

# The Grower

Newsletter for the Association of Scottish Shellfish Growers

September 2007



## Outcome of Crown Estates change in policy—price rise

The future development of the Scottish shellfish farming is seriously threatened by the introduction of inappropriately high planning application fees which will, if not revised make new developments prohibitive.

The Crown Estate has normally charged no more than the direct expenses of advertising the proposed development (local paper, post office, etc), totalling some £100 - £150. Under the new Local Authority scheme, the objective appears to be to recover the full costs of processing the application – with the result that applying for planning permission (with no guarantee of success) for a small, 6 longline site has been calculated as attracting a charge of £3,000 +, or, in another Local Authority, £5,000+ ; or in another Authority £11,000 !! This variation is despite charges being calculated from a single national formula. Your Association will continue to lobby for changes to this inappropriate development.

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## KEYZONES - An EU Project Workshop on Carrying Capacity modelling—free to ASSG members

On Wednesday 17<sup>th</sup> October 2007 at Dunstaffnage Marine Laboratory there will be a ‘hands on’ demonstration of the KEYZONES model and farm level utilisation of the model will also be addressed.

Space is restricted, so if you have an interest in participating at this event, please contact Doug McLeod as soon as possible by e-mail at the usual address : [DouglasMcLeod@aol.com](mailto:DouglasMcLeod@aol.com) For more information see Page 7

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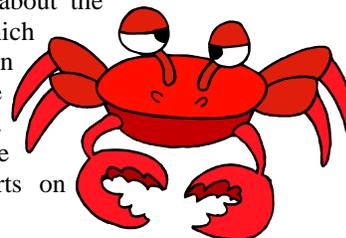
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## Crabs turn to be bitten



Evidence grows about the extent to which brown crabs can also accumulate algal toxins ..  
Dougie McKenzie of Integrin reports on Page 2



## Special points of interest

Read about the new UK wide plans for shellfish development and get involved. Tom Pickerell tells you how to contact him as newly appointed Shellfish Development Officer. He is at pains to point out it is a UK wide strategy and he will be at the ASSG conference to make contact with as many shellfish farmers as possible. Read also more about what to expect at the conference itself and book as soon as you read this if you haven't already!

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**Disclaimer: Views expressed in this publication do not necessarily reflect the official view of the Association**

# Chairman's Column

## Food safety

Its always fascinated me how 'themes' emerge, develop momentum and finally subside back to relative anonymity within the aquaculture sector. At the moment, the theme of 'food safety' appears to be waxing strongly across the national and international scenes. I attended a food safety Conference in Sydney ('Future Directions') in September, but while I delivered a presentation about the European regulatory scene and the international dimension of food regulations (biotoxins and microbiological) the majority of presentations were from Regulators focusing on consumer health issues, nutrition and trends in future food characteristics (such as functional foods).

I also attended the World Seafood Congress in Dublin later in the month, where again the talks were dominated by issues surrounding nutrition (especially the infamous advice to consumers to eat '2 portions of fish a week, 1 oily'), sustainability and traceability. Production related issues were addressed through a series of presentations on biotoxin methods and microbiological sampling. In terms of the former, there appears to be no slowing down in the efforts of scientists to 'discover' additional toxins to regulate, despite the absence of evidence of harm to human health.

Potentially even more significant for growers was the suggestion that a standard for viruses (Norovirus and Hepatitis A) was likely to be possible and therefore introduced into regulatory legislation within around 5 years. This reflected the efforts of a European Working Group which has already produced a first draft standard method and SOP, with on-going laboratory ring trials. This standard would be based on Real Time PCR and most likely would be applied to production areas currently classified on the basis of *E.coli* assessed by the MPN method.

Unfortunately the PCR method fails to distinguish between 'dead' virus particles and viable infective viruses, and therefore would likely find viruses everywhere. Furthermore, there is no information about the infective dose, so cautious regulators may well opt for the DSP approach - no presence as the limit. In my view this development could be a disaster for the industry - it is essential that a more accurate method is introduced to detect viruses, focusing on detection only of viable viruses.

## Possible solutions

While visiting Australia I travelled to Wallis Lake, where the oyster producers had been hit by an outbreak of Hepatitis A some 10 years ago. Recovery to the position of once again being the largest single source of New South Wales oysters has been due to the various stakeholders (Councils, NGOs, State government, NSW Food Authority) working with industry. The problems of diffuse pollution have been robustly tackled (see picture of reed beds for storm water overflows) with a full scale sanitary survey leading to significant improvements in sewerage treatment around the estuary and further back in the catchment. If a well populated area can recover from a Hep A outbreak, I see no



Doug McLeod, Chairman of Association of Scottish Shellfish Growers



reason why we should not expect our Competent Authorities in Scotland to tackle the issues of diffuse pollution for our industry. Do we have to wait for a major human health event, such as a Hep A outbreak, before these concerns are taken fully on board?

## ASSG Conference

It's almost Conference time - we have an impressive line up of international speakers, addressing issues of importance for our sector, under the theme of 'managing coastal resources', and I hope that members will attend the two day event in Oban later this month in numbers. After all, it's *your* Conference, and offers us a great opportunity to meet and discuss important concerns both with fellow growers in Scotland and outside experts from the UK and other countries.



## Contact details

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## Readers' Letters

***Your chance to air your views especially of things you read here!***

From : Major (Retd) Peter Hoare  
2 BACK STREET , ABBOTSBURY, DORSET, DT3 4JP  
Tel: 01305 871328

Dear Ed,

With reference to your comment on " the unfortunate naming" of COFFIN BAY in South Australia.

History lovers amongst your readers (sic) might be interested in the following:

Coffin Bay, situated on the western tip of the southern Eyre Peninsular, was discovered by Lt Matthew Flinders

RN and his crew in HMS Investigator on 16 February 1802. Flinders, after his return to England in 1810, named the bay after Admiral Sir Isaac Coffin, who as Resident Commissioner of Sheerness Naval Dockyards in England had been responsible for the outfitting of the Investigator for Flinders' epic voyage to Terra Australis. For further information (and good photos of the Oyster farms) visit [www.coffinbay.net.au](http://www.coffinbay.net.au)

PAH  
14 July 2007

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## A Bad Dose of Crabs.

***Douglas McKenzie, Chief Executive of Integrin ([www.integrin.co.uk](http://www.integrin.co.uk))***

At times it can seem that even God is against shellfish farming. If it's not *E.coli* results, it's biotoxins; if it's not biotoxins it's norovirus and then it's back to *E.coli* results. Even the Old Testament considers eating shellfish an abomination (Leviticus 11:10 – though with a reprieve in the New: Matthew 15:11). A touch of schadenfreude can alleviate the biotoxin blues and this article is a sideways look at another type of shellfish: crabs.

In 2002, people in the South of Norway started turning up at their doctors and hospitals with symptoms identical to Diarrhetic Shellfish Poisoning (DSP). However, the common link was not bivalve shellfish but that they had all eaten Brown Crab (*Cancer pagurus*). Further investigation showed that the crabs did indeed contain the toxins responsible for DSP (okadaic acid and *Dinophysis* toxins) – though almost entirely in the form of esters. The crabs had presumably been feeding on bivalves (probably mussels) and had thus vectored the toxins to the hapless Norwegians. Strangely enough, shortly afterwards a similar occurrence happened in Portugal though with the Green Shore Crab, *Carcinus maenas*. These were the first records of DSP toxins causing human poisoning via crabs. The obvious question was: could this happen here in Scotland?

The Brown Crab is a significant fishery in Scotland, worth approximately £10M per annum. The poisoning incident in Norway prompted the FSA Scotland (FSAS) to commission Integrin to conduct a pilot study investigating the potential for crabs from Scottish waters to act as a vector for algal biotoxins.

Firstly, the crab industry in Scotland was mapped, primarily through analyses of landing data. It was determined that the nominal fishing season coincides with the biotoxin season – both being at their height in the summer and autumn months. Over 95% of crab landings occur in only 12 ports in Scotland and these are predominantly in the West and far North-East of Scotland (including Orkney). The areas where crabs are fished also tend to coincide with areas where biotoxins have been identified, suggesting the potential for crabs to become contaminated.

To ascertain the presence of toxin-contaminated crabs in the wild, field samples were taken during 2005 and 2006. During 2005, targeted sampling of crabs was conducted in areas that had a history of toxic events and further sampling was undertaken from areas where the FSAS monitoring programme detected toxins in bivalves. The results showed that both PSP and ASP toxins were commonly detected in wild crabs (brown meat with detectable PSP levels: 83%

and detectable ASP levels: 35%). Within an individual sampling area, crabs sampled at the same time were highly variable with regard to the concentrations of toxins present. This was particularly true of ASP toxins. Few samples (<5%) were found over the regulatory limit set for bivalves for either ASP or PSP toxins, however, the brown meat of one crab was found to contain six times the regulatory limit for ASP and in another over twice the regulatory limit for PSP was detected. Despite the occurrence of a small number of toxic events during 2005 involving DSP in bivalve molluscs, DSP toxins were not detected in any of the crabs sampled during 2005.

During 2006, crabs were randomly sourced from three separate, but important fishing areas, and tested for ASP and PSP toxins. In addition, crabs were also sampled from one area where DSP toxins were detected in bivalve molluscs through the FSAS biotoxin monitoring programme. The results for 2006 were similar to 2005, in that ASP and PSP toxins were regularly detected in the brown meat of crabs sampled. Again, both ASP and PSP toxins tended to be detected at low concentrations, although high levels were occasionally detected in individual samples. DSP toxins were also detected in crabs sampled during 2006, although at relatively low levels.

The results of this pilot study suggested that Scottish Brown crabs could potentially be a vector for ASP, DSP and PSP when conditions are suitable. Crabs are not covered by the same legislation that requires regular monitoring of live bivalve molluscs for the presence of biotoxins (safety requirements for crabs are included under fishery products legislation) but ensuring that toxins do not reach the consumers will be a real headache for the crab industry. The good news is that the toxins were predominantly found in the "brown" meat rather than in the "white" meat – so those of us who focus on the claw and leg meat can probably munch on without fear. Processed crab products that utilise the contents of the carapace are probably the only risk products but what should be tested, how often and what toxin levels represent a risk? While the bivalve aquaculture industry benefits from the FSAS's monitoring programme for background information on toxin levels and the presence of toxic phytoplankton, many of the areas fished for crabs do not coincide with monitored areas so how are crab fishermen and processors to know when their crabs are most at risk?

As with much research, the pilot study opened a new can of worms. However, the next time someone falls ill after a platter of fruit de mer perhaps we should not be as quick to blame the mussels.

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# The Shellfish Industry Development Strategy: A Very English Strategy?

Tom Pickerell

Despite the title of the report, the *'English Shellfish Industry Development Strategy'* is a misnomer borne of political sensibilities. Let me start at the beginning...

The Prime Minister's Strategy Unit report *'Net Benefits'* recognised the importance of the UK shellfish industry and the potential development opportunities therein. One of its recommendations specifically concerns the sector:

*Recommendation 6: Fisheries departments should focus on support for the development of the inshore/shellfish industry to take advantage of its large growth opportunities*

In response, the UK government established inshore working groups to discuss this and other relevant 'inshore' recommendations. Because each national administration has powers and responsibilities for its own inshore waters it was agreed that each administration form their own 'Inshore Fisheries Working Group'.

Defra's *English Inshore Fisheries Working Group* recommended that a strategy for the development of the shellfish industry in England was essential – they did not have the remit to include Scotland, Wales & Northern Ireland. As a first step Defra and Seafish commissioned a review of the scale and activities of the current English shellfish industry. Dr Colin Bannister's subsequent report, *'Towards a National Development Strategy for Shellfish in England'* identified development opportunities and discussed how these might be achieved.

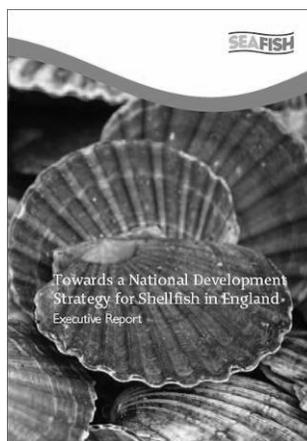
Many of the recommendations made in Bannister's report were explored further in the subsequent *'English Shellfish Industry Development Strategy'* report which considers what support is needed for the sustainable and profitable development of the sector. The authors Dr Nick Lake and Dr Sue Utting built upon the Shellfish Association of Great Britain's (SAGB) *'Strategy for the Development of the Shellfish Industry'* (amended in 2004) which lists a number of issues that affect the UK industry as a whole, as well as issues that are specific to each sector.

The Strategy Report was received and welcomed by Defra's Inshore Fisheries Working Group in March 2007 and prompted high level discussions between Seafish and the SAGB resulting in Seafish providing the funding for SAGB to employ a National Shellfish Development Manager to facilitate the 'Shellfish Industry Development Strategy' (SIDS). I was fortunate enough to be offered the role of National Shellfish Development Manager and took up post in August this year.

The majority of my time has so far been spent meeting stakeholders across the UK discussing what they consider are the factors preventing the sustainable and profitable development of our shellfish sector (whether it is legislation or other factors) and to determine what they wish to see generated from this work. Key issues that have been raised include water quality issues, market opportunities for accredited shellfisheries, non-native concerns and how to address the apparent "no interest in molluscs in Government". This 'fact-finding' is ongoing and all contributions will be welcomed; please do not hesitate to contact me at [tom@shellfish.org.uk](mailto:tom@shellfish.org.uk) or 020 7283 8305 if you want to get involved in the Project.

Some concrete work has also been carried out to date. I have recently submitted an application for FIFG funding for a scoping study of a 'National Shellfish Resource Group' which would aim to provide scientific advice to inshore managers (whatever their structure and across the UK) and I am currently drafting project proposals for a range of issues to make use of Seafish and Defra Challenge Funds (and EFF hopefully!).

My 'take home message' is despite the apparent English focus, SAGB is a British Organisation and SIDS will address issues affecting the sector across national borders and its outcomes will be equally available to Scotland, Northern Ireland and Wales.



*Dr Tom Pickerell became the National Shellfish Development Manager in August 2007. He was previously the Fisheries Policy Officer at WWF-UK and spent 3 years in Defra co-authoring the 'Review of Marine Fisheries & Environmental Enforcement' (the Bradley Report) and was the science advisor in the Fishing Industry Strategy Unit – which co-ordinated the Government response to 'Net Benefits'. He has been an Executive Committee member on the North Sea RAC and has sat on the Marine Fisheries Stakeholder Forum and the Inshore Fisheries Working Group. The strategy can be accessed on the SEAFISH web site*

## Dates for your diary:

Free workshop for toxicity testing October 17th  
At SAMS, Oban plus carrying capacity workshop.

Annual Shellfish Conference 18th and 19th  
October 2007, Oban

10th International Shellfish Conservation  
Conference at Vlissingen, Holland November  
12th-16th November 2007

<http://www.wageningenimares.wur.nl/UK/icsr2007/about/>

## NEWS

# Experience Counts! Think you are too old to learn?

### Lantra initiative

The time has never been better to enable older workers to learn new skills or update existing ones. Lantra the Sector Skills Council for the environmental and landbased sector is running a project funded by the Scottish Government and supported by the ASSG aimed upskilling older learners within the shellfish and aquaculture sectors.

### Who is the project for?

The project is open to anyone in the shellfish sector who is aged 50 years or over and who has been out of learning for 2 or more years.

### What can I learn?

Anything that is identified on your Personal Development Plan – from IT skills, management skills, technical skills that will help you in your job. This is a unique chance for you to up-date your skills in an area chosen by you.

### What is a Personal Development Plan?

A Personal Development Plan is a tool that will help you to identify your training needs. It is not complicated and simply helps you to take a few moments out of your busy schedule to think about your job and what potential areas there are to gain new skills or refresh existing ones.

### How much does it cost me?

The training should not cost you anything. The aim is to have it fully funded but this would depend upon the training course. Funding is only available until March 2008 so use it or lose it! It is possible to use your Scottish Executive Individual Learning Account (ILA) to “top-up” the Experience Counts funding. More information on ILAs can be found at [www.ilascotland.org.uk](http://www.ilascotland.org.uk) or phone 0808 100 1090

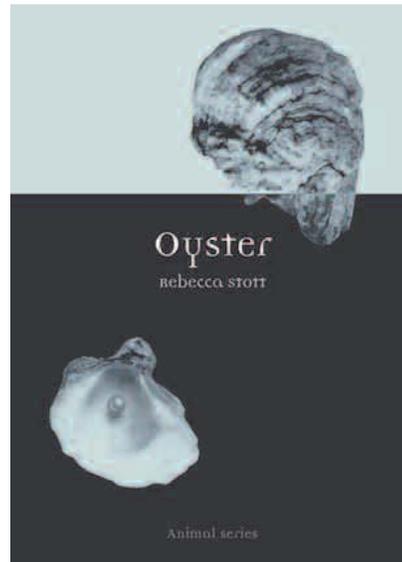
### Where can I learn?

You can learn anywhere that suits your needs. Elmwood, Inverness, North Highland, North Atlantic Fisheries College, Oatridge & Barony Colleges, to name but a few, are involved in this project but you could also learn using distance learning. Really it all depends on your need.

### Sounds great! How do I begin?

You will need to complete the Personal Development Plan and a Request for Training form both of which are available from Liz Paul. If your request is approved you will be given the go ahead to book your training course. It's as simple as that! So contact Liz on mobile 07867 908198 or email: [liz.paul@lantra.co.uk](mailto:liz.paul@lantra.co.uk)

## Book Review - Janet H Brown



### Oyster by Rebecca Stott

Published by Reaktion Books,  
([info@reaktionbooks.co.uk](mailto:info@reaktionbooks.co.uk)) £12.95  
ISBN 978 1 861189 221 8

This attractive little book is written by a professor of English so you can assume it will be well written. Unfortunately she starts by tackling the biology and immediately hits limitations. There is an illustration of the anatomy of an oyster clearly taken from an old Victorian book – unfortunately the key is not included so the various parts are labelled a,b,c etc! and the reader is none the wiser! Generous reprinting from old publication such as this does result in very attractive plates and makes such old publications more accessible but it would have been nice to have the considerable scholarship also included with the plates! While the book does go into some detail on the evolution when it comes to the present there are some glaring inadequacies “For most oyster eaters however the differences can be divided simply into 2 categories, the Pacific; *Crassostrea* species which is generally longer and has a more oval shell and the flat (native) oyster (*Ostrea*) species which is smaller and has a rounded shell. The tastes are different; prices differ.” Maybe as a shellfish biologist I’m not the right person to review this book! However, once the biology of the oyster is out of the way the book becomes altogether more interesting. When the author is dealing with the history and literary associations with oysters the book finally comes into its own. It is generously illustrated and full of interesting information. It certainly contains lots of interest folk who work with oysters all day long and who might enjoy knowing more of the historic and literary references of their life’s work!

# ICSR: from Sea to Shining Sea and Across the Pond

***Dorothy L Leonard tells us the story of the International Conference on shellfish restoration***



In the 1970s and 1980s the United States and Canadian governments recognized the decline in the quality of their coastal waters. Both NOAA's National Ocean Service and Environment Canada developed programmes assessing declines and developing methods to restore once productive estuaries. Word spread throughout coastal communities and soon there was a cadre of scientists, community, shellfish industry and government individuals who shared concerns about coastal quality and declining resources and needed a forum in which to exchange ideas and talk about solutions.

Anxious to turn the tide on declining environmental quality, a small group of government, industry, and community representatives came together in 1995 to plan the first International Conference on Shellfish Restoration (ICSR) held on Hilton Head Island, South Carolina in 1996. The first ICSR was designed to recognize the importance of shellfish as indicators of environmental quality and to examine how the health of coastal ecosystems could be improved through shellfish restoration. The second conference returned to Hilton Head in 1998 where over 200 scientists, resource managers, and government officials met to consider how community, regional, national and international partnerships can help the shellfish restoration process. The focus was on successful techniques and how they could be applied to multiple estuaries.

In October 1999, the ICSR conference was held in Cork, Ireland, where it took on a European dimension, the scope broadened to include non-molluscan shellfish such as sea urchin and lobsters. The emphasis throughout the conference was on the marriage of science and management. While highlighting shellfish as a valuable coastal resource, ICSR Europe also addressed important new restoration topics such as artificial reefs, interactions with birds, the carrying capacity of bays, red tides, and the genetic implications of sea ranching.

The Conference returned to Hilton Head in 2000 and, on the heels of that successful meeting, the ICSR continued an international tradition with a Canadian version held in Nanaimo, British Columbia in September 2001. The Canadian meeting showcased the importance of shellfish to the First Nations from the perspective of traditional use and current practice. The field trips, which have become an integral part of the ICSR program, showcased the farming techniques of two shellfish farms: Fanny Bay Oyster and Odyssey Companies. The major social event was The Traditional Feast of the Snuneymuxw First Nation.

*Dot is the President of Ocean Equities LLC, an aquaculture firm developing a closed recirculating system for the production of oysters and other molluscs. Following 20 years with the U.S. NOAA Fisheries and Ocean Service she now provides consulting services in risk communication, shellfish restoration, aquaculture development, natural resource management and land use planning services. She Co-Chaired six U.S. conferences of the International Conference on Shellfish Restoration, serves on the International Advisory Committee of the International Conference on Molluscan Shellfish Safety, the Advisory Board of the East Coast Shellfish research Institute and chaired the 2004 International Workshop on Molluscan Shellfish Safety. For the Interstate Shellfish Sanitation Conference, Dot chairs Restoration and Resolutions committees and serves as advisor to six states developing Vibrio vulnificus (Vv) Risk Management Plans.*

*Note: Dot was a keynote speaker at the 2006 ASSG meeting in Oban.*

There is a unique quality to the ICSR meetings in the US ...the lengthy breaks and social events. At most large conferences the audience is talked to by numerous scientists and students. We often rush from room to room, from one concurrent session to the next, trying to catch as many presentations as possible. A quick nod in the hallway or a moment or two at the coffee table is the extent of our interaction. At the ICSR the coffee breaks, box lunches and evening social events take centre stage. On centre stage are our own shellfish musicians, ranging from saxophone to drums to guitar and violin. We dance as though no one were watching and eat as many oysters as we can possibly manage. Is it fun? You betcha! ... And much of the collaborations between scientists, managers and community activists begin in these settings.

In 2002 ICSR moved to Charleston, South Carolina, one of the most beautiful coastal cities in the US. The hotel is situated right in the middle of the historic downtown area, a neighbourhood replete with gift shops and excellent restaurants. Heated discussions took place on the role of exotic species in coastal estuaries, fuelled by the potential introduction of the "Chinese" oyster, *Crassostrea ariakensis*, in the Chesapeake Bay. The field trips held prior to the meeting were a visit to Capers Island, a South Carolina Heritage Preserve and the ICSR Golf Tournament. We almost froze to death at the traditional oyster roast but kept warm with the hot debates and dancing. Charleston has remained the site for the ICSR held in the US on even years...2004 and 2006. The social traditions have remained constant but the focus of the meeting has shifted to topics such as the measurements (metrics) of success, community efforts in reef

construction, shellfish repletion and restoration of indigenous species such as the Olympia oyster, *Ostreola conchaphila*.

In contrast to the US meetings the ICSR in Europe covers all of the scientific topics related to shellfish. For example, the 2005 meeting in Brest, France had concurrent sessions that ranged from genetics, pathology, hatcheries and fisheries management to shellfish-ecosystem linkages and the socio-economic, policy, outreach and education aspects of shellfish/habitat restoration.

On November 12-16, 2007, the ICSR will be held in Vlissingen, the Netherlands. Titled "Innovation in the Exploitation and Management of Shellfish Resources" the Dutch programme received over 200 abstracts covering recruitment (spatfall dynamics and management), ecosystem based management (carrying capacity, integrated multitrophic aquaculture), stakeholder involvement and management, (shellfish management and nature conservations, international legislation, education) and new technologies in offshore shellfish culture and hatcheries and nurseries. I asked the Co-Chairs, Aad Smaal and Jeroen Wjisman about their proposed program and why the European programmes are so scientific in nature.



Both Aad and Jeroen commented that the ICSR is the only shellfish forum in Europe\* whereas in the US we have annual meetings of

the National Shellfisheries Association, which now has a large percentage of international members and covers all of the scientific issues related to shellfish, as well as biannual meetings of the Interstate Shellfish Sanitation Conference which covers all aspects of water quality and public health.

There is a greater need than ever for the enhancement of our coastal ecosystems though shellfish restoration. Not only does the public have a keen interest in restoring water quality to shellfish growing areas, but also the aquaculture industry which is focused on advancing the quality assurance and safety of aquaculture products. The demand for seafood is expected to increase significantly in the next ten years, and the industry will need new sites with good water quality. Our goal is to provide forums throughout the world to draw attention to shellfish, shellfish water quality, and related issues, and to foster partnerships and the exchange of information to further the science of restoration and aquaculture.



***“Is it fun?  
You betcha!”***

***ICSRC Shellfish  
conference in USA—  
can we learn from  
them?***

Photos from Dot Leonard



## **KEYZONES - An EU Project Workshop on Carrying Capacity modelling**

Scheduled for the afternoon of Wednesday 17<sup>th</sup> October 2007 at Dunstaffnage Marine Laboratory (near Oban), a 'hands on' demonstration of the KEYZONES model, led by Dr Joao Gomes Ferreira of the Institute of Marine Research, New University of Lisbon, Portugal.

The approach to the model will be presented – how issues concerning scale, data, inter-linking of sub-models (physiological and environmental) and data gathering were identified and resolved.

The individual sub-models will be reviewed in some detail, both the system scale (circulation, nutrients, chlorophyll, detritus, etc) and the individual shellfish growth simulation.

Farm level utilisation of the model will also be addressed.

Space is restricted, so if you have an interest in participating at this event, please contact Doug McLeod as soon as possible by e-mail at the usual address : [DouglasMcLeod@aol.com](mailto:DouglasMcLeod@aol.com)

# ASSG Conference 18th –19th October 2007— the shellfish world comes to Scotland

The ASSG two day conference kicks off on Thursday 18<sup>th</sup> October in Oban. This year's theme is "managing coastal resources" a day to day activity of shellfish farmers. The theme will however allow invited speakers to take a wide view of the topic and here we highlight some of the speakers and their subjects to whet your appetite. If you haven't booked yet, do so soon or else miss out. Despite the Dutch view reported on page?? this is a real shellfish forum in Europe which anyone with an interest in shellfish culture and its wider ramifications will not want to miss.

The key note speaker for the first day will be Lahsen Ababouch of FAO setting the scene with an overview of global trade in shellfish. This global approach will be echoed with the fact



that speakers are coming from all over the world. Joao G. Ferreira, of the University of Lisbon will address the delicate balance between shellfish aquaculture and coastal zone management, highlighting trade-offs with respect to sustainable



carrying capacity, water quality and eutrophication, and farming for optimal profits. These topics will be framed in principles of coastal zone management and policy instruments, and will be illustrated with examples from Scotland, Ireland and Portugal. Anamarija Frankic will tackle a complementary theme on coastal ecosystem management and sustainable aquaculture as practised on the East coast of USA.



Two speakers are coming from God's own and will one will address the pressures on public space, both actual and perceived, that resulted from the success of aquaculture,



principally mussel farming. Jim Dollimore Chief Executive of the largest oyster farm in NZ, Biomarine Ltd giving the key note address for the second day of the conference will tell how this lead to new legislation controlling aquaculture space and its results, many of which are



seen as detrimental for aquaculture.

He will discuss the things the NZ industry might have done better to achieve more favourable legislation, and what they intend doing from here on to improve access to water space in the future. Our other speaker from NZ

Catherine Seamer, will talk about the NZ take on biotoxin and viral regulation including the usefulness of phyto as a predictor for PSP toxins in NZ and their risk analysis work done on cryptosporidium in shellfish.



Continuing the algal theme Keith Davidson of SAMS will be talking about the factors governing the initiation of harmful algal blooms and the work being done in the EU



Interreg IIIB project "FINAL" which seeks to investigate blooms of the PSP and ASP causative organisms *Alexandrium* and *Pseudo-nitzschia* in Scottish, Irish and French waters.

Hamish Rodger also of SAMS will talk about the SAMS research on integrated multi-trophic aquaculture in the Western Isles and what the project's conclusions could contribute to the national 'aquaculture-resource-use'

debate while Janet Brown of University of Stirling will talk about things we need to think about when it comes to shellfish translocation. The tiger has nothing to do with her talk but there is a connection if you think about how a tiger in the wrong place is not what you necessarily want.

Many other topics are to be covered; all details can be found at <http://www.assg.co.uk/>

