http://nowra.yourguide.com.au/news/local/news/general/fresh-start-at-universitys-marine-centre/1242706.aspx

Fairfax Digital

Fresh start at university's marine centre

BY ADAM WRIGHT

13/08/2008 8:48:00 AM

NEW DIRECTION: The new face of the Shoalhaven Campus Marine and Freshwater Centre, Dr Pia Winberg.

DOCTOR Pia Winberg has been appointed the new director of the Shoalhaven Campus Marine and Freshwater Centre.

The centre is part of the University of Wollongong's strategy of providing the region with access to tertiary teaching and research services.

Dr Winberg's research background is in marine ecology and environmentally sustainable aquaculture.

"Coastal environmental research has been identified as a major regional concern, while marine and freshwater fisheries and aquaculture has been identified as a growth industry that could provide significant regional employment opportunities," she said.

Dr Winberg will coordinate a number of established research projects and further research projects with relevance to the South Coast fresh and marine water environments, as well as industry, community and government partners.

"These include environmentally sustainable aquaculture, marine and coastal ecology, recreational fishing research, fish biology, aquatic botany, nutrition and health benefits from seafood, and genetics," she said.

Dr Winberg has an ambition to stimulate interest for science at a tertiary level in the region through the local schools, with the intent to develop tertiary level education opportunities through the centre.

"I am passionate about the wonderful natural aquatic resources of the South Coast, and how we can use and manage these well. I believe that this centre, and the Shoalhaven Campus as a whole, can stimulate innovative

ideas in the region, and build on the strengths and interests in the local community and industries," said Dr Winberg.

http://www.stuff.co.nz/stuff/waikatotimes/4655783a6579.html

Waikato Times
www.waikatotimes.co.nz

Net cast on fish farming

By MARTIN TIFFANY - Waikato Times | Thursday, 14 August 2008

The net is being cast to see if fish farming can be introduced in the Firth of Thames, but a number of regional councillors say it could do more harm than good.

Currently the Waikato Regional Coastal Plan only allows shellfish farming, but the wheels for a plan change were yesterdayset in motion at Environment Waikato's policy and strategy committee.

The committee voted seven to three to give the go ahead for council's senior coastal policy advisor, Graeme Silver, to draft a "cautionary" plan for possible aquaculture diversification within existing areas. Caution was the buzz word at yesterday's meeting with a wary approach suggested by both Mr Silver and councillors after much robust debate.

Mr Silver said some new types of aquaculture, such as fish farming, have the potential for much greater impacts on the environment than shellfish due to the addition of feed and the possible use of medicinal compounds.

Ecological effects, including genetic impact on wild populations, and disease and parasite transmissions would also have to be considered.

He said a significant amount of research on impacts needed to be done before any decisions were made. Mr Silver suggested a small scale test site be trialled if council decided to pursue the possibilities further.

Cr Pat Gregory said there seemed to be more negatives than positives and was one of the three councillors along with Cr Ian Balme and Tony Armstrong to vote against taking the matter further.

Cr Balme said the people pushing for the plan change should be the ones putting the application through: "I struggle to find anything positive ... let those who want this driven do it themselves."

Cr Jane Hennebry agreed, saying this would put the industry to the test. Mr Silver said the coastal plan identified marine farming as an important multi-million dollar industry providing both jobs and growth for communities, but that a reliance on a narrow range of species could increase the risk of failure.

At present there were 1500ha allocated to marine farming in the region, of which 900ha had been developed for mussel or oyster farming.

Most of this space was concentrated in the Wilson Bay marine farming zone in the Firth of Thames.

The plan change would not create any new aquaculture management areas, but would amend the current rules to allow new types of aquaculture to be introduced into existing areas.

Kingfish were the top of the list for any farming that may happen while other potential species included groper, snapper, flounder, seahorse, lobster, sponges and seaweed.

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Katrina aid to state catfish farmers questioned

Audit finds $5 million was paid out with no proof of loss required

Thursday, August 14, 2008

By SEAN REILLY

Washington Bureau

WASHINGTON — The Alabama Department of Agriculture and Industries doled out more than $5 million in Hurricane Katrina aid to cat fish farmers and other "aquaculture" producers without requiring any proof of damage from the storm, according to a federal audit.

Instead, the department paid producers $265.50 per surface acre of water, the audit says, an approach that favored larger operations. The audit, carried out by the U.S. Agriculture Department's office of inspector general, faults federal overseers for failing to set firm rules for how Alabama and other states dispensed some $25 million in aquaculture relief.

In Alabama's case, there is no way to know whether aid recipients "actually suffered a loss, or that producers were not compensated in excess of their losses," auditors wrote.

State Agriculture Commissioner Ron Sparks on Tuesday defended his agency's approach as "fair and equitable" way of distributing help far more quickly than if producers had been required to turn in claims.

"By the time we got our money to the time it got to the farmers, it was weeks, not years," Sparks said. "A lot of folks in Alabama wouldn't be in business today had it not been for this assistance."

While the recipients were mainly catfish farmers, he said, they also included some shrimp operations and possibly one bass producer. Sparks noted that auditors also questioned Mississippi's and Louisiana's handling of their share of grant funds.

Federal officials authorized the program after Katrina and several other storms struck Gulf Coast states in 2005. While damage was predictably heaviest closer to the water, catfish farms, concentrated in west central Alabama, also suffered, said Mitt Walker, director of the catfish producers division at the Alabama Farmers Federation.

Beside inflicting wind damage, the storm eroded pond embankments, Walker said. Some farms lost fish after power outages shut down machinery used to oxygenate pond water.

"I think our producers were pleased" with the state's handling of the aid money, he said. Sparks' approach was also endorsed by U.S. Rep. Artur Davis, D-Birmingham, whose district encompasses the heart of Alabama's catfish country.

"He still thinks it was the right thing to do," spokeswoman Sarah Kate Sullivan said Wednesday.

In all, Alabama had 163 eligible applicants, according to the audit. While they received almost $31,000 on av erage, 15 received the maximum payment of $80,000. Sparks declined to immediately release a list of recipients, saying he first had to check with federal officials.

The inspector general is a kind of internal watchdog. Released last fall, the audit has so far received little, if any, public attention. In a written response included in the review, the U.S. Farm Service Agency said it has since put new controls in place. Under a more

recent catfish grant program, for example, states have to conduct random reviews to ensure that applicants are "equitably compensated for losses," the agency wrote.

Florida, Texas and North Carolina also shared in the $25 million pot.

The Farm Service Agency did not divvy up the money based on the volume of storm losses, but on the number of farms and the value of production. As a result, Louisiana producers got less money overall, even though that state experienced the heaviest losses from Katrina and Hurricane Rita.

Mississippi, which received almost $10.8 million, chose to compensate catfish producers at a rate or $42.65 per ton of feed bought in 2005, leading auditors to remark that such purchases have no connection to hurricane losses. Louisiana officials opted to reimburse aquaculture operations in some parishes at a higher rate than others. They could not, however, "provide documentation for how they decided which parishes would be compensated at the higher rate and which at the lower," the review concludes.

http://www.patagoniatimes.cl/content/view/620/1/

CHILE SALMON AND TROUT EXPORT SALES FALL 3 PERCENT

Written by Julie Sutor

Thursday, 14 August 2008

Export Volumes Increase While Revenues Drop

Chilean salmon and trout exports totaled more than 245,000 tons in the first half of 2008. The figure represents a 14-percent volume increase over the same period last year, but the industry's revenues declined by 3 percent. Export revenues during the period topped out at US$1.9 billion.

Many within and outside the industry had expected revenues to take a hit in the wake of widespread disease outbreak among salmon farms, forcing the closure of many Chilean aquaculture facilities in the last year.

Japan and the U.S. served as the primary markets for the products, together importing two-thirds of the haul. Exports to Japan increased by 17 percent over the first half of 2007, reaching almost 105,000 tons. Growth in the Latin American market – at 45 percent - was especially strong.

Russia, China, Thailand and South Korea together imported 16 percent of Chile's trout and salmon shipments at a combined 38,000 tons. The European Union took in 9 percent.

Atlantic salmon comprised 43 percent of the exported product, followed by Coho salmon and trout, each at 28 percent.

By Julie Sutor (patagoniatimes@gmail.com)

http://news.bbc.co.uk/2/hi/uk_news/scotland/south_of_scotland/7564004.stm

Page last updated at 23:51 GMT, Friday, 15 August 2008 00:51 UK

'Kill Crayfish on sight' appeal

Anglers have been asked to kill any crayfish they catch

Anglers have been issued with a "kill on sight" message to combat the spread of American signal crayfish.

Environment Minister Mike Russell made the call ahead of the launch of a new leaflet on the issue at the Galloway Country Fair.

The species has become an increasingly common sight in Scotland, particularly at Loch Ken in Dumfries and Galloway.

The signal crayfish has been blamed for eating young fish and destroying their natural habitat.

Mr Russell branded it one of the most problematic, invasive species in the country alongside the grey squirrel, Japanese knotweed and American mink.

'Particular problem'

"As well as competing with valuable native fish such as trout and salmon, the holes they bore into river banks for their nests can leave the land weak and lead to a greater risk of flooding," he said.

"Any angler who catches one is urged to kill it on sight, not to throw it back into the water or take it away alive and contact the Scottish Government, Fisheries Research Services, Scottish Natural Heritage or the Scottish Environment Protection Agency."

The signal crayfish was introduced to waters in England and Wales through fish farms about 20 years ago.

In Scotland, they were first recorded in the catchment of the River Dee in Kirkcudbrightshire in 1995.

Since then, specimens have been found in Scottish ponds, rivers and lochs as far north as Inverness-shire.

http://www.radioaustralia.net.au/programguide/stories/200808/s2332544.htm

ABC Australian Broadcasting Corporation Radio Australia

Prawn virus found in Australia

Updated Tue Aug 12, 2008 12:09pm AEST

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Asian seafood exporters have been given new ammunition in their on-going dispute with the Australian government over its bans on some prawn imports.

Australia's Chief Vet has confirmed two prawn farms in the country's north have tested positive for one of the viruses which has been banned but Canberra says it has no immediate plans to lift the ban on Asian prawns carrying the same virus

Presenter: Jeff Waters
Speakers: Doctor Andrew Carroll, Australia's Chief Vet; Harry Peters, President Australian Seafood Importers Association
WATERS: Late last year, Australia imposed bans on imported prawns... or shrimp... carrying one or more of four viruses. It said it did so to protect local stocks. Since then, tens of millions of dollars worth of prawns... mainly from Asian countries... have been rejected at Australian ports.

But now the Australian government has confirmed prawns at two farms in the country's north have tested positive for one of those diseases... called IHHNV. Doctor Andrew Carroll is Australia's Chief Vet.

CARROLL: Yes the testing that we've done on the two suspect Queensland prawn farms that testing has been positive and we've identified a virus type that's substantially the same as the one that's overseas and we're currently looking at other prawn farms as well to see if the virus is in those as well as the two suspect ones.

WATERS: So testing is now being carried out on Farmed and Wild stocks across Australia. But Doctor Carroll has disappointing news for any Asian producers who may hope that this will lead to a relaxing of the restrictions.

CARROLL: Well it's important to stress of course that the prawn imports aren't banned - they're subject to testing and this is one of the four viruses that prawn imports are tested for. We're currently in what we call the incident definition phase and that's trying to determine how widespread the virus might be, whether it's in wild populations as well as in prawn farms and then deciding how we might respond to that because the decision might be made to eradicate or control the virus, in which case its unlikely that bio-security Australia would make changes to the import conditions.

WATERS: It's vindicated the Australian Seafood Importers Association, which conducted its own tests to prove I-H-H-N-V was present in Australia. Harry Peters is the Association's president.

PETERS: What I am concerned about is the length of time that it will take the government to carry out its testing of the prawn farms in the meantime, importers are being subjected to an extremely expensive testing regime and quite frankly the australian government should have carried out this work well before any bans were put in place.

WATERS: And Harry Peters says its likely a World Trade Organisation challenge - led by Thailand - will go ahead.

They're not surprised because we mirrored the tests at the Prawn Centre of Excellence in Bangkok at Mahidol University and I would say that the Thais together with the Chinese government, Malaysia, India and possibly Philippines are now meeting to form some sort of a World Trade action.

http://www.patagoniatimes.cl/content/view/617/1/

SCIENTISTS SEEK REMEDIES FOR CHILE SALMON INDUSTRY WOES

Written by Julie Sutor

Monday, 11 August 2008

International Research Team Hopes to Test New Vaccine for Salmon Virus

Researchers may have a new weapon against infectious salmon anemia (ISA), the scourge of Chile's salmon industry.

Chilean pharmaceutical company Corporación Farmacéutica Recalcine applied Wednesday for approval to conduct field tests for a new vaccine against the disease. If successful, the vaccine has the potential to staunch a plague that has wiped out 16 salmon-farming centers and led to hundreds of lay-offs in Chile's southern regions in the last year. ISA poses a major threat to the profitability of Chile's salmon industry, which last year raked in $2.2 billion.

"This is the first ISA vaccine specific to Chilean salmon stocks," said Recalcine researcher Alejandro Weinstein. "We are seeking approval from the National Fishery Service (Sernapesca) to conduct field tests. Technically, we have developed the vaccine."

Weinstein is the controlling partner of Recalcine, founded by his family 85 years ago. The vaccine development project began at the end of last year with the formation of a 10-member international team of animal virology experts.

Researchers developed the vaccine with the express purpose of thwarting the Chilean strain of the ISA virus. It differs from others on the global market that target Norwegian ISA outbreaks and don't accommodate for important differences in the virus's behavior in Chile. Furthermore,

Weinstein.

"Also, Chile has a huge epidemic of sea lice, which carries ISA. The realities of the problem in Chile and Norway just aren't comparable," Weinstein said. "If Sernapesca gives us the go-ahead to conduct field tests, we'll be able to start by the end of the year. The real test is in out the water – not in tanks far away from the sea."

To move forward, the initiative will require approval from the national Agriculture and Livestock Service (SAG) in addition to that of Sernapesca. The embattled salmon industry is eager to see the project move forward.

Recalcine has a proven track record in developing pharmaceuticals for the salmon industry: Its products include veterinary antibiotics, sea lice treatments and probiotic tablets that aid in the processing of salmon waste widely criticized for contaminating water and the sea floor near salmon cages. The company also has dealings with shrimp aquaculture in Ecuador, another industry that has come under fire for its environmental and social impacts.

Recalcine aims to create a new subsidiary exclusively dedicated to its efforts in the aquaculture sector. The spin-off of Farmacología Acuícola Veterinaria (Veterinary Aquaculture Pharmacology) would cleave the company's veterinary research and development from its work in human medicines.

SOURCE: EL MERCURIO

By Julie Sutor (patagoniatimes@gmail.com)

http://www.news.com.au/couriermail/story/0,23739,24161482-5013511,00.html

The ethics of eating organically and sustainably

Article from: The Courier Mail

Natascha Mirosch

August 12, 2008 12:00am

EATING used to be easy. You opened your mouth, put food in, chewed and swallowed. Today we're forced to digest a whole range of issues around our food.

How was it grown? Where did it come from and how did it get to us? Who made it? Science, developments in food technology and a free exchange of information mean that the simplest of human reflexes has become a complex moral and philosophical conundrum.

FOOD MILES

Issue: Carbon footprinting or food miles?

IF IT'S mid-winter and you can still get asparagus, it probably comes from one of the world's largest exporters of asparagus, Peru. Most likely, it originated in the region of Trujillo.

As the crow flies, that's about 13,000km, or a hell of a lot of frequent-flyer points. In a world increasingly made smaller by technology, if not geography, we can now buy cheap prawns from Vietnam and oranges and grapes from the US. It seems shoppers are revelling in the ability to buy out-of-season produce at very competitive prices. But while it might save some money, there are concerns that shipping food all over the world is having a negative impact on the environment.

A recent study by The Centre for Education and Research in Environmental Strategies showed the contents of a typical Victorian shopping basket contained 29 supermarket food items that had travelled an astounding 70,803km - equivalent to travelling nearly twice around the the Earth, or three times around Australia's coastline. The total value of Australian food imports has risen from nearly $5 billion in 2002 to $7.2 billion in 2007 as we now import increasing amounts of fruit and vegetables, dairy, grain and seafood.

The term "food miles", coined in 1991 by UK food policy expert Professor Tim Lang, of London's City University, describes not just the distance travelled from "paddock to plate", but the environmental impact of our food's travel.

Food miles are only part of the equation, however. According to Hugh Campbell, associate professor in social anthropology at New Zealand's University of Otago, while "food miles" was a good initial concept for trying to raise awareness of the energy costs involved in food production, transport actually plays a smaller role in the total energy cost than first imagined.

"What we need to do now is use carbon footprinting of the whole life cycle of a food product in order to give a full picture of its energy impacts. That way, we can start to make useful judgments between highly industrialised (and energy-inefficient) forms of agriculture that happen to be very close to their destination markets, and quite energy-efficient agriculture that happens to be taking place some distance from its markets," Campbell says.

And, he cautions, carbon footprinting only tells us about sustainable use of energy. "There are other environmental impacts of agriculture - like biodiversity, soil fertility, water issues and food safety - that we shouldn't forget about in these times of high oil prices and climate change," Campbell says.

Unfortunately, the average consumer doesn't have access to detailed information, which is why the concept of food miles has become popular as a guide.

What you can do:

* Buy local. Frequent the local shops and buy small amounts that can be transported on foot or by bike.

* Buy seasonally.

* Grow your own.

GENETICALLY MODIFIED FOOD

Issue: Feeding the world or creating Frankenfoods?

THE manipulation of genetic material in plants and animals sounds like something from a science fiction film but genetic manipulation has been practised indirectly through cross-breeding since man started farming.

Scientists today have found a much more direct way of changing the genetic material in plants and animals, though. It's called genetic modification and it is being used to increase yields, decrease the use of pesticides, lower prices and even deliver health-giving benefits.

However those opposed to the genetic modification of our food counter that it may be harmful to human health.

According to Bob Phelps, of GeneEthics, there is evidence to support the use of GM technology as unsafe.

"Evidence shows that some foods produced using genetic modification can cause allergic reactions, immune responses and severe impacts on the health of experimental animals and humans. Weak assessment and regulation by Food Standards Australia New Zealand means that unsafe GM foods may enter the human and animal food supplies," he says.

Food Standards Australia New Zealand concedes that "GM foods are new to mankind so have no history of safe use".

Since earlier this year, the moratorium on growing GM canola was allowed to lapse in NSW and Victoria and it is now legal to grow it in all states except Tasmania and Western Australia, where the bans continue.

One of the biggest issues, however, is not the growing of it, but the consumers' right to know what they are eating.

"Only one of over 50 varieties of approved GM foods requires a label," says Phelps. "We back the public's right to full and fair labelling so everyone can know how food is produced.

"If GM foods are as safe as the regulators and GM companies claim, why will they not label all of them?"

The European Union has had a complete ban on GM produce for domestic use or importation for a decade.

In Australia, more than 50 chefs have indicated their commitment to not selling genetically modified food in their restaurants.

The Chef's Charter is an initiative of Greenpeace. Chefs who have signed up, according to Greenpeace, include Neil Perry, Maggie Beer, Tobie Puttock and Matt Moran. It calls for thorough labelling of all food products containing GM ingredients and opposes legislation in Victoria and NSW enabling the production of GM canola.

What you can do.

* It can be almost impossible to avoid GM food as, according to FSANZ, mandatory labelling is excluded under some circumstances. To read more about which products are excluded, go to the FSANZ website www.foodstandards.gov.au

* If you're concerned, join geneEthics, www.geneethics.org/actnow

* Write a letter to your Member of Parliament.

* Eat organic produce.

AQUACULTURE

Issue: Not enough fish in the sea, but is aquaculture sustainable?

OUR love of seafood has seriously depleted fish stocks; there is no longer enough fish in the sea, either worldwide or here in Australia.

We are now importing up to 60 per cent of our seafood, however there are risks that farmed fish from other countries may not be subject to the same stringent conditions as it is here.

In fact, last year Australia's quarantine watchdog found residues of banned antibiotics in one-third of the samples of prawns, fish, crabs and eels from China, Indonesia, Vietnam and Thailand.

If fish is not imported, though, is domestically based aquaculture the answer?

In 2006, Commonwealth and state wildcatch fisheries fell by 13 per cent. Conversely, aquaculture production rose by 16 per cent.

One of Australia's fastest growing primary industries is the farming of fish, molluscs and crustaceans. The

Government aims to triple Australia's aquaculture production to $2.5 billion and create 29,000 new jobs by 2010.

While it may seem the ideal solution to diminishing fish stocks, there are concerns about the discharge of pollutants, of the effect of escapes on the wild population, and the entrapment of other marine life in nets.

According to Australian Marine Conservation Society acting director Ingrid Neilson, the farming of species such as oysters and mussels is a better option than sea cage cultivation.

"These open systems of rack or line aquaculture don't depend on additional feed but take the nutrients present in the water and don't create pollution," Neilson says. "We also believe that land-based aquaculture, closed systems that can be more firmly controlled, offer a better choice."

Currently Queensland has land-based farming of oysters, prawns, red claw crayfish, barramundi, perch and scallops.

The AMCS believes that despite Australia's growing reputation as a leader in aquaculture technology, we have a long way to go in research and development before it can be considered a sustainable alternative.

What you can do:

* If you buy farmed fish, ask how it was farmed.

* Eat less wild fish and more molluscs such as oysters and mussels.

* Buy from fishmongers and ask about sustainable species.

* Get the AMCS's sustainable fish guide (www.amcs.org.au).

ORGANIC VERSUS LOCAL?

Issue: Which is better for the environment?

THERE is little debate that the production of organic food is kinder to the environment.

"Up to 25 per cent of our greenhouse gases come from agriculture," says Andre Leu, chairman of the Organic Federation of Australia.

"Data shows that organic farmers have a negative footprint, because they take more carbon out of the environment than they put in, through building up of the soil carbon.

"Organic faming has minimum nutrient run-off and is far more water-efficient as the humus in the soil captures and stores up to 40 per cent more."

The issue here is that with some big companies moving in and with many organic farms situated far from urban centres, are those benefits lost when it comes to the transportation of the produce?

Leu says not. "Research has shown it's still better to produce organically and airfreight, than use non-organic production techniques."

Leu says the transporting of goods from farms has less impact than that of consumers driving it home from the shop.

While he agrees that local and organic is the ideal, our new-found enthusiasm for organic food means there is not enough supply in all areas and we currently import 70 per cent of all our organic produce, including

grain and sugar.

"Where possible, we should buy our organic produce locally, both for environmental issues and freshness," he says.

What you can do:

* The answer in a perfect world is to do both: to buy locally grown organic food.

* Buy from community-supported farms, which often use sustainable farming practices and have a restricted transportation policy.

* Shop at farmers' markets.

NANOTECHNOLOGY

Issue: Health boon or health risk?

WHILE we vacillate over GM foods, for some a much bigger and a lot scarier issue is that of nanotechnology. A science that can deliver ingredients in minuscule particles (the scale of atoms and molecules) used in make-up and skincare, it's now also being used in our food and food packaging.

Nanotechnology can lengthen the shelf life of food, detect contaminants, and create novelty foods among other uses. However, a recent report by Friends of The Earth argues these particles are more chemically reactive than larger particles and because of their size are more likely to enter cells, tissues and organs.

Food Standards Australia New Zealand has started analysing the potential implications of nanotechnology on the food supply chain but currently there are no regulations on labelling, a fact which is causing great concern for Friends of the Earth.

"There is growing scientific evidence that many other nanomaterials now used in sunscreens, cosmetics, clothing, food packaging, health supplements and household appliances pose serious new toxic risks to human health and the environment," says Friends of the Earth Nanotechnology spokeswoman Rye Senjen.

Senjen wants the sales of nanoproducts halted until laws are legislated, the public given the opportunity to be involved and labelling introduced. A group of Australian toxicologists have formed The NanoSafe Australia research network, "to address the issues concerning the occupational and environmental health and safety of nanomaterials".

Friends of the Earth, meanwhile, has about 30 examples of products in Australia using nanotechnology, from clothing to confectionary packaging, and estimates between 150 and 600 nano-food packaging applications are already on the worldwide market.

What you can do:

* Join Friends of the Earth's nano network, nano.foe.org.au

* Write to Innovation Minister Kim Carr

http://www.thetimesnews.com/news/bishop_16489___article.html/abalone_farm.html

TheTimesNews.com

Strange Harvest: Man hopes to strike it rich with abalone farm

August 9, 2008 - 11:08PM

Emily Hohenwarter / Times-News

Peter Schumacher / Times-News

Robert Bishop holds a pair of abalone shells at his farm in Snow Camp, where he hopes to raise his own abalone for sale to restaurants in New York and Washington.

North Carolina's good farming environment is what drew Robert Bishop here from New Zealand, but he won't be plowing fields any time soon.

Bishop's business is aquaculture, or raising fish or shellfish in water. His crop of choice is abalone, a marine snail prized for its delicate taste and shiny shell. When Bishop's new abalone farm in Snow Camp is up and running early next year, it might be the first on the east coast and the only abalone farm in the nation to use recirculation technology.

There are 12 other abalone farms in California and one in Hawaii, but these are all close to the ocean and use flow-through techniques, in which seawater is directed through the abalone trays and back out into the ocean. Because Alamance County is far from the ocean, Bishop's farm will recirculate saltwater that is made on site.

"We have to make our own seawater here," Bishop said. "We have to do everything on site, so this is what we call recirculation. There's nothing that goes into the environment. It's all contained inside the building here."

The building that Bishop speaks of has yet to be constructed. The 9.6 acres where it will stand was cleared last week, and Bishop is in the process of applying for building permits. He plans to have the farm building completed in December, with his first crop of California red abalone coming in from a West Coast hatchery in May.

"By the second of May, the first 31,000 animals will be in the system," he said. "The first product will go out in October 2010. Those are our deadlines. They're not negotiable because if I don't have it up by that point, I'm going to have a whole bunch of abalone looking for a bathtub to live in."

After the first year, Bishop will spawn his abalone and begin his own hatchery. The farm will be capable of producing 35,000 to 40,000 pounds of abalone a year, most of which will be sold to restaurants in Washington, D.C., and New York City. Bishop sells the abalone for approximately $30 a pound, and an abalone meal in an upscale Asian restaurant can cost up to $200, Bishop said.

He would sell his expensive product locally if there was a market for it.

"If there was a demand locally, I'd sell everything locally," Bishop said. "I would prefer not to leave the county or the state. We've got to develop the market around here."

As it is, Bishop will personally drive his abalone north once a week when they are ready to harvest. He'll also sell the shells of the abalone that die during the farming process.

"We get some that die," Bishop said. "What we do is we polish up the shells and sell them off as jewelry and other things that people want. So even if an animal dies, it still has a commercial value. There's actually no waste at all."

Bishop isn't new to the abalone farming business. He got into it in the early 1990s back in New Zealand, when a friend in the restaurant business told him how expensive abalone were. From that, Bishop decided abalone aquaculture would be a good way to make a living, and started his own farm after years working in oil refineries.

"When we started, there was no Internet. All the systems we take for granted today didn't exist," Bishop said. "I had to go to the library, find all the books I could, and fly to Australia and talk to a farmer over there. It was very difficult in the beginning."

Bishop stuck with the one business in New Zealand until 2004, when he heard Dr. Tom Losordo of N.C. State give a talk in Sydney. Losordo told Bishop about the benefits of farming in North Carolina. After a few trips to visit the state, Bishop decided to open a new farm, moving his family to the United States.

The move was "a no brainer" for Bishop, who has dual citizenship in the United States and New Zealand. A license for aquaculture doesn't cost any money in North Carolina, whereas in California it can cost up to $400,000, Bishop said. Also, being the only abalone farm on the East Coast will have its advantages. Bishop said he examined United States demographics before making the move. The fact that the East Coast is home to 65 percent of the country's population encouraged him to set up here.

The abalone Bishop will sell will be 24 to 36 months old, or large enough to be considered "cocktail sized." Surprisingly, cocktail-sized abalone aren't on the menu in Bishop's house. He'd rather sell his stock than eat them.

"They're all right, but I'd prefer a steak any day of the week," Bishop said.

Bishop and colleague Joseph Cavanaugh, a California abalone farmer, will give an aquaculture workshop with an emphasis on abalone farming Sept. 19 and 20 in Snow Camp. For more information, visit www.apmarinefarms.com, or contact Robert Bishop at 336-508-1901 or rbapmf@gmail.com

http://www.telegraph.co.uk/earth/main.jhtml?xml=/earth/2008/08/07/eacrayfish107.xml

Telegraph.co.uk

Hundreds of invasive crayfish killed by disease

By Paul Eccleston

Last Updated: 3:01pm BST 07/08/2008

A deadly plague is thought to have wiped out hundreds of crayfish in a river system.

- **American Signal Crayfish wrecks UK waters**
- **Defra launches invasive species strategy**
- **Alien species 'wreck world's oceans and rivers'**

All the creatures killed so far have been from an invasive species - the Turkish crayfish - but there are fears the disease could spread to the native white-clawed crayfish.

The dead crayfish were found by a ranger in the lower River Colne in Colchester, Essex and samples have now been sent for analysis to the Centre for Environment, Fisheries & Aquaculture Science (CEFAS) in Weymouth.

But the crustaceans are thought to have been killed by the highly-virulent fungal disease Aphanomyces astaci, commonly known as crayfish plague.

A similar outbreak on the River Waveney in nearby Suffolk last October killed thousands of crayfish

A native white-clawed crayfish: there are fears that the disease killing Turkish crayfish will spread to native whiteclaws

The risk of the disease spreading piles further pressure on the native crayfish which has already been driven to local extinction on many of the waterways in southern England by the relentless advance of another invasive species the American Signal crayfish.

Larger than the native crayfish it was introduced to be farmed for the restaurant trade but many escaped and quickly became established in rivers and lakes. The voracious Signal eats almost anything in its path including plants, snails and fish and has quickly displaced the native crayfish. It also carries

a variation of the plague which is harmless to itself but which is fatal to its English cousin.

The Turkish crayfish was also brought into the UK as a food source but has not spread as quickly as the Signal.

The population in the Colchester area has not been big enough to cause problems and the loss of significant numbers to the plague may even help native river wildlife.

"It is usually found at the bottom of the river and tends only to appear when other species of crayfish have moved on," said Environment Agency Fisheries, Recreation and Biodiversity officer Julia Stansfield.

"Although only Turkish crayfish have been affected so far we think it will be only a matter of time before it spreads to the native species and that would be a disaster. There are no native crayfish left in the Colne but there are still some remnants in the River Stour and the River Chelmer."

The Environment Agency is asking anglers and other river users to be aware of the dangers of spreading the disease and is urging them to clean and disinfect equipment such as keep-nets.

Ironically it may be people who are trapping bigger invasive crayfish for food - at the same time helping cut numbers in the river - who are spreading the disease.

Julia Stansfield explained: "One possible route for the spread of this disease is use of unlicenced crayfish traps. The idea of this 'wild food' is much in vogue.

"While this is safe to do in parts of the country where native crayfish have already been wiped out, in the east of England we are trying to protect one of the last strongholds.

'If members of the public notice dead crayfish in any other rivers, please let the Environment Agency know as soon as possible.'

http://www.telegraph.co.uk/earth/main.jhtml?xml=/earth/2008/06/06/eacrayfish106.xml

Telegraph.co.uk

American Signal Crayfish wrecks UK waters

By Paul Eccleston

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An armour-plated alien invader is eating its way through wildlife in Britain's waterways.

- **Defra launches invasive species strategy**
- **Alien species 'wreck world's oceans and rivers'**
- **Defra to ban some invasive species**

The formidable American Signal Crayfish poses a massive threat to native species in rivers, lakes and ponds.

Although on the surface everything might appear normal, beneath the waterline the crayfish is waging war on anything that stands in its path.

The six-inch-long killing machine has already annihilated the smaller native White Claw crayfish from most of the waterways in the south of England.

A voracious predator it will eat almost anything it finds including plants, invertebrates, snails, small fish and fish eggs. It is also a cannibal that makes a meal of its own young.

The Signal also digs burrows up to three feet long in river banks where each year it lays more than 250 eggs at a time. At a time of increased flooding risk the numbers and size of the burrows is increasingly causing river banks to collapse.

Introduced in the 1970s and bred on farms for the restaurant trade a handful of escapers have now grown to an aquatic army numbering millions which has infiltrated river systems from Cornwall to Scotland.

American Signal Crayfish will eat plants, snails, small fish, fish eggs, invertebrates and its own young

The crayfish is extremely aggressive, encased in a tough shell and armed with two large pincers. They are equally at home on land and can walk for several miles across country in search of new territory. When the crayfish move into a stretch of river it is virtually a death warrant for other species.

The loss of plants means there are fewer places for insect larvae and for fish to lay their eggs which in some rivers has reduced trout and salmon stocks.

The invasive crayfish has now reached plague proportions and marine biologists have been desperately seeking a way of halting its relentless spread. Suggestions have included breeding huge numbers of sterile males - as happens with mosquito control - to wreck breeding success rates.

Trapping and taking the Signal out of the water would have to be done on a massive scale to have any significant impact and attempts to introduce a specific crayfish fatal disease has also failed.

Professor of Freshwater Biology at the University of Derby, David Rogers, appeared on a River Cottage Spring TV programme this week helping trap 140 Signal crayfish in a small stretch of water on the River Kennet, a chalk stream and tributary of the Thames which flows through Berkshire and Wiltshire.

He said: "They are a major threat to the ecosystems of our rivers, there is no doubt about that. On the Kennet we estimate there are millions of them and you would have to trap thousands of them every day not to eradicate them but simply to reduce their impact."

"They will eat plants, insects, fish, snails, detritus and even their own young. When they are in dense colonies you can actually see the river bank retreating as they burrow into it."

Now an eco engineering company, Willowbank of Somerset, have developed a river banking system which they say deprives the crayfish of the habitat it needs for shelter and breeding. They have developed a way of incorporating a steel mesh into traditional willow used to reinforce river banks which stops the crayfish burrowing and forces it to move on.

Partner James Hector said: "This creature is beginning to dominate life in our rivers and streams and we have to find a way of getting rid of it. We are not saying this is the complete answer but it is a start. Where we have installed the mesh we have seen crayfish numbers fall.

"If we can install it in tributaries as river banks are repaired we might be able to stop it getting into the rivers in large numbers."

But Prof Rogers remains sceptical that it will work. "It may stop bigger crayfish getting through but it might even help smaller crayfish, who can get through, to survive predation by adults.

"Small sections of bank might be helped but the mesh would have to be buried deep and across the breadth of the river to stop them burrowing. Even then crayfish might be able to get into pools and burrow into the banks from the other side," he said.

Signal crayfish facts

- The female breeds from the age of about two when it is 40mm long.
- She breeds once a year and averages 275 eggs.
- The eggs are fertilised by the male in October/November.
- They are carried by the female folded within her tail until May when the young are released - if they can escape her jaws.
- The Signal is bigger and more aggressive than native crayfish.
- They are less fussy in what they eat and more successful and rapidly colonise new areas.
- The Signal carries a fungus which is fatal to native crayfish.
- They can live up to 12 years.

http://www.telegraph.co.uk/earth/main.jhtml?xml=/earth/2008/02/19/eainvas119.xml

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Alien species 'wreck world's oceans and rivers'

By Paul Eccleston

Last Updated: 12:01am GMT 19/02/2008

Alien species are wreaking havoc on the world's oceans and river systems, say scientists.

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Marine invasive species damage waters and land that native species and plants rely on to survive.

And governments have to spend millions of pounds trying to get rid of them, says the Nature Conservancy study.

Examples in the UK include Floating pennywort (*Hydrocotyle ranunculoides*) a native of North America which was brought to Britain in the 1980s as a garden pond plant but which quickly spread to the wild.

The pennywort chokes rivers and streams depriving water creatures and plants of essential oxygen and light. Individual stems can grow up to 20cm in a day, creating a mat of vegetation up to 15m from the bank in one season.

North American signal crayfish - a predatory animal which cause massive problems for native species

Invasive and predatory marine animals which cause massive problems for our native creatures on waterways include the American mink, American crayfish, and the zebra mussel from the Caspian sea.

Once in the wild, these aquatic invaders cause massive disruption and with no natural predators and a benign climates they expand rapidly to nuisance proportions.

The latest study contains a global assessment of the impacts and causes of invasive marine species and says 84 per cent of the world's coasts are being affected by foreign aquatic species.

Stephanie Meeks, acting president and CEO of The Nature Conservancy, said: "Everyone in the world depends on healthy oceans and coasts for survival. Invasive species are severely impacting native plants and animals, and are causing significant economic damage at the same time.

"By understanding the scale and scope of these invaders, we are better equipped to stop them."

According to the study, in the journal Frontiers in Ecology and the Environment, international shipping and aqua culture are the major causes of the spread of harmful species introduction world-wide with 80 per cent of all invasive introductions accidental.

The economic costs of invasive species are huge with the US alone spending £60bn annually to control and repair damage from more than 800 invaders. Throughout the world's oceans, aquatic aliens damage economies by hitting fisheries, fouling ships' hulls, and clogging intake pipes. Some can also pose a threat to human health through disease.

Examples of the damage invasive species can cause include:

* The comb jellyfish carried to the Black Sea on a ship in the early 1990s. It devastated fish populations and disrupted the entire food chain by feeding voraciously on fish eggs and zoo plankton.

* The Pacific oyster was transported from Japan to be farmed in coastal waters around the world since the early 1900s. Once introduced, they aggressively attach themselves to rocks and group together, squeezing out other species. In Australia and elsewhere, this fast-growing species can smother prized native oysters and mussels, hurting local fisheries.

* Wild Atlantic salmon stocks in Scotland and Scandinavia are being decimated by new pathogens, while escaped farm salmon are weakening the genetic resilience of native fish. Each year, up to 500,000 salmon escape from fish farms in Norway alone.

* San Francisco Bay, California, is the most invaded aquatic region on earth. More than half of its fish

and most of its bottom-dwelling organisms are not native and new species are being introduced at an alarming rate.

Jennifer Molnar, conservation scientist at The Nature Conservancy and lead author of the study, said: " "The scale of this problem is vast. Every day, thousands of vessels cross our oceans with invasive species hitchhiking on their hulls. Because of this, as many as 10,000 species are estimated to be in transit at any one time.

"Once alien species become established in marine habitats, it can be nearly impossible to remove them, The best way to address these invaders is to prevent their arrival or introduction in the first place."