeast Atlantic, once home to some of the richest fishing waters in the world, all but totally collapsed due to overfishing in the 1980s and 1990s, decimating the coastal towns' economy. The region, like several others, is beginning to recover, thanks to sustainable control measures like catch shares and no-take zones, which prevent overfishing. "We found that success stories in curbing exploitation had clear management with hard and fast rules that defined overfishing and sought to avoid it," says Michael Fogarty, an associate scientist at the National Oceanic and Atmospheric Administration and a co-author of the study. "We've witnessed a dramatic recovery in places in the Atlantic like Georges Bank."

The picture is less rosy in poorer parts of the world, especially along the African coast, where there are relatively few laws governing overfishing, and fewer still that are actually carried out. As developed nations tighten rules on their own fishing grounds, fishing fleets are moving to the developing world and carrying out the cycle of overfishing all over again. Though the study noted that there had been some success in getting small-scale fishermen to better manage their stocks, there is real concern that tropical fisheries could be exhausted. "It is possible to make constructive changes in fisheries even in difficult economic situations," says Tim McClanahan, a senior conservation zoologist with the Wildlife Conservation Society, who is based in Kenya. "But you have to work with communities on the ground."

The study also found that managing marine ecosystems for overall biodiversity, instead of just worrying about the status of catch populations, was even trickier, and required fishing to be further curtailed. Fishing at what is known as the maximum sustainable yield, the internationally accepted benchmark for safe catch limits, might be too high, and could still result in fish populations collapsing over time. Instead, maximum sustainable yield should be used as an absolute upper limit, rather than a target. Lowering catch limits further also benefits the marine ecosystem as a whole, maintaining biodiversity, rather than turning the oceans into a giant fish farm. "You can't have absolutely pristine ecosystems, and eat your fish," says Hilborn. "If maximum sustainable yield is your objective, then ecosystems are going to be affected."

On the whole, the new Science study comes as a relief to many marine observers who had become accustomed to a string of uninterrupted bad news about the state of the oceans. Still, Worm cautioned that in the long run, seafood is far from safe. A rising global population, which increasingly hungers for sushi and other once rare marine delicacies, especially in growing countries like China, will continue to put pressure on fish populations. "When you go region by region, you can see some solutions emerging," says Worm. "But when you look at the whole world, the situation still looks pretty grim."

<http://www.time.com/time/health/article/0,8599,1914078,00.html>

National Geographic article on open ocean cage farming

The future of Fish Farming?

<http://news.nationalgeographic.com/news/2009/08/090818-giant-robotic-fish-farms.html>

Chinese Aquaculture leads the World

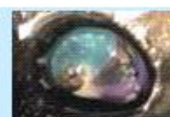
By Denise Recalde

China today accounts for 70 per cent of the world's total output of seafood products, government data reveals. The leading seafood producer for the last 20 years, China officially became the first country in the world with a higher farmed fish output than wild fish output in 1990.

In 1986, China adopted the "Fisheries Law," established "cultivation first" development guidelines, and put in place a series of administrative systems including the Provisions on the Administration of Fishery Licensing. All these measures promoted the rapid development of the country's fisheries industry. At present, China's farmed fish product output accounts for 70 per cent of its total seafood production. Water-saving, efficient, ecological and healthy cultivation characterises China's mainstream aquaculture as well as a prominent fish processing capacity and level. In 2008, there were 9,971 various fish processing enterprises in China with a total processing capacity of 21.97 million tonnes, the People's Daily Online reports. Last year, China's per capita amount of fish products stood at 36 kg, 1.6 times higher than the world average, data issued by the Ministry of Agriculture shows. China's seafood output value also accounted for about 10 per cent of its total farming output value last year.

An estimated 14.54 million people were engaged in the sector last year, while the per capita income of fishermen stood at USD 1,109-00, over USD 292-70 higher than that of farmers.

Abalone



Rhodes University heads Abalone Research

By David MacGregor in the Daily Dispatch

Invaluable data collected during 20 years of research into the lucrative perlemoen (abalone) poaching industry has turned Rhodes University and its head of ichthyology, Dr Peter Britz, into global experts. Worth an estimated R100 million a year, hard evidence that the illegal harvesting of perlemoen in South Africa is connected to Chinese Triads (gangs) and the drug trade has helped international experts get a better understanding of the problem globally. Recently elected chair of the prestigious International Abalone Society, Dr Britz said that groundbreaking research by Rhodes University into the illegal industry had made it a world leader in combating the problem.

“The work by Rhodes University into illegal perlemoen fishing is very unique in the global context because it is normally very difficult to compile accurate information. “The problem is much bigger than anyone ever thought.” The bulk of the harvest is illegal. According to Britz, years of Rhodes research showed between 2000 to 3000 tons of abalone (perlemoen) was illegally shipped out of South Africa every year to Hong Kong – via neighbouring countries such as Lesotho and Swaziland. The shipments would, however, arrive in the Far East as legal imports – even though only 600 tons annually was allowed by law to be harvested and exported from South Africa. South Africa had also experienced the “worst” perlemoen poaching problem in the world and had become very skilled at laundering money through drug syndicates and other front businesses. An estimated 1000 to 2000 tons of illegal abalone was illegally harvested every year in the Eastern Cape. Britz said the fact he had been elected at the seventh annual IAS symposium in Thailand to chair the group for the next three years was proof how highly South Africa was regarded in international abalone circles. “Rhodes University is a world leader in nutrition and aquaculture of abalone and has helped develop some of the most advanced and modernised farming techniques. They also have the best research on perlemoen poaching.” Since the harvesting of abalone in the wild was banned 18 months ago, South Africa has become a world leader in land- based commercial farming of the resource. Britz said a benefit was that they were now at the stage where they could re-introduce abalone back into areas that had been virtually wiped out by poachers.

<http://www.dispatch.co.za/article.aspx?id=336062>

Crayfish

Rare Crayfish found dead in UK river

By Chris Bishop in the EDP

Rare native crayfish found dead in a Norfolk river are feared to have been killed by a fungus. Three threatened white-clawed crayfish were found in the River Thet. The CEFAS (Centre for Environment, Fisheries & Aquaculture Science) lab is analysing the animals to see if they are infected with the highly virulent fungal disease *Aphanomyces astaci*, commonly known as crayfish plague. Native crayfish were formerly widespread but the disease has already wiped out large populations in England and Wales. They now exist in increasingly isolated populations in the upper reaches of rivers and the River Thet is one of the few that support a population.

Crayfish plague is carried by crayfish introduced from America, notably the Signal crayfish, which are not susceptible to the disease themselves. Signals, the crayfish sometimes sold in restaurants, were introduced to consume sickly trout in fish farms. The disease is spread by affected crayfish or, more commonly, equipment such as fishing nets, keep nets, footwear, boats and farm machinery being transferred from infected waters.

Environment Agency officials are urging anglers to ensure nets and gear are dried after each trip to avoid spreading the fungus. Senior monitoring officer Nina Fielding said: "This suspected outbreak is really worrying for the future of our native crayfish. There are only a small number of these endangered animals left in the Great Ouse catchment. "We urge all river users to clean and dry or disinfect any equipment before taking it from one river or lake to another."

Eels



Eel breeding migration tracked

From the BBC

The European eel's migration to the Sargasso Sea to spawn is one of nature's great unsolved mysteries. For many years, biologists have puzzled over exactly where they go and what they do after leaving our rivers. Now scientists using satellite tags have tracked 22 eels, revealing what they do in the first 1,300km of an epic 5,000km migration. Using this method, biologists hope the whole journey to the Sargasso Sea will soon be revealed. The results of the tracking study are published in the journal Science. They provide unique insights into the migratory behaviour of the European eel, *Anguilla anguilla*, including the direction and depth the eels swim.

See

http://news.bbc.co.uk/earth/hi/earth_news/newsid_8273000/8273877.stm

<http://www.sciencedaily.com/releases/2009/09/090929100652.htm>

Farmers tip the scales

By Jennifer Eliot in the Cairns Post

Australian Aquaculture has proven to be strong survivor in the economic downturn following an eight per cent increase in its value and Far Northerners have joined the growth spurt. The Australian Bureau of Agriculture and Resource Economics has released a report on Australian fisheries and it showed the industry had increased in value by \$63 million in 2007-08. The Queensland Aquaculture industry is valued at around \$85 million by Queensland Primary Industries and Fisheries. Sugarland Barramundi owner Mark Fantin has witnessed strong industry growth in his 18-year career and is optimistic about future growth. Initially, the company specialised in Barramundi but it has now entered the Hong Kong eel market with great success.

"We export live eels," Mr Fantin said.

"The market has a massive potential and at certain times of the year, such as Chinese New Year, we cannot keep up with demand." Mr Fantin said the major obstacle facing the eel industry was that, at this stage, it was not possible to successfully breed them in captivity. "Juveniles are caught in rivers from North Queensland to Brisbane and we grow them out," he said. "Even the Chinese and Europeans, who have been doing it for a lot longer than us, haven't been able to breed them."

Agriculture Minister Tony Burke said aquaculture presented a great opportunity for Australian fisheries to be part of the solution to world food security. Increases in aquaculture production contrast with an overall decline in production and value of wild caught fish, with Australia becoming a net importer of fisheries products in value terms. "The fisheries sector faces a number of challenges - the appreciation of the Australian dollar, declining export volumes and falling prices for export species such as rock lobster and prawns all contributed to Australia becoming a net importer," Mr Burke said. "Changing the way we manage our fish populations, including a greater role for aquaculture, will help meet these new challenges."

Ornamentals



First Triggerfish raised in captivity

Full article at link below:-

http://www.boston.com/business/technology/articles/2009/09/28/aquarium_and_roger_williams_university_grow_first_triggerfish_to_be_raised_in_captivity/

Tilapia



Algae biofuels developer using Tilapias

By Lisa Gibson

LiveFuels Inc., a developer of renewable algae-based biofuels, will begin pilot operations at its test facility in Brownsville, Texas, using its natural process to optimize algal productivity and increase

rates of conversion of biomass to renewable oils.

The process uses biological and environmental conditions instead of heavy, expensive machinery. The company grows a mix of native algae species in 45 acres of open saltwater ponds, according to LiveFuels. To harvest the algae, the company uses “algae grazers” such as filter-feeding fish species and other aquatic herbivores. The fish, including those from the Tilapia or sardine families, collect and clean the algae through structures in their mouths, according to the company. They swallow it and the algae is digested and concentrated in the fish’s flesh. To extract the oil, the fish are cooked and pressure is applied, resulting in Omega-3 fatty acids and other oils used as feedstocks for renewable fuels. The meat can be sold as animal feed or to the consumer market, if it meets food-grade the standards, and the bones can be used in agricultural fertilizers.

The natural process eliminates the task of having to control algae species, oxygen concentration and other processes, according to Dave Jones, chief operating officer. In addition, it’s much easier to collect fish out of the ponds than the single-celled algae. LiveFuels is focused on letting nature do what it does best, according to Jones. The approach only facilitates a useful natural process.

LiveFuels has filed for 10 patents in the U.S. for its process, according to the company. The results of the pilot project will be used to commercialize the process along the coast of Louisiana. The commercial facilities will be designed to harness flows of agricultural pollution from the Mississippi River that can be used as nutrients for generating algal blooms. By removing those nutrients, LiveFuels’ systems also mitigate the impacts of agricultural pollution in the open ocean.

The company has other pilot facilities in the U.S. and has raised \$10 million in private funding for its research.

http://www.biomassmagazine.com/article.jsp?article_id=2958

Trout and Salmon



Fishing on the same impoundment where his younger brother had broken the fishing record in 2007 with a 43-pound, 10-ounce IGFA all-tackle record rainbow, Sean Konrad pushed the rainbow record just shy of the 50-pound mark with a 48-pound triploid on Lake Diefenbaker, a 106,000-acre impoundment of the South Saskatchewan and Que'Appelle Rivers in Canada.

Diefenbaker’s rainbow production is the result of commercially raised sterile rainbows (triploids) escaping local growing pens in 2000, when roughly a half-million fish entered the lake through a damaged net at Can Gro Fish Farm. Because they’re genetically engineered to have three sets of chromosomes instead of two, their growth rate is substantially higher than a diploid rainbow because all of their living energy goes into feeding, with no physical stressors related to spawning.

Biologists estimate that Lake Diefenbaker's trout could survive for upwards of 20 years, but the lake is almost certainly on the downward side of a steep growth curve that started with the original half-million escapees.



Salmon Supply Squeeze Will Persist

By Meera Bhatia

Marine Harvest ASA, the world's largest salmon farmer, expects supply to fall short of demand as Chile's output will take as many as six years to return to levels seen before a virus ravaged its fish farms. "It will take long for Chile to come back to volumes they used to have," Chief Executive Officer Aase Aulie Michelet said in an interview "We will be undersupplied for a while."

Salmon export prices from Norway, the biggest supplier ahead of Chile and the U.K., climbed 13 percent this year on a growing world shortage. Global supply is estimated to slump 10.3 percent to 1.3 million metric tons this year after an outbreak of the Infectious Salmon Anemia virus at Chilean farms, according to industry consultant Kontali Analyse AS. Marine Harvest plans to increase investment in technology, research and development to better understand diseases, the chief executive said. Similar outbreaks in 1970s and 1990s also hurt the industry, which traces its origins to commercial salmon farms in Scotland and Norway in the 1960s. "The winners will be those who can improve fish health," Aulie Michelet, whose company was formed in 2006 through the merger of three salmon producers, said. She said she'd "welcome" consolidation to better prevent disease.

Salmon supply has risen about 55 percent this decade, according to Kontali Analyse, in part as health-conscious consumers eat more salmon. Demand has also risen as increased cultivation has driven down prices relative to other foods such as beef and chicken, according to Marine Harvest. While the company has benefited from the supply squeeze, it was forced to take a \$115 million charge in the second quarter for its unit in Chile and has cut its workforce in the country 67 percent to about 1,600 workers. Chile had accounted for 23 percent of its total output. It plans to further reduce its workforce in Chile "substantially," the CEO said, adding that it will be in 2014 or 2015 before volumes return to earlier levels. Global volumes will drop 8 percent to 13 percent in second half, she said, adding that she's "quite positive for the next quarters."

The company is sending more Norwegian salmon to the U.S, where it set up a processing plant in Miami and will open a plant in Los Angeles to take advantage of the Chilean shortfall.

Farm raised fish consumers face conundrum

Latest health study of farm-raised fish raises new conundrum. Heart health benefits from fish like salmon and mackerel seem to be weakened when the fish are fed vegetable oil instead of fish oil, new research indicates, so the answer might be to feed them more fish oil.

But that raises a different concern. Other studies have indicated fish oil increases the levels of pollutants in farm-raised salmon. That has encouraged some fish farmers to move to vegetable oil which apparently decreases the heart benefits. It's yet another fish conundrum for consumers, like the debate about whether the mercury in some fish offsets their health benefits. Still, many experts argue that for most adults, the benefits are probably greater than the concerns about pollutants linked to cancer. They note that many more people are at greater risk of cardiovascular disease than cancer. Wild fatty fish such as salmon, tuna, mackerel, sardines and herring are rich in omega-3 fatty acids, the healthy fat that scientists believe raises the good HDL cholesterol, lowers unhealthy triglycerides and slows the growth of plaque, protecting the heart from disease. However, in modern fish farming, the fish are usually fed pellets that contain a mixture of natural fish oil and vegetable oil. And after a U.S. study earlier this year showed far higher levels of dioxins and other potentially cancer-causing pollutants in farm-raised salmon, some in the industry vowed to move more toward pellets with vegetable oil.

The latest study challenges that approach. This week at the annual meeting of the European Society of Cardiology, Norwegian scientists showed that people who ate salmon fed on pure vegetable oil or on 50 percent fish oil and 50 percent vegetable oil did not get any meaningful improvement in the relevant blood tests. The study was small, involving 58 people with heart disease in Oslo, Norway, who were all taking heavy medication for their illness. The fish were farmed in northwest Norway, color-coded according to the pellets they were fed and shipped to a central kitchen in Oslo where they were served to the heart patients. One-third of the people were fed salmon that had been given pellets of fish oil, another third got fish fed on a 50/50 mix of fish oil and vegetable oil from rapeseed and the last group got salmon raised on pure rapeseed oil pellets. Each volunteer ate 700 grams of the fish per week, or one fish meal per day, for six weeks. The scientists, led by Dr. Harold Arnesen of Ullevål University Hospital in Norway, tested blood from the volunteers for concentrations of omega-3 fatty acids and changes in blood chemicals linked to heart disease. "The composition of the food pellets was mirrored in the flesh of the salmon fillets and again mirrored in the serum fatty acids of the patients," Arnesen told doctors. Omega-3 levels increased substantially in the patients who ate salmon fed on fish oil, but not in the patients who ate salmon fed on mixed pellets or vegetable oil pellets.

The results were the same for improvements in chemical markers of inflammation, which is involved in building plaque in the arteries. The most impressive difference was in triglycerides, which fell by 30 percent in the fish-oil group and not at all in the other patients. Everybody's cholesterol dropped, but that was probably because they were eating fish instead of meat, which is high in saturated fat, the scientists concluded. Nobody lost weight during the study, which means the results could not have been due to differences in weight loss, Arnesen said.

"Only 2 percent of the market today is wild salmon. The farmed salmon market today is very close to 50/50 feed. It's what we have in Norway and it's more or less the same all over the world," Arnesen said. "The findings underline the importance of tailoring the salmon with heart protective properties." Although experts believe that omega-3 rich fatty fish is good for the heart, the ideal amount to eat is not clear. The study indicates that if the group who ate the 50/50 salmon ate twice as much, they would likely gain the same benefit as those who ate the salmon fed with pure fish oil. "If we are what we eat, then salmon are also what they eat," said Alice Lichtenstein, a nutrition science professor at Tufts University in Boston who was not involved in the study. "This shows there are ways of breeding salmon that can increase the fatty acids." Lichtenstein has contended in the past that cardiovascular disease is a far bigger risk than the potential of getting cancer from eating fish tainted by pollutants.

Other Species



Kob breeding project progress

By Derrick Spies, Business Reporter, Daily Dispatch

A R22 million marine-aquaculture project, run by Espadon Marine and funded by the IDZ, has been operating out of leased facilities in the zone for the past year and a half. "We are in the process of the final geotechnical surveys and are expecting to break ground for our own facilities next door within the next few weeks," said Espadon general manager Dr Niall Vine. He said they had successfully spawned their three broodstock of two female and one male dusky kob at the facility in May this year, which produced in excess of eight million eggs over three days. "Some of these eggs we kept and incubated, and we currently have in the region of 15000 fingerlings ."

These are being kept in a number of tanks within the makeshift hatchery they have set up, and will be transferred to the new facility once it's complete. Vine said growing fish in captivity was a complex task. "You have to start the fish off on live food, and as such we produce our own algae, or green water, which we use to grow rotifers and brine shrimp, which we in turn feed to the baby fish. "Once they reach a certain size you can change over to feeding them special food pellets, which we import," he said. The facility recycles 90 percent of the water, but tops up water levels with fresh, albeit heavily filtered, sea water. "It is important to ensure that the quality of the water, as well as the temperature, is maintained."

One reason for investing in the East London IDZ was the temperate climate and access to warm ocean water. The broodstock, which were caught in the Brede River some six years ago and originally based at Espadon's "mariculture" project in Hermanus, are fed chokka and pilchards. They are busy preparing the broodstock to spawn again, and are in the process of installing bigger tanks so that they can transfer the current batch of hatchlings over to make way for the new fry. The current fish would be ready for market by May next year. "We are hoping that these kob will be served at all the 2010 banquet dinners throughout South Africa." Vine said they had already established agreements to supply Woolworths and Ocean Basket with kob, and hoped they would be supplying many other restaurants as well. "Once we are operational, we expect the facility to produce around two million fingerlings. "We will grow in the region of 300 to 400 tons of fish a year for market, and sell the excess on to fish grow-out facilities elsewhere in the country." Vine stressed, however, that they would sell fingerlings only to companies that complied with the Marine and Coastal Management requirements and had the necessary permits.

Regional Roundup

Angola Fisheries ministry invests USD 40 million in Aquaculture School

The Ministry of Fisheries in Angola will spend from 2010 to 2012 at least USD 40 million for the construction of the National Aquaculture School, in the district of Kalandula, Malanje province, the Minister of Fisheries, Salomão Xirimimbi, announced while presiding over the launch of construction works of the institution specialised in the training of basic and high technicians in the aquaculture field. According to the government official, the creation of the school in Kalandula district is due to the studies held by Angolan and foreign technicians that identified the locality that offers the best natural conditions for the project. The study, that included several localities of the country with potential in artisan fishery, covered, among other provinces, Huambo, Bié, Uíge, Cabinda, Zaire, Namibe, Kwanza Sul and Kwanza Norte. To be built in 300-square metres, the

building will comprise two floors, including nine class rooms, workshops, amphitheatres, sports fields and two laboratories. Concerning the labs, the official said that there will be a dry and humid one. The first laboratory will comprise embalmed organisms, while the second will be consisted of an artificial system fed by oxygenation having as basis the cultivation of different species of fresh water organisms. The project foresees that the cultivation of first fishes will happen late 2010, in a region where the most abundant species are local fishes namely "bagre, chopa, lenda and sunza".

The school, which will supply future students to the Academy of Fisheries, to be built in southern Namibe province, has a capacity to host 900 students, of which 600 that will stay in. Located in down town Kalandula district, the plot for the construction of the National Fisheries School is surrounded by Lucala river which is one of the flows of the country's biggest river called Kwanza.

http://www.portalangop.co.ao/motix/en_us/noticias/economia/2009/7/32/Fisheries-ministry-invests-USD-million-Aquaculture-School.05806d32-e512-414e-b5f0-8f6c51e9d343.html

Kenya plans Aquaculture Research

By Mazera Ndurya

The Kenya government is working on a strategic plan that will help regulate and boost aquaculture research and development in the country. Although the government has allocated funds for the sector through the ministry of fisheries development, a policy framework was needed to make it more vibrant and provide economic benefits. The Coordinator of the Aquaculture Research Programme, marine and Coastal Division of the Kenya Marine and Fisheries Research Institute (KMFRI) Dr Betty Nyonje said the draft policy was in its final stages and was expected to be ready by the end of the year. Tanzania and Zanzibar she said were way ahead but was optimistic that the plan which is awaiting the input of various stakeholders will change the fortunes for Kenyan farmers. She said the government has realised the significance of aquaculture leading to the release in this year's budget of Sh1.12billion for its development. Dr Nyonje was speaking at Kibuyuni in Shimoni, Msambweni district during the launching of commercial seaweed farming along the Kenyan Coast. "Seaweed farming has been identified as a good prospect for social and economic development of coastal areas for poor fishing communities whose livelihoods have been affected by diminishing fisheries. "About 300 farmers from Gazi, Funzi, Kibuyuni, Shimoni and Mkwiro are involved in the pilot project that is within the Regional Programme for the Sustainable Management of the Coastal Zones of the countries of the Indian Ocean," she said.

Once fully developed, Dr Nyonje said, farmers in the pilot areas could earn between Sh30m and Sh40m annually from the sale of dried seaweed whose extracts are used as thickeners and homogenisers in pharmaceuticals, food and cosmetic industries. Under the current arrangement the produce from the farmers will be sold in Zanzibar with a seaweed buyer Zangue Aqua Farms who supplies to one of the largest seaweed processing companies in the world.

KMFRI deputy director Abraham Kagwiria said Kenya was still lagging behind but said the aquaculture was set for development with the support from the government and donors who have pumped in Sh4billion. "We will be embarking on a campaign to sensitise local communities to take up seaweed farming because it has a ready market and can easily develop to large scale. We expect a major leap in the peoples' standards of living. "Public private partnerships are targeted for the long-term Kenya seaweed industry which will address all the value and market chains. Guidelines for farming are being developed," he said.

Experts Inspect flooded Namibian Fish Farms

By Petronella Sibeene in the New Era

A delegation comprising local and foreign experts in aquaculture is in the Caprivi and Kavango regions to assess the extent of damage on several fish farms due to this year's floods. The fish

farms were instituted by the Ministry of Fisheries and Marine Resources to reduce poverty and empower residents in settlements along rivers. Minister of Fisheries and Marine Resources, Dr Abraham Iyambo, who is accompanied by aquaculture experts from China, Cuba, Canada, the Commonwealth and the ministry's staff, told New Era the aim of the five-day tour to the regions was to assess the state in which fish farms are in light of devastating floods that hit the two regions. Already, experts have visited the Kalimbeza and Likungamelo fish farms in the Caprivi Region. Although the floods affected most aquaculture projects in the two regions, the minister was optimistic that the harvest this year would still be impressive. Mpungu fish farm in the Kavango Region harvested fish in May and according to the minister, he was informed this has been the best harvest in previous years. Karovo fish farm also expects to have a good harvest scheduled for October this year. There are 18 000 fish in each of the two ponds, a number that promises a bumper harvest. Meanwhile, Iyambo said the Kalimbeza fish farm was severely affected, as the centre was completely submerged. However, enough fish survived as those in charge of the centre improvised and strengthened the "walls" to the ponds by putting around plastic and iron materials. Only one pond was negatively affected at Likungamelo.

The N\$68 million Kamutjonga Inland Fisheries Institute (KIFI) project in the Kavango Region has reached an advanced stage. KIFI's mission is "to be a regional centre providing leadership in aquaculture research, fisheries management and capacity buildings" and its primary objectives are to research, fish and fingerling production and training and to serve as a data or information centre. Upon completion, KIFI is estimated to produce at least 1 million tilapia fingerlings per annum. The project, likely to be completed in November this year, will also comprise an aquarium and extra housing for the staff among other facilities.

Government developed freshwater fish farms five years ago. Fish farming projects have the potential to create job opportunities for rural communities as well as address issues such as food security and income. The Government has made strides in the development of freshwater aquaculture throughout the country by coming up with several projects and institutions to boost fresh water fish production.

A conservative estimate, for the development of the industry points to a high growth in value from the current N\$20 million to N\$250 in 2009, with the direct employment also expected to expand from the current 422 people to 1 640 people in 2009. The peripheral industries such as harvesting, processing, transportation, cold storage, marketing, cage construction, pumps, and fish feed will increase proportionately and provide in excess of 1 000 additional jobs.

Uganda pond fish farming

Fish farming or aquaculture, if taken seriously doesn't only benefit individuals but the entire economy as well. It is a source of income to households like Amina's. The rich in protein product not only makes the fish farmers healthy but can act as a source of foreign exchange if reared on large scale.

See

http://www.monitor.co.ug/artman/publish/smartmoney/Fishing_money_from_the_pond_91806.shtml
!

Uganda Vice-President also a fish farmer

Dressed in a striped shirt, black trousers and gum boots, there is nothing to show that this man prodding at several piglets is the Vice-President of Uganda. He whistles and cracks jokes with his workers and visitors. He talks to his pigs like they are bosom friends. He admires his chickens and feeds his cows. He likes his vegetables, trees and maize. In fact, he likes everything that goes on his farm. Vice-President Professor Gilbert Bukenya has one of the most organized and planned farms in the country. The farm is located about 2 kms from Kakiri. Bukenya is an accomplished farmer, but when he talks about farming he also airs a conviction that farming is the road that Ugandans can take out of poverty.

"We have lots of empty land lying across the country, but what are people doing with it?" he pauses, before adding, "Very little at the moment."

The Fish Farm. The Vice-President has more than 7,000 mud-fish and 10,000 tilapia in his ponds, which he personally tends. He carries a life-jacket in his Toyota Hilux pick-up, a private vehicle, whenever he goes to a pond so he can row a small boat over it. To maximise his gain, he adopted the modern cage farming practice for tilapia. This is a system where a fish pond is divided into several plots, with each plot holding a given number of fish. At the moment, prices of fish in the country have gone up and the Vice-President is one of the farmers harvesting money from this venture. "I harvest every eight months and sell them," he says. The average price of a 1kg tilapia is Ugandan sh 5,000. There is no shortage of market for the fish, because of the current scarcity.

<http://allafrica.com/stories/200908060667.html>

Kenya Government promotes fish farming to boost food security

By John Njagi in Business Daily

The government is shifting focus to fish farming to increase food security and boost earnings. With dwindling fish stocks in lakes and other water bodies, the country is seeking to boost production from 4,220 metric tonnes to 11 million tonnes, with a potential of earning the country Sh750 billion from the domestic and export markets. The government is also in the process of rolling out an initiative to construct at least 200 fish ponds in 140 constituencies that are endowed with water resources such as rivers.

Speaking during the recent launch of the Aguthi Fisheries self help group, in Nyeri, Fisheries Development ministry Permanent Secretary, Prof Micheni Ntiba, said there was a shortage of fish in the world market and urged farmers to take advantage of the opportunity. "There is high demand for fish as most people have discovered its nutritional value," he said. But even as the government gears up to roll out the plan, coffee farmers in Tetu are abandoning their plantations in favour of fish ponds. After watching their earnings from coffee fall drastically, they have set up a fish farming group that has pooled resources to construct three fish ponds on a one-acre wetland owned by the Nyeri County Council at Aguthi. And looking at the economic prospects that result from fishing, the farmers have every reason to diversify earnings from coffee production or abandon it all together for greener pastures.

Whereas a kilo of coffee earns a farmer Sh10, a kilo of fish fetches up to Sh450. Retired civil servant Henry Wahome is one of the farmers who have joined the fish farming group to diversify his sources of income. Demand for fish is also high in the region as most households are better enlightened on the benefits of eating fish as compared to other sources of meat with high cholesterol. Mr Wahome is a member of the Aguthi Fisheries self help group project, with 360 farmers who have pooled resources to construct three fish ponds with over 4,000 fish. With Sh500 minimum fee per farmer and a maximum of Sh50,000 worth of shares, the farmers have been able to pool resources to get the project rolling. The government is also spearheading the drive to popularise fish farming as a source of food and income. Prof Ntiba said fish stocks in lakes and other large water bodies worldwide were dwindling.

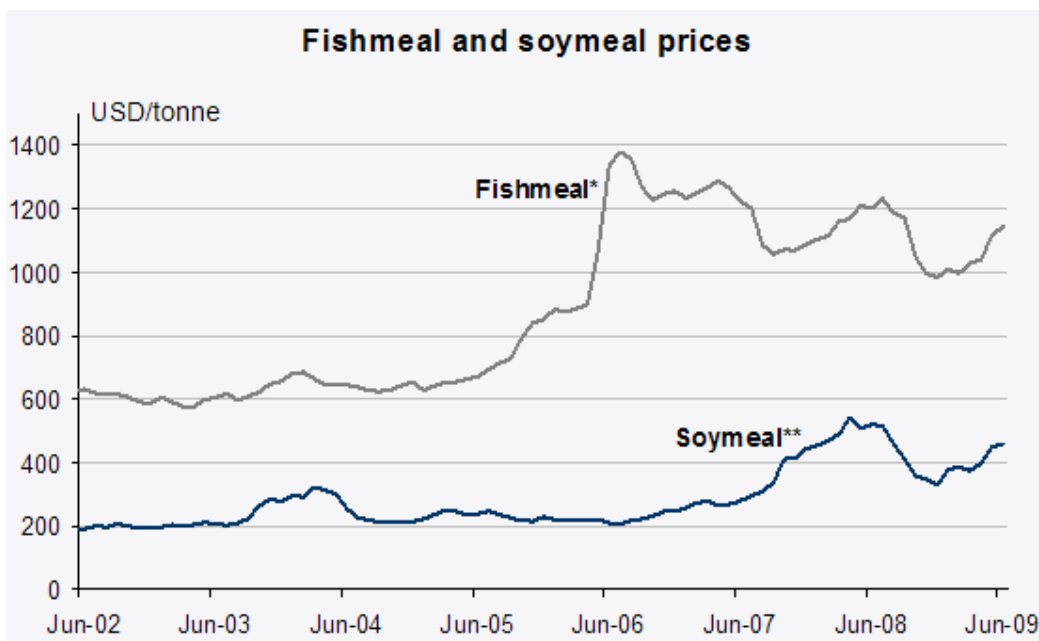
Feeds

Prices of Fishmeal up

By Helga Josupeit in FAO Globefish report

Total fishmeal production in the first quarter of 2009 was 433 000 tonnes, some 25% less than last year. Peruvian production in the first quarter of the year was extremely low. However, the indications are quite favourable for the second quarter of the year, as Peruvian production improved with the introduction of the new fishing quota system. Overall, fishmeal production in 2009 is likely to be in line with 2008 production or only slightly lower. The coming year, however, might be an El Niño year, which might lower production in Peru and Chile. Prices started to move upwards in the second quarter of the year, also in line with higher soybean meal prices.

When looking at the overall supply situation, it has to be considered also that increasing quantities of fishmeal production are coming from fish processing waste. The share of these products in overall world fishmeal production is estimated at 25%. Probably some 1.2 million tonnes of fishmeal are coming from this source, generally escaping official statistics. Soya meal was able to reach a new high price level for the year and prices will stay that high until the new crop arrives on the market later in 2009. At present the market expects that the current shortage will be relieved once the new US crop becomes available. In June 2009, soymeal prices reached USD 450/tonne, which compares to USD 320/tonne at the beginning of the year. Fishmeal prices went up too, to reach USD 1 143/tonne in mid year. Overall shortage of fishmeal in the market was the main reason for price hikes. However, price levels are still USD 70/tonne below those of last year.



Developments in the fishmeal industry in the coming months are very difficult to foresee: it is likely that demand will decline, especially in China, as a reaction to the worldwide economic crisis and the swine flu. At the moment, however, prices are moving upward after the negative trend in the closing months of 2008, based on limited availability and downward expectations for future fishmeal production.

Feed Formulation will increase Omega 3 content without Fish Meal or Fish Oil

HQ Sustainable Maritime Industries, Inc. announced that the construction of the Company's new feed mill has been completed and that the mill is now fully operational. The new mill was brought online following months of quality and efficiency testing in order to optimize production and to ensure that the mill met or exceeded the highest standards. Management believes that this is an important step to control the quality of our fish products, vertical integration and traceability. The

feed formulation will supplement feed without the use of fish meal or fish oil to alleviate the pressures on our oceans. Furthermore omega 3 will be added through all-natural algae meal to significantly increase omega 3 levels in fresh water inland farmed Tilapia.

Buhler designed and manufactured the equipment that was chosen for the feed mill. Buhler considers the HQS processing plant a showcase of the latest technologies in this sector. The latest process technology is extrusion which allows preservable and carefully balanced foods and animal feeds to be produced on the basis of the latest findings in the field of nutrition.

<http://www.yachtchartersmagazine.com/node/1073367>

First approval of probiotics in feed for the EU

Aquaculture feed company, Biomar, has announced that it is ready to launch feeds containing EU-approved probiotics. A long term research and development project, initiated through the French OFIMER programme and bringing together fish feed producer BioMar, the French research institutes IFREMER and INRA, and the industrial company Lallemand, has resulted in the first EU-approval of the use of probiotics for salmonids. This has allowed BioMar to develop an innovative dietary probiotic concept and will result in the introduction of the first trout and salmon feed containing probiotics.

CEO of the BioMar Group Torben Svejgard said: "The use of probiotics in feed for salmonids has shown to have significant impact on fish health and thereby the economic performance of fish farming. "At the same time the use of probiotics has also important environmental benefits. By reducing the risk of diseases, the necessity of medication and thereby the risk of residues left in the environment is reduced.

<http://www.allaboutfeed.net/news/biomar-launches-fish-feeds-with-eu-approved-probiotics-3643.html>

Environment, Health and Disease issues

Alaskan fish used as food aid in Africa

By Denise Recalde

The introduction of canned Alaskan herring into international food aid programmes would open up a USD 13 million market for the struggling Alaskan industry, noted a food aid coordinator for the Alaska Seafood Marketing Institute (ASMI). Not only will the pilot programme benefit Alaskan coastal communities; it will also provide vital protein to hungry people, said ASMI's Bruce Schactler, who is also a Kodiak salmon and herring fisherman. The new market, along with the development of canning facilities near harvest areas, would also generate employment along the Alaskan coast, he said, the Alaska Journal of Commerce reports. Schactler's big marketing campaign highlights the nutritional value of some 3,000 pounds of canned herring in feeding orphans in Uganda and refugees on the border of Congo. "The protein level in herring is almost the same as salmon, and it has about triple the omega 3 oils," said Schactler. Canned Alaska herring also has a shelf life of five to seven years, he noted. "I am following along on the same marketing and development models that we have done with salmon to this point," said Schactler, who has worked since 2004 to develop markets for wild Alaska seafood in international food aid programmes. "One container (of canned herring) is about 200,000 meals. This will start showing people this is a viable product. Everybody likes it. If you can show that, it will start turning into a viable program." Schactler has helped introduce wild Alaska salmon as the first animal protein in domestic and international food programmes. Alaska salmon processors were canning more fish

than the market would bear, he said. Now, about 20 per cent of the 1-pound cans of wild salmon were being purchased for food aid programs. And last fall, "while everything in the world was free falling in price, the canned pinks were going up in price," he said. As demand for wild Alaska canned salmon in food aid program increases, Schactler is also working to boost demand for Alaska herring.

"There is so much need all over Alaska for some new economic development," he said.

Research matters, Reviews & Training

Fish fed with GMO feeds no health risk

By Analia Murias

An Applied Biology group at the University of Almeria initiated a study to find out if tilapia and sea bream fed transgenic substances are detrimental to the health of human beings. According to lead researcher Tomas Francisco Martinez, the experiments conducted so far show that the muscles and organs of both resources assimilated genetically modified substances and pose no risk to human health once eaten. The researchers divided the specimens of sea bream and tilapia into three groups: one fed with transgenic soybeans, another with ecological soybeans and the last with no vegetal matter at all. "Although we have enriched the feed with more than what it naturally contains, to see results in a shorter time-span," the assimilation of these types of substances through ingestion is something "totally logical," Martinez commented. The samples found do not interfere in the internal operations of the organism since the cells possess natural mechanisms to protect themselves from strange elements, he said. "Nobody has been able to demonstrate that evolution is able to incorporate transgenics into DNA sequences. That is, these remnants have been found in external tissues but not in the nuclei of cells," the specialist added. The project, set to conclude in 2011, uses the polymerase chain reaction (PCR) technique, which enables researchers to produce millions of copies of DNA fragments. Over the last few decades, the subject of transgenics has long been debated in Europe and around the world, since 90 per cent of the cereals cultivated in Community territory are directed to animal feed. In addition, almost all the crops (mainly corn and soybean) are genetically modified and serve as food for pigs, veal calves, chickens and lambs. The European norm contemplates very strict mechanisms for the commercialisation of these products, obliging them to unequivocally identify its content if it surpasses 0.9 per cent of its weight. On the issue, Martinez stresses that "it is not scientifically demonstrated that the consumption of these substances is detrimental for people, at least, in the mid-term."

Toxin responsible for fish kills could be used in Cancer treatments

By Sean Adams

A powerful fish-killing toxin could have cancer-killing properties as well, according to collaborative research led by Agricultural Research Service (ARS) microbiologist Paul V. Zimba and chemist Peter Moeller of the U.S. National Oceanic and Atmospheric Administration (NOAA). The toxin, called euglenophycin, has a molecular structure similar to that of solenopsin, an alkaloid from fire ant venom known to inhibit tumor development. The findings were published online in July in the journal *Toxicon*.

In the summer of 2002, a commercial aquaculture facility in North Carolina reported mysterious fish mortalities in its ponds. More than 21,000 striped bass had died in July and August, resulting in losses of more than \$100,000. To find out why the fish had died, Zimba and Moeller collaborated

with Michigan State University biologist Richard Triemer. Zimba works at the ARS Catfish Genetics Research Unit in Stoneville, Miss. The scientists isolated and analyzed dissolved compounds, bacteria and algae from pond water samples. In a 2004 paper in the Journal of Fish Disease, they identified the culprits as *Euglena sanguinea* and *E. granulata*, two species of freshwater algae that had generally been considered benign. It was the first report of freshwater algae causing fish kills, but it wasn't the last instance of such an event. Zimba and his colleagues have confirmed 11 additional occasions in which euglenoid algae have fatally impacted fish ponds. Losses from these events which have affected striped bass, tilapia and channel catfish are estimated to exceed \$1.1 million.

Moeller, working in NOAA's Center for Human Health Risk in Charleston, S.C., then purified the active compounds and fully characterized the molecular structure of euglenophycin, the algal toxin responsible for the fish kills. The scientists are seeking patent protection on the toxin, and are currently investigating its properties. Laboratory tests have confirmed that euglenophycin is deadly to fish. Catfish exposed to the purified form of the toxin died within 4 hours of exposure.

One potential use of the toxin is in treating cancer patients. Laboratory tests have shown that even low concentrations of euglenophycin led to a significant decrease in cancer cell growth, and can kill cancer cells. Future tests will attempt to verify whether the toxin can slow or prevent tumor formation. Positive results would indicate that this problematic alga could have beneficial medical applications.

<http://www.ars.usda.gov/is/pr/2009/090908.2.htm>

Conferences & Upcoming events

Aquaculture Europe

The Aquaculture Europe 2010 conference and exhibition will be held in Porto, Portugal from 6-8 October 2010.

E-mail: mario.stael@scarlet.be

Web: www.marevent.com

Other Upcoming Events

ASIA PACIFIC AQUACULTURE 2009
Kuala Lumpur, Malaysia - November 3-6, 2009

AQUACULTURE 2010
San Diego, California, USA - March 1-5, 2010

AUSTRALASIA AQUACULTURE 2010
Hobart, Tasmania, Australia - May 23-26, 2010

AQUACULTURE EUROPE 2010
Porto, Portugal - Oct 6-8, 2010

AQUACULTURE AMERICA 2011
New Orleans, Louisiana, USA - Feb. 28 - March 3, 2011

AQUA 2012
St Petersburg, Russia - June 25-29, 2012

Aquaculture Conferences and Events website

Bookmark for future use!

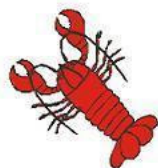
<http://www.conferencealerts.com/aqua.htm>

Employment

Kevin Charles Black, currently residing in Gordons Bay, Western Cape, is looking for employment in the aquaculture sector.

Contact +27 (0) 84 549 8629

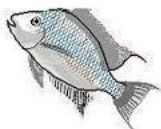
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