Aquaculture Association of Southern Africa

Newsletter Volume 5: 3 ▪ May 2009

A Word from the AASA Chairman

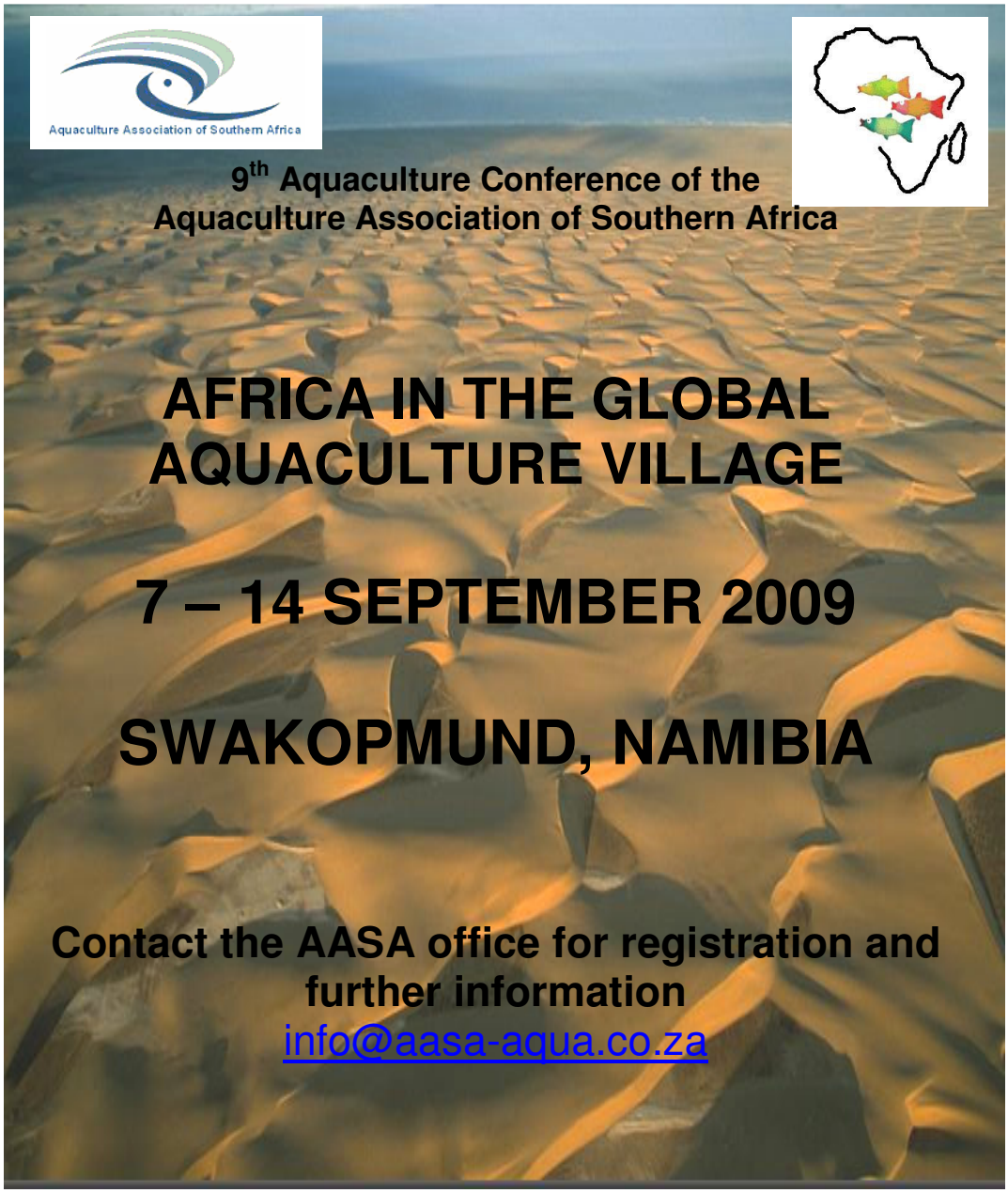
Etienne Hinrichsen

Winter 2009 is on us and we are racing towards the second half of the year. Having said that, there is still much to be done in this year, not the least of which is the AASA conference in Namibia in September. I am very excited as to how fast the conference programme has filled up and I am looking forward to a very special event. Many of you will be familiar with the conference program by now – perhaps I can just reemphasize that we have now confirmed the attendance of Dr. Mike Timmons as keynote speaker, while he and Dr. James Ebeling (both from Cornell University) will be presenting a training session with Dr. Dave Fletcher (IATC) during the conference. In my personal opinion I want to confidently state that having these three gentlemen presenting aquaculture material in one venue at the same time on the African continent, really is an occasion of great significance. This promises to be a very informative session through which we want to expose Africa to globally relevant technology. Please support this initiative through your attendance.

It would be impossible to write this short contribution without saying something about the reshuffle in the South African Government departments. I have not got much information on how this will all pan out for aquaculture, but I can say that the people directly involved in aquaculture from all the respective Government departments are all committed to see aquaculture move forward in all its facets. We will however have to wait and see how this is managed and structured at senior government level.

Mainly through the conference arrangements we are finding that AASA is increasingly connecting with INFOSA, WAS, SARNISSA and various other organizations and people across the globe. If anything, I want to continue growing these relationships in our ongoing effort to make AASA stand firmly as an equipped representative of aquaculture in the region, and perhaps even on the continent. One of the ways in which we are tackling this is by getting in behind the establishment of the African Chapter for WAS. In this regard I may very well call on people individually so that we can make up the WAS membership numbers to get this chapter off the ground.

I sincerely hope that I see all of you at the conference in September. Until then……work hard and enjoy the fact that we're part of a great and growing sector.



The Editor's choice

Editorial

Adrian Piers newsletter@aasa-aqua.co.za

Piero Sardo, the President of the Slow Food Foundation for Biodiversity concluded a water workshop with the theme "The Future of Fishing in Africa" with the statement "There is only one solution. We have to eat a third of the fish we currently consume. We've used up our stocks, and now we're using up theirs (Africa's)." – see below.

Have these people not heard of fish farming? Such statements are an indicator that the industry is falling behind in publicising the fact that nearly half of all the fish consumed on the planet today are farmed fish, and the opportunities for increased production from these methods.

The Bleak Future of Fishing in Africa

By Carla Ranicki in Slowweb

President of the Slow Food Foundation for Biodiversity, Piero Sardo, opening the Water Workshop "The Future of Fishing in Africa" at Slow Fish said "These problems may seem far away, but they are crucial to the global market and economy."

Speakers from Italy, France, Uganda, Senegal and Mauritania then proceeded to prove this statement correct, showing how the problems of overfishing and globalized demand, leading to the loss of livelihoods and the destruction of the environment and biodiversity, were primarily caused by industrial fishing fleets from developed countries and massive fish exports to Japan, the United States and the European Union. In competition from industrial fleets, artisanal fishers were struggling to make a living and with most fish exported, local food security was seriously threatened.

Margaret Nakato, Director of the Katosi Women Development Trust in Uganda, had some shocking statistics about Lake Victoria. In 1999, she said, there were an estimated 1.9 million tons of fish resources in the lake, but by last year this had gone down to just 370,000 tons. European Union imports of Nile perch fillets doubled from 1997 to 2005, and the fish export business generates $300 million a year for the three countries bordering the lake, Kenya, Uganda and Tanzania. But even so the standards of living for fishing communities were not improving.

The situation in West Africa is similarly dire, said Edoardo Isnenghi, a scientific consultant for the World Wildlife Fund Italy. The rich fishing grounds off the central West African coast have been decimated, with 90% of fish species at maximum exploitation level. Already 20% of stocks have collapsed completely, while 30% are exploited above their capacity for regeneration. With no fish left to catch, local fishermen often choose to emigrate, becoming what he termed "environmental refugees." The majority of illegal immigrants who arrive in Europe are escaping environmental degradation, he said.

Bringing the focus to Senegal, Awa Djigal, an artisanal fish processor, confirmed this story. Senegalese women, she said, were active in processing and selling fish, but when the men emigrate there is no more fish to process. With 80% of women's income spent on food, if their income is threatened so is the whole community's food security. Nedwa Moctar Nech of the NGO Mauritanie 2000 said that 95% of Mauritania's fish production was exported, and that European

fleets were using environmentally harmful fishing techniques banned by international agreements. “In Holland they aren’t allowed to catch molluscs, so they come catch them here,” she lamented.

What can be done to improve the situation? Nakato said that sustainability needed to balance economic, social and ecological issues. In Africa, she said, the economic issues had to be addressed first. “We have basic needs of food, healthcare and shelter. In Iceland they can address ecological needs first because they already have food and shelter.” Diversification of economic activities would help provide local communities with other sources of income. Cooperation between international institutions like the FAO, individual governments, NGOs and local development agencies to control illegal fishing and limit overexploitation is crucial, as is greater traceability and transparency along the whole length of the supply chain, from fisher to consumer. Capacity building and improving women’s access to credit and involvement in decision making would also help, as would increasing ways for communities to add value to their catch at a local level, such as access to hygienic processing and conservation technology.

Piero Sardo, however, concluded the workshop by stating: “There is only one solution. We have to eat a third of the fish we currently consume. We’ve used up our stocks, and now we’re using up theirs.”

http://sloweb.slowfood.com/sloweb/eng/dettaglio.lasso?cod=5960B3920a41929A38JqP2CF6FCD

NEWS RELEASE

John Holder, Courtenay, BC, Canada • jholder@island.net • Tel: (250) 897 1334

Kriek Bekker, South Africa • info@globalaquaculture.co.za • Tel: (+27) 21 8545293

International News Release
Stellenbosch, South Africa - December 2008.

New Aquaculture Technology Company after three international groups combined their interests.

Three international companies known for the specialized services they render world-wide to the aquaculture industry have decided to combine their interests in a “**one-stop**” specialist and technology group under the banner of **Global Recirc Technologies™**.

The American group **Holder Timmons Engineering** (http://www.holdertimmons.com) from Ithaca, New York State, USA, the well-known aquaculture consultant **John L Holder** (http://www.jlhconsulting.tv) from Vancouver Island, BC Canada, as well as the South-African water movement and aquaculture technology company **Global Aquaculture Solutions** (http://www.globalocean.co.za) will in future conduct business as a strategic alliance under this new name of **Global Recirc Technologies™**. This step establishes this new company as one of the world’s most expert and leading suppliers of an all encompassing service to the aquaculture industry in the form of consultancies, research and development as well as design, manufacture, installations and after sales services of systems and technologies. These mentioned services will

also encapsulate the delivery of full “turn-key” projects to clients in the international aquaculture industry.

The above mentioned three companies were in the past decade involved in more than **sixty** projects in **fourteen** different countries, spanning over **six** continents. The key staff members in these three groups, has a combined experience base of more than **250** years in the aquaculture industry and are today **world leaders** and **experts** in the re-circulation and re-use of water in aquaculture.

Apart from their own in-house expertise, **Global Recirc Technologies™** also has further access to the expert industry services of various strategic alliance partners outside their own company grouping, which can assist with consulting or physical support towards the supply of the following complete aquaculture packages:

- Complete planning consultations pertaining to products and markets strategies.
- Business analyses and research leading to the compilation and writing of strategic blue prints or policies for government institutions or other statutory authorities.
- Aid and guidance for empowering previously disadvantaged communities to enter the world of commercial aquaculture, as well as subsistence farming of aquatic species for food security.
- Feasibility studies or business plans for potential clients covering all facets of aquaculture.
- A comprehensive consultation service in terms of the choices and options relating to species and farming systems.
- Consultation and assistance with statutory and environmental impact implications.
- Designs of all aquaculture systems and equipment.
- Building/manufacture of above mentioned systems and equipment.
- Delivery of partial of full (turn-key) aquaculture projects.
- Project management during construction phases of comprehensive aquaculture projects.
- Training of client’s key staff for their new aquaculture projects.
- Management contracts for the management of new projects, until the owners can take charge.
- Water quality and bio-security analysis and monitoring.

Global Recirc Technologies™ field of specialising in terms of the design and building of new aquaculture projects and systems, include the following:

- Hatcheries for aquatic species.
- Land based re-circulating production systems (RAS) for all crustaceans and finfish species.
- The design and building of open water floating cage systems.
- The design and building of live-holding and purging systems for commercially harvested open water or farmed sea species such as oysters, scallop, crabs and lobsters for planned preparation and marketing.
- High volume flow-through systems for high stocking density species like trout or tilapia etc.
- Research and development systems for academic or government institutions.
- All related equipment and support peripherals applicable to modern aquaculture systems.
- Software and management programs for aquatic systems.
- A 24-hour after sales service “hot-line” for clients experiencing problems or looking for new products.

Global Recirc Technologies™
… the modern solution for the fish farmer of today”!

GLOBAL AQUACULTURE SOLUTIONS
"The Modern Solutions for the Fish Farmer of Today"

26 Van den Berg Crescent, Gants Industrial Park, Strand
PO Box 411, Somerset Mall, 7137, Western Cape, South Africa
Tel: 0861 732472 • Fax: +27 21 8545298
Email: info@globalaquaculture.co.za

Specialists in re-circulating aquaculture, live holding and water movement and -treatment solutions.

01 June 2009

Dear All

As most of you might be aware by now, Global Ocean Marine Technologies, previously from 35 Harbour Road in Kleinmond, has recently undergone some major changes and re-positioned itself with new alliances and agency agreements to become one of the world's leading suppliers of aquaculture, live holding and water movement and treatment solutions.

The most significant of these are:

- That we have restructured our business and are now operating under the new name of **Global Aquaculture Solutions (Pty) Ltd.**
- We have ceased our abalone farming operations in Kleinmond and have re-located to new premises in the Gants Industrial Park area in the Strand/Somerset West region (Western Cape), to focus entirely on the technology side of our operation. (See our physical details in our stationary above).
- We have completed a successful Empowerment business partnership with **Africa Aquaculture Alliance (Pty) Ltd**., South Africa's first fully black owned company focusing entirely on dedicated aquaculture facilitation to unlock the full potential of this industry in Africa via their networks and alliances.
- Global Aquaculture Solutions (Pty) Ltd. has also successfully formed a business alliance with two renowned international groups, both global industry specialists in Aquaculture recirculation technology. These are the famous **HolderTimmons Engineering** Group from Ithaca, New York State and spear- headed by Prof. Mike Timmons and his team from Cornell University (http://www.holdertimmons.com/) and the renowned international aquaculture consultant from Courtenay in British Columbia, CA, **Mr. John Holder** (http://www.jlhconsulting.tv/).
- Together, these four groups have recently formed an international company, **Global Recirc Technologies™**, to operate as a one-stop aquaculture shop with a whole new range of products and services that can deliver any project for any species anywhere in the world. A new website depicting this operation, will be in operation for your perusal soon (attached, please also find a recent international press release about this new alliance).

For your convenience, the following are our direct contact details:

Telephone numbers:	0861 RECIRC (0861 732472)
	021 8545293
	021 8545497
Facsimile:	021 8545298

General Enquiries:		info@globalaquaculture.co.za
Managing Director:	(Kriek Bekker)	kriek@globalaquaculture.co.za
Finance and Admin Manager:	(Johan Koorts)	johan@globalaquaculture.co.za
Manager Business and Product Development:	(Gareth Lawrence)	gareth@globalaquaculture.co.za
Senior Fabricator and Installer:	(Ockie Vermeulen)	ockie@globalaquaculture.co.za

Kind regards

Kriek Bekker
Managing Director

Catfish

African Catfish extensively cultured in Cuba

From the Havana Times

Known for devouring anything that crosses its path, and even "biting people," the Clarias *Clarias gariepinus* is stirring great controversy in Cuba, but when transformed into a fillet, it is eaten with pleasure on the family table. The species, also known as the African catfish, was introduced in Cuba in 1999 with the aim of breeding it in freshwater ponds. However, the abundant rains that fell in 2001 and 2002 from hurricanes Michelle, Isidore and Lily caused the fish's dispersion throughout the entire country. From that time on, a thousand stories feed its bad reputation. The allegations against the fish range from its being "tremendously ugly" to "it eats anything." Moreover, people are frightened by the fact that it can slither across land, taking advantage of its rigid fins and slithering body. The worst and most serious accusation is that it can wipe out other species, thereby placing the ecological balance in danger. "But the fillet of these fish is good, so we have to figure out how to raise them in mass quantities in ponds on farms. In that way we would contribute to greater food preparedness," said Raimundo García, director of the Christian Centre for Reflection and Dialogue, who is responsible for the El Retiro project.
The introduction of exotic species figures among the main causes of the loss of biological diversity in Cuba, in addition to the "weak integration between conservation strategies and the sustainable use of biodiversity and economic development activities." For environmentalists, the problem is not so much that the Clarias is "exotic," but that regulatory mechanisms and control are not always error-free, and that environmental disasters are extremely difficult to reverse. The United Nations decided to dedicate May 22 as International Biological Diversity Day out of concern over exotic invading species, a tremendous threat to biodiversity and the "ecological and economic well-being of society and the planet."

In Cuba, the official strategy to protect biodiversity ranges from conservation actions, the rehabilitation and restoration of ecosystems and degraded habitat, environmental impact assessments, and plans to manage and control exotic species of plants and animals. In defence of the Clarias, fishing-sector technicians contend that any species confronted with a prolonged lack of food can surprise us by eating organisms that are not a part of their usual diet. "The Clarias is resistant; it can survive under the most adverse conditions," noted ministerial advisor Julio Baisre.
"Studies on the stomach content of this species, the characteristics and position of their mouths, their smaller teeth and the fact that they only rely on their senses of touch and smell to locate their prey, indicate that they generally feed on organisms on the bottom of the water," he pointed out.
Baisre considered "exaggerated and second hand" the negative opinions of the Clarias, arguing that there does not exist "clear, scientifically based evidence" that any Cuban freshwater species has been eradicated because of another exotic strain. According to him, "Probably other environmental impacts related to the use and handling of water and the destruction of habitat" have had more negative influence on those species than has the presence of Clarias or Tilapia. "Rigorous studies" on the environmental impacts of many introduced species are necessary," Baisre recognized. "When they ask me about the African catfish, I respond with another question: Do you know of any species that serves as a human food but can be considered a plague?" he added. Other defenders of the introduction of the Clarias in aquaculture argue that more than 65 percent of the freshwater species raised on the American continent do not originate from that area, as was the case with sugarcane and coffee. "The introduction of fish is carried out based on comparative advantages with native species, like more rapid growth, more efficient and economical production, their high value in the foreign market and nutritional properties," asserted Orestes Gonzalez, deputy-director of the magazine Mar y Pesca (Sea and Fishing).

The African catfish is known and accepted on the Cuban table, and it is frequently offered among the commercial products sold to national consumers. For that reason, Cuba is trying to develop

aquaculture intensively. Dionis Cruz, a vendor in a fish market in the capital, where a kilogram of fillet of Clarias costs the equivalent of a US$1.50, assured that the fish is highly demanded. “It sells real quickly. I get in 200 kilos for sale and it’s gone in two days,” he boasted. Specialists agree that the breeding of freshwater species is a “world necessity,” because marine fishing reached its limit years ago. Clarias cultivation is not a Cuban “discovery,” because they are bred in more than 30 countries, these experts say. In 2008, Cuban aquaculture produced more than 30,000 tons of fish, among these tilapia, Clarias and other species, a good part of which are raised in reservoirs where the fish feed on natural plankton. Over the last few years, the intensive breeding of tilapia was conducted in floating enclosures, and that of the catfish in earthen and cement ponds. According to Baisre, this form of aquaculture is sustainable and part of the national strategy of food security.
Through variations in feeding, these intensive methods allow control over the number of fish that are in a certain place. Thanks to a project financed by the United Nations Development Programme (UNDP) and the United Nations Organization for Agriculture and Food (FAO), Cuban aquaculture relies on nationally grown feed, which reduces costs. Food produced in the Mampostón Aquatic Preparation Center, in San José de Lajas, some 30 kilometres from the capital, is based on by-products of the Clarias itself, to which is added soya, wheat or bran flour.
“The idea is to substitute imported fish meal,” said Mirtha Vinjoy, the center’s deputy-director.

http://www.havanatimes.org/?p=8960

Eels

British scientists research on Eel lifecycle

From The Times

A tagging project is shedding light on the epic life of the eel. It's title? The Eeliad.

There is a reason why questions on eels don't feature much in quizzes. It's because nobody really knows what the answers might be. People have been curious about eels for more than 2,000 years, yet what they get up to between being born and dying remains largely a puzzle. How do they cover the 7,000km journey to their spawning ground in the Sargasso Sea? How do they get back? How many get back? Nobody's sure. When it comes to a riddle wrapped in a mystery inside an enigma, an eel makes Churchill's Russia look as unbuttoned as Neil Diamond's shirtfront.

Aristotle thought they came from “the guts of the earth”, given how the creatures seemed to appear spontaneously from previously dry lakes. It wasn't until 1777 that Carlo Mondini, an Italian anatomist, found the eel's ovaries and proved that eels are fish. A century later a young Sigmund Freud dissected shoals of eels in search of their male sex organs, but scored little success.

Even now, apart from a solitary specimen found in the belly of a sperm whale, not a single silver eel has ever been recovered from the open ocean. But new research being led by the Centre for Environment, Fisheries and Aquaculture Science is slowly unlocking a few more of the eel's secrets - not just in order to quench biological curiosity, but also to learn how best to conserve European eel stocks in the face of diners' appetites and parasitic attack. Tags planted in 500 eels are already offering glimpses into the eel's life cycle. One day scientists might be able to say not only how eels get to the Sargasso Sea, but also why they chose so remote a breeding ground. For the privacy, scientists speculate. Maybe eels are shy. Who knew?

http://www.timesonline.co.uk/tol/comment/leading_article/article6164372.ece

http://www.timesonline.co.uk/tol/news/environment/article6163961.ece

http://www.guardian.co.uk/environment/2009/may/01/eel-fishing-europe-environment

Eel farming in Taiwan growing

After years of losing ground to rivals from across the strait, Taiwan's eel farming industry is staging a comeback, with the public and private sectors collaborating to regain market share in Japan.

In the 1950s, Taiwan started exporting elvers, or young eels, caught along its west coast to aquaculture operators in Japan. Seventeen years later, Japanese fish farming know how was used to establish the island's first breeding operations in Central Taiwan's Changhua County. Using elvers caught locally and imported from Japan, Taiwan's industry started to take off, a process further hastened by technological developments in this field.

With the island a leading supplier to Japan in the 1980s and early 1990s, its share of the market reached an all-time high of 70 percent in 1993, contributing US$605 million to Taiwan's economy. By 2007, eel was the nation's No. 1 farmed fish in terms of export value, accounting for 13.3 percent that year. This was followed by tilapia at 5.3 percent and milkfish at 1.3 percent. Today, a total of 2,313 hectares is dedicated to eel farming, with more than 90 percent of production shipped to Japan.

Full article and another at:-

http://taiwanjournal.nat.gov.tw/ct.asp?CtNode=122&xItem=49599&mp=2

http://taiwanjournal.nat.gov.tw/ct.asp?CtNode=122&xItem=49600&mp=2

Tilapia

Antibody improves Tilapia production

By Suzi Fraser

There are many ways for producers to minimize costly gut inflammation, which can be caused by disease, ingestion of inappropriate feedstuffs, toxins, parasites, and, particularly, by bacteria and viruses. Avoiding these factors generally falls under routine management. Gut inflammation caused by inappropriate feedstuffs, on the other hand, can be a complicated issue. Fluctuating agricultural markets and cost pressures influence feed formulations such that nutrient sources of differing quality, digestibility and palatability may be used for each batch of feed. Soy is often added to replace fish meal as a protein source in fish feeds, but this plant-based feed has been clearly shown to cause gut inflammation in carp and Salmon, and most likely occurs in other species as well. The economic gains from reduced feed cost must be carefully weighed against production losses arising from increased gut inflammation.

A novel approach directly tackles the problem of excess gut inflammation. Instead of targeting pathogens or other factors in the gut, the biochemical mechanisms of the host itself can be targeted. This host-targeted approach has been successfully applied using an antibody against a gut enzyme, phospholipase A2 (PLA2), and now marketed as BIG FISH™. PLA2 is a key participant in the inflammatory response of vertebrates, and enables one of the earliest metabolic steps in the inflammatory cascade. By targeting the host animal's PLA2, this product modulates the action of many key inflammation mediators in the gut, resulting in suppression of excess inflammation. Most importantly, this does not compromise the immunological status of the animal, which is still fully able to mount an effective response to acute health challenges.
http://www.aquafeed.com/read-article.php?id=2792&sectionid=3&utm_source=Aquafeed+English+Newsletter&utm_campaign=fd01c64aca-Aquafeed_Newsletter_-+4+-+23+-+2009&utm_medium=email

Trout and Salmon

Freshwater Trout Aquaculture Dialogue

From Krijn Resoort, WCTA Chairman, Representative of the South African Trout Forum.

I attended the Freshwater Trout Aquaculture Dialogue at the Torshavn Faroe islands from 27-28th May. Aquaculture dialogues are a worldwide WWF initiative for one of the most important aquaculture species, which aims to create species specific standards for sustainable aquaculture practice. The standard is going to be administered by the Aquaculture Stewardship Council (ASC, not to be confused with the wild fisheries ASC) and could be incorporated into local government legislation and financial institutions requirements. The standard will be based on measurable and scientifically based criteria, as opposed to other currently available standards, which use BMP as their basis and which are usually difficult to audit.

The standard will not be drawn up by a team of consultants, but is based on the main environmental and social issues identified by stakeholders. Interested parties such as retailers, processors, feed manufactures, farmers and NGO's are then set to work together convert these identified impacts into measurable standards. This process of creating standards is done on a consensus basis, which will hopefully ensure that all interest groups are forced to look at impacts from all points of view, which in turn helps with compliance later on in the process and a better understanding of the identified impacts by all parties.

The ASC current proposed standard is however not designed to be a blanket standard for all existing and future Trout production, The standard aims to use the performance of the best producers in the industry, therefore only targeting 15 to 20 % of the current Trout production. However the standard is meant to shift the attention and focus of the Trout industry towards this best practice ASC standard in the near future.

Currently the dialogue process is still in the process of converting the identified impacts and issues into criteria, which will eventually lead to measurable standards. There is a steering committee in place which is responsible for keeping the process on track and moving forward. All stakeholders give their input into the process during and in between the dialogue meetings via email and the WWF website. It is envisaged that the fresh water Trout standard will be finalized by the end of 2010 and will then be published for public comments via the WWF website.

The ASC body will offer annual certification of the standard on the Trout farms by 3rd party certification companies. Due to the fact that the standard is based on measurable performance standards, it's envisaged that a typical audit should be able to quickly cover the 50 to 70 check points, which should help towards making the standard affordable for smaller farms too.

So what impact will this process have on the South African Trout industry and why did I spend 5 days travelling back and forth to attend this dialogue?

Our industry currently lacks a measurable Trout farming standard audited by an independent party. This could prove to be a negative factor for local processors and retailers, who are increasingly being pressurized by the public to differentiate themselves and to increase food safety. Rather than asked to adopt a standard by a retailer or processor in some years to come, I realized that it was important to be involved in the actual standard making process, so that the standard would not only be focussed on large producers from the main Trout producing countries, but also be attainable for small South African Trout farmers. I was impressed with the consensus based decision making of the dialogue and it was great to be able to look at other dialogue results, such as of that one for Salmon. Previously I had only heard about the dialogue during the 2008 water quality workshop in Stellenbosch. However by attending the dialogue itself, I now have a clear understanding of it by

attending this dialogue, I got a better understanding of the importance of the dialogue and the opportunity it might be for our local industry and am therefore committed to continue giving input into the process.

For those of you who think that since the dialogue was initiated by the WWF, it must be very much based upon the wishes of the environmental NGO's, I can assure you that this is not the case. As a matter of fact the WWF was heavily criticized by NGO's during the Salmon dialogue for supposedly leaning to much towards producers needs.

I would like to thank the AISA office for bringing the dialogue once more to my attention and the local WWF office for their help and organizing. Those of you that would like to read more about the Trout dialogue or be more involved in it, please use the following link:

http://www.worldwildlife.org/what/globalmarkets/aquaculture/whatwearedoing.html

Fish farm needs to sell gravel to start production

Ray and Elaine Halvorson want to transform their rundown acreage into a “green” and organic fish farm by selling off the gravel, but are facing opposition from sceptical neighbours. A couple’s plan to excavate gravel from their south Aldergrove acreage to pay for its conversion into a Trout fish farm has stirred up some controversy in their neighbourhood. Even so, Ray and Elaine Halvorson remain optimistic that the authorities will stay on-side and grant final approvals. The 18-acre site has not been farmed in many years. The couple have been looking into farming options since they purchased the land six years ago, but the gravel and clay reaches into the surface and arable topsoil is negligible.

“We were going to go into organic berries but I was not aware that there was little usable soil here and irrigation would be a problem too, because it would be too much water draw for the aquifer,” said Ray. The couple then linked up with Brent Loates, a horticulture expert who drew up plans for a large-scale system of ponds that would recycle and purify water for aquaculture. Four acres of ponds would be for raising Steelhead, and another three ponds would be for overflow and detention, as well as a “wetland” series of ponds that would remove nitrates and put oxygen into the water before being pumped back into the fish ponds. The system would aim to capture 1.8 million gallons of rainwater each year and not use groundwater. All wastes would be hauled away in containers. Trout were chosen because the fish has the best pound for pound food conversion into meat and there is a good market demand.

Loates said that the plan is “to dig and build the ponds as we sell off the gravel” and that “the Ministry of Agriculture will be monitoring the work throughout. They see us as a pilot project.” The wetlands and detention pond would be built in the first year of operation, along with the first Trout pond. The wetlands would be filled with plants such as cattails and water hyacinths, to purify recycled water naturally. The plan is to have all four Trout ponds completed and in operation by 2012, with about 12,000 pounds of fish in each pond. “We couldn’t do this without selling the gravel to pay for the work; we don’t have that kind of money,” said Ray, a retired logger.

Other

Bluefin Tuna successfully bred

By Nigel Austin

In a world first, Port Lincoln company Clean Seas Tuna has successfully reared southern bluefin tuna in captivity. The breakthrough opens the way for the development of a multibillion-dollar tuna breeding and farming industry. It follows the visionary attempt by Clean Seas chairman Hagen Stehr to breed tuna, rather than catch them in the wild, and farm them off Port Lincoln, Australia. "The achievements are world firsts and major stepping stones to present the world with a sustainable tuna resource for the future." The company announced that it had produced 2.5cm fingerlings after its broodstock had spawned continuously during a 35-day period from March 12 to April 16. More than 50 million fertilized eggs and 30 million larvae had been produced with fingerlings reaching about 2.5cm in length at 28 days of age.

http://www.growfish.com.au/content.asp?contentid=13247&utm_source=Aquafeed+English+Newsletter&utm_campaign=fd01c64aca-Aquafeed_Newsletter_-+4+-+23+-+2009&utm_medium=email

Regional Roundup

Mauritius receives assistance on Aquaculture from Norway

By Suzi Fraser

Mauritius in the Indian Ocean aims to increase its fish farming activities. The National Institute of Nutrition and Seafood Research (NIFES) is contributing with scientific advice in order for Mauritius to establish appropriate legislation and monitoring of both fish and feed.

Mauritius is an island of 2000 sq. km. with a population of about one million and an economic zone for sea territories covering a vast 1.9 million sq. km. The island currently has one sea bass farm and licenses have been granted for a further six farms. In 2008, Norad started a 3-year program of co-operation between the Centre for Development Co-operation in Fisheries, the Norwegian Institute of Marine Research, the Directorate of Fisheries and the National Institute of Nutrition and Seafood Research (NIFES) on the Norwegian side, and the Ministry of Agro Industry and Fisheries (MAIF) in Mauritius. The aim of the project is to share expertise on management of fisheries and fish farming activities.

"Through several workshops NIFES will contribute with expertise within monitoring systems to assist public management in Mauritius and the establishment of monitoring systems for the island's fish farming activities. This includes the production of fish feed, the use of therapeutics and control of residual therapeutics in fish", said researcher Bjørn Tore Lunestad, at NIFES.

Fish from a number of countries is landed and processed in Mauritius, thus providing a stable supply of fish cuttings. NIFES and the Norwegian Institute of Marine Research have completed a workshop in Mauritius in May this year which aimed to address how to apply this raw material, which legislation to adopt and which monitoring system is the most appropriate.

"Since undesirable substances in fish feed can affect fish health and food safety, it is important to have stringent control and surveillance, and appropriate regulations", said Lunestad. It is also important that the fish receive good quality feed. The workshop in May also addressed the topics on fish nutrition, types of feed and feed regulations. Subsequent workshops will focus on control systems for the sale and use of therapeutic agent for aquaculture, as well as monitoring drug residues in fish". The Norwegian Institute of Marine Research and the Directorate of Fisheries will focus on the legislative framework for the island's fishery resources.

http://www.aquafeed.com/read-article.php?id=2826&sectionid=1&utm_source=Aquafeed+English+Newsletter&utm_campaign=41457660e5-Aquafeed_Newsletter_-+5+-+28+-+2009&utm_medium=email

Western Cape tables strategy for fish farms

By Donwald Pressly

The plan aims to cut red tape and boost output, with 44 000 aquaculture jobs to be created. Just in time for the elections, the Western Cape government produced an aquaculture strategy document focusing on the need to cut red tape in setting up land- and sea-based fish farming operations. The initiative aims to create 44 000 jobs in the province and an income stream of about R2.5 billion in the next 15 years. The idea is to set up aquaculture development zones where fish farms and their support industries will be concentrated, similar to the wine routes, where industry is combined with leisure. Visitors will be attracted to the production sources by lower prices for the products, while producers will possibly be able to sell their products more profitably.

There are 59 aquaculture farms in the province, producing mainly abalone, Trout and freshwater crayfish, but also oysters, mussels and seaweed products. Emerging species include yellowtail, kob, prawns, tuna, sole and Salmon. These projects employ 2 200 workers, but the government believes jobs can be increased twentyfold and income tenfold from last year's R220 million. It projects that output can grow to 90 000 tons a year from the present 2 500 tons, out of a total of nearly 4 000 tons produced in South Africa last year. Western Cape finance and tourism MEC Garth Strachan, who took over the post from Premier Lynne Brown last year, reported that the development of the aquaculture sector "is fundamentally constrained by a distinct lack of an enabling regulatory environment". He said it was characterized by overregulation, inappropriate and non-transparent application of legal instruments and an uncoordinated institutional environment. The strategy suggests that the Treasury should consider a tax rebate or subsidy to promote the business, but Jo-Ann Johnston, the chief director for trade and sector development in the Department of Economic Development, emphasized that this was merely a proposal at this stage. Naseegh Jaffer, the director of Masifundise Development Trust, said possible tax rebates were meant to promote the uptake of projects, particularly by smaller business. He said the strategy had just been developed "and is not cast in stone". Jaffer, who serves on the provincial aquaculture task team, said the idea was that the development areas were "prezoned", with the government helping the private sector by identifying suitable zones, where environmental impact studies would be carried out.

Johnston agreed that much of the red tape involved the enormous costs and complicated procedures of obtaining environmental assessments, which cost up to R300 000. Jaffer noted that a potential farmer might then find that the area was not suitable for aquaculture and the financial outlay was wasted.

Strachan said the contribution of aquaculture output to global fish stocks continued to grow; it was now about 40 percent of all supplies. The need to encourage aquaculture was enhanced as wild stock yields declined. He noted that South Africa imported more fish products than it exported. Johnston said one natural area for an aquaculture zone could be from Gansbaai to Mossel Bay in the southern Cape. She said non-indigenous species could be considered, but this would depend on an assessment of market demand, environment due diligence and risk assessment.
http://www.busrep.co.za/index.php?fArticleId=4947808&fSectionId=561&fSetId=662

Cell Aquaculture Limited press release

Cell Aquaculture Limited is pleased to advise the signing of a Memorandum of Understanding to establish a Australian $ 20+ million land-based seafood production facility in the Eastern Cape region of South Africa. This project will be one of the world's largest, fully integrated, recirculating land-based seafood production facilities, with a production capacity in excess of 2,000,000kg of premium fin-fish per annum.

The agreement has been signed with a consortium of South African entrepreneurs, with very strong grounding in the food & beverage and seafood industries. The head of the consortium is a key player and major developer of a highly recognized global food brand and restaurant chain, with in excess of 1,000 outlets in 34 countries. The other members of the consortium have a strong blend of finance, legal and seafood marketing expertise. The deal will be structured as a joint venture, with CAQ to acquire 40% equity in the new joint venture company. It is agreed that CAQ will be assigned as the exclusive `aquaculture partner' to the venture and the new facility will be a licensed proprietary design, incorporating CAQ's tried and proven proprietary seafood production technologies and operating procedures.

In the capacity of exclusive aquaculture partner, CAQ will assume full responsibility for the design, construction and operation of the entire project, resulting in significant revenue flow to the company. Revenue flow to CAQ will be derived from project management of the facility, licensing of intellectual property, sale of CAQ proprietary equipment, as well as 40% of the ongoing profitability of the facility once in production. The South African partners will have an active role in the day-to-day management of the business and secure project financing. Given the very strong grounding of the South African partners in the food industry, it has been agreed that CAQ and its consortium partners will jointly assume responsibility for the marketing, branding and distribution of seafood produce from the facility. It is planned that approximately 50% of the production will be sold domestically within South Africa and discussions are advanced with a major South African seafood restaurant chain. The remaining 50% of the production is planned for export. Significant due diligence has been conducted and discussions are well advanced with three government backed Industrial Development Zones (IDZ's) to establish the venture. The various IDZ's are competing to offer very attractive incentives to secure the project to their region. A number of suitable sites have now been shortlisted for the project and a team of CAQ representatives and engineers will be travelling to South Africa in the coming weeks to finalize and secure the site selection.

Growth of Aquaculture in Namibia

The Namibian government has invested N$62 million in the development of aquaculture since 2003 and expects it to enhance food security, generate income and improve rural livelihoods.
In his State of the Nation address, President Hifikepunye Pohamba said plans are underway to establish a fish feed plant at Onavivi at the cost of N$6 million. “The plant will use local raw materials such as fish meal from our fishing industry and mahangu from the agricultural sector. I am aware that the Ministry of Fisheries and Marine Resources and the National Youth Service (NYS) have joined hands to deploy members of the NYS at aquaculture projects around the country to receive training in fish farming. They will use these skills to teach communities to practice integrated crop and fish farming techniques,” said Pohamba.

Freshwater aquaculture involves the harvesting of tilapia, catfish and freshwater crayfish and now employs close to 700 people. Government has developed several projects to promote aquaculture such as community-based pilot fish farms in the Kavango and Caprivi regions. According to the Ministry of Fisheries, these farms are facilitating the breeding of fresh water fish, such as tilapia, in order to contribute to food security, economic growth and the generation of employment opportunities in the two regions. Primary producers in the country include the Omahenene/Onavivi Inland Aquaculture Centre, the Epalela Fish Farm and the Eco-Fish Farm in the Hardap region.

These projects however face a number of problems, amongst them a shortage of experienced staff.

Wentenius Kalimbo, Technical Assistant at the Epalela Fish Farm, said the major problems the fish farm currently faces is the a lack of experienced and shortage of staff.
“We just got out of school, I am a polytechnic graduate and my colleague is a graduate from the University of Namibia. And although I, for one, have worked in the agriculture industry before, we do not have a lot of experience,” he said. He said the Epalela Fish Farm only has three permanent employees. Kalimbo said that this has not stopped them from keeping up with demand for freshwater fish. “When we started to produce in 2007, we harvested 40 tonnes but it has increased to 48 tonnes now,” he said.

Government has also build a research and training institute, the Kamutjonga Inland Fisheries Institute, whose objectives are to do research, training, serve as a information centre and produce fish and fingerlings. The institute is expected to produce an estimated one million tilapia fingerlings annually. Phase two of the institute will be completed this year.

http://www.economist.com.na/index.php?option=com_content&view=article&catid=533%3Aspecial-focus&id=13215%3Aaquaculture-makes-strides-towards-growth&Itemid=55

Zambians Advised to Go Into Fish Farming

Livestock and Fisheries Minister, Bradford Machila has challenged Zambians to diversify into fish farming, saying the sector has the potential to create employment and earn foreign exchange for the country. Mr Machila said that with the economic hardship, fish farming was a new economic activity, which would enable the country to create employment opportunities and foreign exchange earnings by increasing breeding of fish. The minister was speaking during the launch of the National Milling Corporation (NMC) Namfeed's aquaculture fish food at Kabalu Palm Farms.

"Today's event marks a new era for fish farming in the country as we launch a fish food product which, if properly used, can contribute to diversifying our economy through agriculture," he said. Fish farming under his ministry already represented a significant part of the country's economic activity as the industry influenced other sectors like health, hospitality and tourism. Mr Machila said the industry had become an active sector in the country, in that it made an enormous economic and social contribution to local communities by creating employment to every Zambian.

He said the production of the aquaculture fish food by NMC was vital to the country's economy and health hence the need to support such productions. NMC managing director, Peter Cottan said breeding of fish and fish food was vital for fish farming communities, hence the need to promote the sector. Mr Cottan said the new product would be of great benefit to the farmers engaged in fish farming because it would increase breeding as well as nutrition to the fish.

Kabalu Palm Farms director, Rosaria Fundanga said she currently had 16 fishponds and wished to extend them in order to contribute to employment creation and increased food production. Mrs Fundanga said there was need to create linkages with organisations involved in fish farming if the sector was to develop and contribute adequately to the development of the country.

http://allafrica.com/stories/200904160396.html

Larvae-eating fish employed in malaria fight

By Charles Mkoka

Scientists are developing a biological control method for malaria that uses larvae-eating fish to control mosquito populations in rain-fed pools. Tanzania's Tropical Pesticide Research Institute (TPRI) is collaborating with the US-based Poseidon Science Foundation to investigate the best

way to mass-produce and disseminate the fish embryos for eventual use in areas where malaria is endemic. If successful the initiative will be used alongside insecticide-treated mosquito nets, pesticides and artemisinin drugs.

Using fish to control malaria is not a new idea, but the method has previously been restricted to permanent bodies of water. But in many high-risk areas malaria is seasonal, coming with the rains that create pools in which the larvae of malaria-carrying mosquitoes grow. The Tanzanian fish species *Nothobranchius guentheri* is an annual species; the adults die off yearly, leaving their embryos in a state of suspended animation when the water recedes. The embryos hatch when the rainy season begins and feed on the mosquito larvae, which hatch around the same time. The fish embryos can survive in pools as small as depressions made by elephants' feet.

"Once established in a particular depression, the fish will continue to come back year after year to feed on the mosquito larvae," says Shandala Msangi, the lead investigator of the program at TPRI. "This initiative to explore native annual fish populations as natural predators is part of [a] trend to explore indigenous technologies and resources," he adds. The major challenge is gaining significant, long-term support to carry out systematic studies and sustain a long-term program. The Poseidon Science Foundation is supporting this initial program and will need a consortium of participating organisations and countries to make this concept a reality.

http://www.alertnet.org/thenews/newsdesk/scidev/12398804450.htm

Feeds

Expensive feeds frustrating fish farming Uganda

By Aidah Nanyonjo

The major obstacle to the establishment of an aquaculture industry in Uganda is the lack of local, high-quality fish feed. This was revealed by researchers at the Uganda Fisheries Resources Research Institute, Kajjansi. Presenting a paper on Biotechnology Research and Development in Fisheries organised by the National Council for Science and Technology, Dr. Justus Rutayisire said: "Fish require a top-quality, nutritionally complete and balanced diet to grow rapidly and remain healthy. Local feed production is critical to the overall success and sustainability of an aquaculture industry in Uganda." He noted that the natural catch from the country's lakes and rivers had been threatened by increased pollution and unsustainable fishing practices and called for a conversion to fish farming, also that the cost of feed and seed had become too expensive. "This discourages farmers from practising fish farming," he said.

As a result, most fish farmers use kitchen wastes like wheat bran, groundnut cake, and rice bran to feed the fish. Some of the feeds are animal based while others are plant based. They include fish meal, blood meal, shrimp meal, maize, soya bean meal and cotton seed meal.

"Although these materials are cheap and available throughout the year, they are not good for the fish because they affect yields, thus limiting profits." He said fish feed must either be floating or sinking and must contain different percentages of protein ratios depending on the age and size of the fish. With good management, one fish requires 2kg of feed to attain 1kg of weight. The cost of producing a 1kg fish is not less than shs2, 400. When other costs such as management and transport are included, it could rise to over shs2, 800 a kilogram.

Fish feed is one of the major inputs in aquaculture production and part of the fundamental challenges facing the development and growth of aquaculture in Africa. There is, therefore, need to encourage fish farmers to make use of ideal pond fertilisation programmes, non-conventional feed

resources, feed stuff processing, refinement and formulations that recognises the requirements of the various species and their stages. "Fish farmers in Uganda have something new to smile about. Ugachick has imported a fish feed processing machine. By June the processing shall have started," Rutayisire said. Good nutrition in animal production systems is essential to produce a healthy and high quality product. "Nutrition is critical because feed represents 40-50% of the production costs. Prices of feeds have been going up because the catch for wild fish is going down world over," he said.

http://allafrica.com/stories/200905130361.html

Ghana has opportunities for fish feed investments

The Ghana Investment Promotion Centre (GIPC) is inviting animal nutrition and fish feed companies to establish a fish mill factory to serve the industry. According to GIPC, the country has potential to become the West African hub for fish mill operations.

The fisheries sector in Ghana is important to national economic development, with an estimated contribution of 3% of total GDP. There are five multinational companies in large-scale aquaculture production on the Volta Lake using cage fishing, while over 100 medium-scale farmers in the Ashanti and Eastern regions farm using fish ponds.

The estimated total marine fish production in 2007 was 400,000 tonnes, while aquaculture brought in 10,000 tonnes. According to the Ministry of Fisheries, the national fish requirement has grown from 676,000 tonnes in 1995 to 840,000 tonnes in 2007. The deficit between fish requirement and production is therefore a prime motivation in the development of aquaculture and related industries. There is a large and ready market for a fish feed industry. The biggest fish farm in West Africa, Tropo farm in Akosombo, is located in Ghana. There are also other numerous farms that are in need of reliable supplies of fish meal. Being a member of ECOWAS, a market with a population of 250 million people, Ghana has significant potential of becoming West Africa's hub for fish mill operations.

http://www.investinghana.org/home.aspx

Call to prioritise Aquaculture in Zimbabwe

By Theophilus Chuma and Justin Mahlahla

A local Zimbabwean non-governmental organization says the government and the private sector should prioritise fish farming as a viable tool for economic empowerment and the sustainable developmental of rural communities in the country.

Aquaculture-Zimbabwe Project Co-ordinator, Mr Garikaimose Tongoona, said fish farming should be considered as a sustainable alternative to other agricultural projects capable of boosting the country's economic reconstruction programmes. Mr Tongoona stated that fish farming is not only important in providing economic empowerment, but is also critical in contributing to the country's gross domestic product. He also stressed that the fish farming initiative is also important in improving the living and environmental standards and per capita income of the rural communities.

http://www.newsnet.co.zw/index.php?nID=15615

Environment, Health and Disease issues

Hosts of proliferative kidney disease found in UK

Researchers have gained a key insight into a disease that is devastating the UK's fish farming industry. The researchers have discovered that fish can harbour and spread proliferative kidney disease (PKD), a cause of major stock losses on fish farms, as well as being affected by the infection.

The discovery now paves the way for research to develop effective ways to combat the disease. The research was conducted by Professor Sandra Adams and Dr David Morris at the University of Stirling's Institute of Aquaculture and is reported in the latest edition of BBSRC Business magazine. PKD is a debilitating condition for affected fish, leading to severe inflammation of the kidneys. PKD can cause major losses of newly introduced fish on infected farms - the estimated annual cost to the UK Trout industry alone is £2.5M. Despite the impact of the disease and the importance of aquaculture to the UK food chain details about how PKD spread have been scarce.
Researchers had previously discovered the parasite in freshwater bryozoa, which are colony-forming animals that feed on microscopic algae. Some species of the bryozoa resemble plants and can fragment to form new colonies that could spread the disease.

Prof Adams and Dr Morris have now shown for the first time that native fish can also spread PKD, rather than being simply dead-end hosts. Prof Adams said: "We were able to show that the parasite that causes deadly PKD in fish could cycle between brown Trout and bryozoa indefinitely". The researchers have also developed a working model in the lab for studying the lifecycle of the parasite, which will be critical for developing new control measures against the disease. Their early results suggest that although brown Trout are hosts of PKD they are not very susceptible to the disease, whereas farmed rainbow Trout in the UK have a severe immune response to PKD that can kill the fish. But, as Prof Adams explains: "In their native environment in the USA, rainbow Trout are more resilient to PKD. This suggests that there are at least two strains of this particular parasite, one adapted to North American species and one adapted to European species. Therefore, rainbow Trout introduced to European waters are likely to be infected with the wrong strain of the parasite, which explains the severe immune response and subsequent disease".

There have been recent reports of PKD affecting wild Salmon in Europe and North America, indicating that it is an emerging threat to these ecologically and economically important fisheries. Prof Janet Allen, Director of Research at BBSRC, said: "Farmed fish are a crucial part of the food chain, providing nutritious and affordable food for many people. They are also economically important in many areas. When a disease such as this threatens fish farming it is vital that we provide the science to understand the problem and its source and deliver the research to tackle it."

Natural antibiotic for aquaculture

In South Africa, Paul Collet and Ernst Thompson have found out some interesting information about honey bee construction techniques. It has been known that bees use a black sticky stuff called ‘propolis’ to build around the entrance to their hives. They also use the same stuff to patch holes in the hive’s outer walls. The bees use it to make security gates. It turns out that this stuff has antibiotic properties. The bees find the building material by harvesting small scabs from plants. When a nibbling insect damages a plant, or when the plant gets struck by something, it forms a protective scab filled with chemicals which kill or disable organisms that could enter the plant and damage it, such as bacteria, yeasts and viruses. So the plant produces its own antibiotics. The bees collect these scabs, and then work them into the black tarlike stuff that they then use to build ‘security gates’ around their hive entrance. So they have an antibiotic gate, so to speak. Collet and Thompson have been smart, and they have taken this black propolis and turned it into an antibiotic

product for the fish farming industry. While fish farming can be a lucrative business, any disease in the breeding tanks can wipe out many fish. A number of domestic and foreign regulations concerning the use of artificial antibiotics have also placed pressure on the aquaculture folks to find alternatives.

This is where the propolis product comes in. These guys have been producing the pharmaceutical under the name of Speelmanskop Apiary Products, and the product has performed well on various fish pathogens – so much so that they are achieving better results than with the traditional aquaculture antimicrobials.

Research matters, Reviews & Training

Abagold abalone farm adult education program

Abagold Limited, the first abalone farm to participate in the Agriseta's national adult basic education and training (ABET) intervention, continues to produce notable results. "The ABET intervention introduced in 2005, has helped us offer employees an educational foundation, making it possible for them to access further skills development opportunities put in place by the company," says Mynhardt van Dyk, Abagold Training Manager. Speaking at a certification ceremony held on 6 May, Bertram September of Media Works, the adult education specialists contracted by the Agriseta, said "Despite the intense production conditions of the marine aquaculture industry, Abagold has not seen this as a barrier to training. Rather, the company has integrated training into the daily activities of the farm. Abagold has set the benchmark for ABET training not only in the marine aquaculture industry but definitely on our Agriseta project in general," says September. "We are using Abagold as an example of best practice as part of our expansion to abalone farms on the West Coast, because of the consistent success they have managed to achieve.

Training Manager, Mynhardt van Dyk who is credited for the training interventions success, said "We have proven that ABET can exist and be successful in any industry, despite the long production hours that characterise this business. My advice to companies considering ABET is simply do it. The foundation ABET provides makes the introduction of other training easier, but it is also the life-skills and comprehensive effect it has on employees lives that helps us maintain learners interest and perseverance." To date Abagold has 83 employees on the program, of which six have trained up to Level 4. Parallel to the ABET training, Abagold also provides job-related training forming part of individual employee's career path.

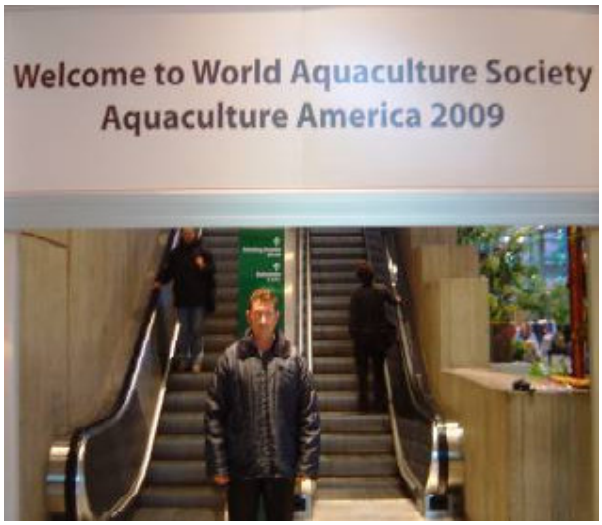
Regulatory matters

No submissions

Conferences, Upcoming events

Feedback on WAS Aquaculture America 2009 Conference

From Henk Stander: US Aquaculture Technical Visit



A different ball game, and in a different league is how I would describe the Aquaculture Industry in the US after a recent visit. I was very fortunate to have the opportunity to visit the US between 14 February and 17 March of this year. It was my second trip to the US, however this time I was confronted with a different US than the one I visited in 2006. Barack Obama, a new president was in the seat of the biggest economy in the world, but besides that this country was facing a huge economic crisis where more than 600,000 people lost their jobs in the same month that I arrived in Seattle. First on my itinerary was to attend the Aquaculture America Conference in Seattle, Washington State. From the 2,000 attendees that were expected at the conference, about 500 cancelled their attendance on short notice, mainly because of budget cuts, particularly from state and some federal departments. I did the usual amount of networking at the conference and can report back that the conference was well organized with a high level of presentations in all of the 15 parallel sessions.

After the conference I visited the University of Idaho's Fish Experimental Station outside the little town named Hagerman in Idaho. At these state of the art facilities some of the leading aquaculture scientists in the US are doing mostly fish feed trials on Trout and sturgeon. Disease diagnostic and treatment work is also been done by this very dynamic group of scientists. During the three weeks at Hagerman I helped my colleague Mr. Wiehan Visagie to produce his 6 diets for his feed trial where he substituted fish meal in the feed formulations with plant protein for instance with Soya bean meal. The production and extrusion was done at the Federal Fish Experimental Station in the town of Bozeman, Montana. At this station, a huge research water re-use system and wet labs are available for specific research work. I visited some of the commercial Trout companies and private farms in this state before leaving. The Clear Springs Company and facilities were quite impressive. This employee owned company is 100% vertical integrated with a total production of 10,000 metric tons of Trout per annum.

My next stop was in Alabama where the focus is more on warm water aquaculture species like channel catfish, tilapia, ornamental fish and prawns. The one day visit to the Fisheries Department at Auburn University was way too short for this one day field trip. This top class University's outreach programming addresses economic development, government, professional continuing education, youth, cultural preservation, agriculture, and natural resources.

After the hectic schedule in Alabama I travelled south to Florida. In the course of two days I visit Florida University on the one day and Florida Agricultural & Mechanical University on the second day. Some of the aquaculture farms that I visited in this state were an alligator farm and a high-tech hybrid striped bass farm.

I learned a lot during my trip and met wonderful people in the US Aquaculture Industry. The following websites might be of interest to some of our AASA members.

http://aquanic.org/

http://aqua.ucdavis.edu/

http://www.msstate.edu/dept/srac/publicat.htm

http://haywood.ces.ncsu.edu/content/TroutInformationandLinks

http://extension.ag.uidaho.edu/twinfalls/Aquaculture/Aquaculture.htm

http://www.aboutseafood.com/recipes

http://www-seafood.ucdavis.edu/

Western Cape short course

Life Skills and Basic Business Skills short course training from 7-10 July 2009.
For more information, visit the training page of AISA's website at www.ai-sa.org.za

Contact Dr L Botes: Lbotes@ai-sa.org.za

Employment

Fishery and Aquaculture Officer - Food and Agriculture Organization of the United Nations (FAO)
Tunis, Tunisa.

For a full description and to apply visit: http://www.fao.org/va/vac_en.htm
.
Or Contact:

Chief, International Institutions and Liaison Service, FIE
FAO Via delle Terme di Caracalla 00100 Rome ITALY
Fax No: +39 06 570 56500
FIEL-VAs@fao.org

African Coordinator - Food and Water Watch

Based in Nairobi, Kenya or Johannesburg, South Africa. For more information http://www.foodandwaterwatch.org/about/career-opportunities

Or contact:
jobs@fwwatch.org

