

The Grower

Newsletter for the Association of Scottish Shellfish Growers

October 2016



Minister meets with shellfish industry at Glasgow summit



Gerard Allison, factory manager for SSMG's processing facility shows Fergus Ewing, Cabinet Secretary for Rural Economy and Connectivity, what investment from the European Maritime and Fisheries Fund (EMFF) has achieved. SSMG had previously received £580,000 to upgrade the factory and purchase equipment. The visit took place after a Shellfish Summit held at the nearby Eurocentral business park on 1st September. Representatives from all sectors of the shellfish industry in Scotland; farmers, processors and the ASSG, scientists, representatives from SEPA, FSS and SNH, Scottish Government, local authorities and supermarkets met the Minister and had the opportunity to present to him the industry's plans for future growth and to effectively brief him on matters of concern. One of these was about common perceptions of shellfish and the need for consumer education. The key concern was one of finance and lack of support from the UK banking sector for shellfish farming which the Minister was keen to hear about. Appropriate regulation was also discussed. The meeting was felt to be a very useful exercise although time will be the real arbiter for that.

ASSG Conference 6-7 October

BOOK NOW AT www.assg.org.uk

More information on the conference inside. See pages 2,3,5,6 and 20!

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For further information see our web site at www.assg.org.uk

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

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Advertising

The Grower is distributed to all members of the ASSG, to policy makers and scientists with interest in shellfish and is sent electronically all over the world to shellfish farmers and their ilk. It is also available online at www.assg.org.uk Why not advertise to our specialist readership?

ASSG conference dinner and competitions

The conference dinner will be held on the evening of 6th October at the Fishhouse Restaurant on the quay alongside Oban railway station. It promises to be the usual exceptional feast. The price for the meal will be £40 and includes one glass of wine with the meal. The menu is below.

Lightly Spiced Mussel Soup topped with Mint Yogurt and a Crispy Fried Masala Oyster

**

Smoked Duck Breast with whipped Goats Cheese and Apple Ketchup

**

Seared Scallop, Wild Venison Tortellini, in a Red Wine and Wild Mushroom Sauce

**

Roasted Hake Fillet served with Crab stuffed Prosciutto, Pumpkin Mash and Sage Butter

**

Lemon Meringue Parfait

A vegetarian option is available but please inform conference organiser Roy Clarke of your requirements at booking.

The competition for the Best Scottish Shellfish will once again be fought for but this year for the first time there will also be a prize for the runner up, the “Commended” as opposed to the “Best” in each of the 3 categories, *gigas* oyster, native oyster and mussels.

The rules have been slightly amended so competitors are advised to check carefully on the ASSG website to be sure they are compliant.

The prizes for Best Scottish Shellfish are shown below.



Dates for your diary

European Aquaculture Society meeting
“Food for Thought”
20-23 September 2016
Edinburgh

ASSG Annual Conference
Corran Halls, Oban
6-7 October 2016

International Conference on Shellfish Restoration
Charleston, South Carolina, USA
16-19 November 2016

7th International Oyster Symposium
Bangor, North Wales
September 11-15th 2017

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CEO's Column

Nick's Notes



Dr Nick Lake, CEO of the Association of Scottish Shellfish Growers (ASSG)

It's that time of year again?

I hate to point this out - but the nights are drawing in! Hopefully we are in for an Indian summer as I still have a range of tasks (aspirations?) to complete in the garden! The one positive thing that this does mean is that we are nearing our annual conference and of course we can guarantee all attendees a very sunny Oban on 6th / 7th October!!

By the time anyone reads this both the full conference programme and the booking form will be up on our website. The only excuse I have for this delayed timing is the late night watching of the Olympics - but seeing our successes was worth it. In comparison the ASSG is also celebrating its stamina and determination akin to a marathon with this year being the 30th anniversary!

The Conference looks to consider the success of the Scottish shellfish cultivation industry over these years and very much how we build on this in the future? Full details of the programme appear elsewhere and I can assure you that the electronic booking form is really simple to use on our website (even I have mastered it?) with drop down menus and PayPal payment. We are also expecting a good display of trade stands and material from researchers and support organisations! It is not to be missed!!

"Scottish Cultivated Shellfish - Past, Present and Future?" Oban 6th / 7th October

Opening the Conference will be Gareth Baird Scottish Commissioner for The Crown Estate. This is entirely fitting as since the concept of cultivating shellfish in Scotland was put into action in the early 1970s with a hand-full of pioneering oyster producers The Crown Estate have not only acted as landlord in many cases but also taken decisions to support and re-invest to encourage the evolution of an industry. The Crown Estate's attitude that their marine assets are simply areas of rocks and mud covered by seawater unless they encourage individuals to create businesses using those assets has ensured a positive working relationship with our industry over the years. Hopefully this will be continued as The Crown Estate assets are taken into the management of the Scottish Government with the impending establishment of an Interim Body? We have made the case to Marine Scotland on behalf of the shellfish cultivation sector and our members who have site leases and rental agreements with The Crown Estate, that we would wish for stability and continuity in this respect in order for the industry to be allowed to develop further.

Shellfish Summit

With respect to the role of Scottish Government and the rural economy any expansion opportunities are of direct interest to the rural development Minister Fergus Ewing MSP and a Summit has been convened for the shellfish sector. Some of our members have been invited to attend to make the case for shellfish cultivation business and any factors currently constraining their

activities, which Scottish Government may be able to assist with? We have welcomed this opportunity and will be able to feed back any outcomes and likely future developments at the Conference and I am sure these discussions will be reflected in the presentations from some of our speakers.

Best Scottish Shellfish Competition!

Once again we will be thrown into the heat of competition for Scottish oyster and mussel producers in membership of the ASSG and Seafood Shetland! The judging panel of "3 wise men" was extremely complimentary of last year's standard of entries in each of the 3 categories and are relishing this year's task. The entry rules are on our website and this year we will be recognising more than just the outright winners. The coveted unique full size oyster and mussel plates will again be up for grabs and complemented by smaller copies recognising those commended in each category. For those that have tasted victory in the past I am sure you will want to gain "Olympic Gold" again this year! Please read the rules on the website which have been updated slightly.

Lessons from the past?

Sometimes it is worth looking backwards to make sure lessons have been learnt from past successes - and failures? It is often true that you learn more from your mistakes than the clearly remembered successes? We are looking forward to a light hearted presentation from one member who has managed to develop a successful family business from shellfish production and who has contributed to the growth of our sector. Expect to see some old photographs of members with hair (long hair?) sideburns, and flared trousers! Plus some sage comments about what our sector has achieved over the last 30 years.

Vision 2030?

Looking at the present and where we are as a sector can often be overlooked in the flurry of daily activities of maintaining and sustaining a shellfish cultivation business? However, it is the views of these individual businesses that need to be captured to chart the way ahead. The Vision 2030 initiative will be new (and likely unheard of up to this point?) to many producers engaged in running businesses?

Scotland Food and Drink are engaged in determining a forward outlook at development opportunities for all Scottish primary production sectors including dairy,



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The "Bouchot" model is known as the "French method": the net covers the poles of farm where the mussels socks are held on; it is used for strengthening and maintaining the mussels during their growth, by avoiding the loss of product due to detachment or caused by predators that eat the mussels.

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CEO's Column cont.

beef, lamb, whisky etc. We have been given the opportunity to contribute to the aquaculture section which includes a look at not only the production characteristics but also all the support services (transport, hatcheries, research, infrastructure, training etc.) which contribute to our industry.

Michael Tait, Managing Director of Shetland Mussels, who has represented the shellfish sector on the Vision 2030 group will look at our present constraints and asks the question – “Do we have room to grow?” He will outline where from a shellfish perspective the Vision 2030 initiative could help to remove current or likely future “blockers” to our sectors continued growth?

Investment and Commercial Finance

This topic area is likely to feature heavily in the “Shellfish Summit” discussions with Scottish Government as the high street banks have been shy of making investments in businesses which they see as having limited tangible assets? Traighe Mhor Oysters Ltd. in Barra have been successful in raising private finance for expansion of their oyster production and we will be hearing from Ian Wright, their finance director, on the challenges of dealing with both the commercial and private financial sectors. Importantly how such investment has influenced how they have been able to structure the setup of their oyster growing operations and dealing with markets?

Future Opportunities for Scottish Businesses

Very much looking to build upon what has been achieved to date by the hard work of the Scottish shellfish cultivation sector and individual businesses, there are a range of challenges ahead and an evolving market place which we will need to supply.

Environmental sustainability is a key feature of shellfish production as all will know in terms of our footprint on natural resource use. No feed, no chemicals and one of the lowest carbon footprints for emissions of any high grade protein production. We need to promote this more and obviously in recent years we have been getting ever more exposure through the media and through supermarket sales in terms of our high operating credentials. However, there is more to our sectors footprint in terms of how we produce and the scale of individual businesses. The consumer has an avid appetite for being re-assured that what they are purchasing is not in any way damaging planet Earth. I am confident that this is the case but we need to have others judging us and providing consumer confidence. This is the role of various commercial certification schemes not just for our sector but increasingly used by all primary food production industries. We will be hearing from Morven Robertson who is Project Development Officer for one such scheme Friends of the Sea (which has already been adopted by the Scottish Shellfish Marketing Group (SSMG)).

Seed Supply?

Our future production opportunities will be very much dictated by the quality and type of seed which is available to support our ever expanding production

outputs.

Back in 1986 when the ASSG was established if it had been suggested that we needed a shellfish hatchery in Scotland for the production of seed mussel it would have been the subject of great mirth!! Even back at this time the salmon farming industry was having issues at many sites with the problem of how they could keep their antipredator nets clean of mussel spat and also how to get rid of large tonnages of settlement which was constricting water flow through cages? Dropping the nets to the seabed was a way of allowing crabs to clean them up but hardly an efficient process. Even today anyone who puts a buoy or any other structure in the sea will realise just how productive it is with mussel settlement likely to be high in most locations. So what has changed and why are we looking at a mussel hatchery? Well fundamentally our industry has expanded and intends to keep expanding and in order to do that we need a consistent supply of seed.

The developments in Shetland sponsored through the SSMG will be described by Gregg Arthur, programme leader at NAFC, in terms of the challenges in reliably replicating what most see as an annually occurring force of nature.

While producing shellfish seed is one element of moving our industry forward there is the question of how do we select these shellfish seed to ensure we get adults which meet our needs for meat yield, shell shape and thickness, and maximum growth rate etc.? It has become obvious in recent years that even the Blue mussel has shown up in a range of guises in Scottish waters with other members of the *Mytilus* family having had an impact on our “native” stock! These sorts of issues will become increasingly more important as the terrestrial food production industry exemplifies with hundreds of years of stock selection to improve the production characteristics of cows, sheep, pigs etc.

We are fortunate to have in Scotland leading experts in this field and Dr Tom Ashton, Director at Xelect Ltd. St Andrews University will describe the opportunities arising from current work being undertaken with mussels, oysters and scallops.

Shellfish as Part of Integrated Aquaculture?

There has been a range of recent initiatives to spread the risk of production and to look at opportunities for rural diversification through co-production of other plant and animal species alongside both finfish and shellfish production. We should not forget that in the early days of aquaculture in the Highlands and Islands it was very much seen as a way of sustaining communities as part of the crofter / fisherman economy. These days have largely passed for a variety of reasons and now the emphasis is to ensure that any impact on the environment can be potentially minimised by co-production of species. In addition to this an alternative source of employment and income generation has been considered for rural businesses where shellfish could be complemented by seaweed or marine plant production such as samphire? Dr Gavin Burnell from University College, Cork has had considerable experience in

CEO's Column cont.

looking at development opportunities in this field and we look forward to hearing of opportunities open to Scottish producers and investors.

Scottish Shellfish on the International Stage?

There is the general appreciation that as our sector has developed over the last 30 years we have outgrown purely farm gate sales although these have a clear role to play in start-up business operations and smaller businesses in rural locations. Currently our industry is successful in supplying a domestic market within the UK. However, future growth and expansion will clearly push us towards the international market place and the challenges in costs and quality that this brings.

Considering how production developments in other countries are in line with our own is a very useful exercise and we are delighted to welcome Dr Carter Newell, President, Pemaquid Mussel Farms, Maine, USA to give us a view from "across the pond". Carter has a wealth of production experience and in the last 15 years since he previously attended an ASSG conference has developed a range of production initiatives including submersible rafts, satellite monitoring for site selection and water quality monitoring to name but a few. I am reliably informed that Carter will also be bringing his fiddle and so entertainment is assured!

There is no one better than Joe Franklin Jnr who supplies equipment around the World to shellfish cultivation businesses to sum up the growth and future developments of the international industry. While it may seem far removed from production in Scotland knowledge of how other countries are faring in developing production techniques and importantly tonnages is crucial to our oversight of our own sector. If it is cheaper to import into Europe a mussel meat from Chile than to harvest our own stock we have to ask questions regarding both our production efficiencies and where we see our markets being sustained or developed? Hopefully Joe will be able to put it all in perspective in terms of which countries are seriously investing in equipment and technology to drive their industries forward?

Finally while the shellfish perspective of the Vision 2030 initiative will have been discussed earlier in the Conference we are pleased to have Dennis Overton, Chair of the group detailing how the Vision is intended

to shape the direction of all primary food production sectors in Scotland, and how the Scottish Government through Scotland Food and Drink wish to support this important sector. Many will know of Dennis through his role as MD of Aquascot which has been in existence as long as the ASSG. With this wealth of experience of the aquaculture industry and importantly processing to meet market demands his views will be significant for the future direction of the Scottish shellfish sector.

The Conference will be the place to allow further discussion of where the future of the Scottish shellfish industry lies and we will welcome the chance to hear the views of members and those which have supported us over the last 30 years!

Fun and Entertainment.

In addition to all of the above we are also finding the opportunity to fit in a couple of our traditional outstanding seafood buffet lunches, tea breaks with high calorie tray bakes and celebration birthday cake and of course our annual dinner on the evening of the 6th!!

AGM for ASSG

For all our members we also have our AGM immediately after the Conference on the 6th. It would be good to have as many members represented as possible for what will be a short meeting which will not delay you in getting your party clothes on ready for the evening's informal dinner!

I would like to thank all those that have offered help and support in running the event and as ever I would be pleased to hear from members who could help out on the day?

Finally, without the sponsorship from the Crown Estate and Seafish we would be severely constrained in being able to entertain such a diverse range of speakers and we are extremely grateful for this continued support.

I look forward to catching up with Members old and new in Oban on the 6th /7th.

(Please bring your best singing voices as we have to improve on last year!?)

All the best

Nick

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There are a few possible routes for doing this.

MASTS internships

Internships can be a great opportunity for the intern to gain invaluable experience outwith the academic environment helping them gain additional skills whilst building working relationships, new networks and extending their research experience into business. For the host industry partner the intern provides an excellent opportunity to have access to additional staff resources to address a specific piece of work or project. Internships can last between two weeks and six months. Appointees may work either full time or part time and are generally expected to spend between 50-100 % of their time in the host organisation. MASTS may provide some funding to help offset a proportion of the cost of the intern undertaking their placement.

PhD programmes

Funding a full PhD programme maybe beyond the scope of a shellfish farm currently, but PhD students working in conjunction with shellfish farms have provided useful information on the performance of the stock as demonstrated as part of the CACHE programme or Ibis Project. The option is however available to sponsor (or part –sponsor) a PhD student. By sponsoring or part sponsoring a PhD student your organisation can be involved in helping to design the project as well as gaining access to the dedicated time, skills, enthusiasm and intellect of an individual for a minimum of 3.5 years. This comes with the support, infrastructure and backing of at least one MASTS member institution who would host the student. Although not a requirement, there is the potential for the student to spend periods of time working directly with the sponsoring organisation.

There is a lot more detail available on the MASTS website with a specially prepared document on this topic.

www.masts.ac.uk/media/35988/masts_working_with_industry_leaflet_a3_dp_300516_1_owres.pdf. However it is also worth bearing in mind that if you are in the position of being able to offer in-kind support for a researcher your topic/problem may well be sufficiently interesting to attract the interest of a researcher keen to solve the problem for which their reward is simply a high impact publication.

For more information about working with MASTS contact the MASTS Directorate through Dr Mark James maj8@st-andrews.ac.uk or Dr Emma Defew ecd2@st-andrews.ac.uk



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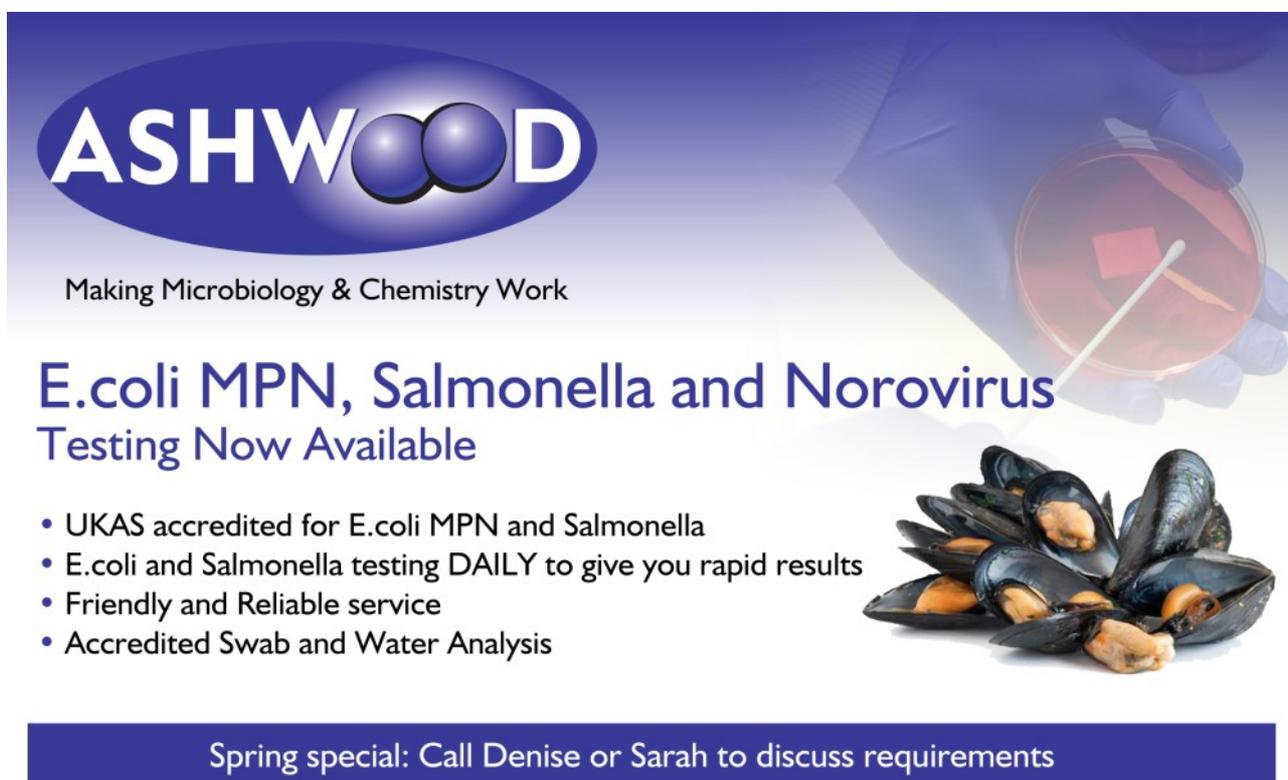
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Shellfish forum at EAS conference, Edinburgh

There is something of a theme of anniversaries in this issue of The Grower. Another one is the EAS (European Aquaculture Society) which this year celebrates its 40th anniversary. They are hosting a conference in Edinburgh to be held at the Scottish International Conference Centre (EICC) September 21-23. As part of the conference, which will tackle a wide range of aquaculture in general with a mostly academic bent, one day Friday September 23rd will be given over in part for the Shellfish Forum which will be chaired by Nicki Holmyard. The work of putting the programme together has been done by Dr Stefano Carboni of the Institute of Aquaculture, University of Stirling and Dr Mark James, Operations Director for MASTS at University of St Andrews. The event should very much be a “farmers’ day” with talks aimed at tackling issues very much at the forefront of the farmers’ minds currently. Entry to the event is via the Trade Fair for which there is an entry fee of €50. It looks like being a most interesting day. Thanks must be given to University of St Andrews, University of Stirling and the ASSG for organising the event. The programme starts at 10am and the talks are half an hour. Below are the topics and speakers.

- European perspective on sustainable development of the shellfish aquaculture sector; findings from Euroshell Project (Aad Small, IMARES)

- The role of FSS in assisting the shellfish sector to maintain food safety (Jennifer Howie, FSS)
- Future Direction for HABs Management (Keith Davidson; SAMS)
- EU status of Norovirus: What are the real food safety risks associated with seafood consumption? (Catharine McLeod, Seafood Safety Assessment Ltd)
- Oyster Herpes virus: Latest news from European waters (Tim Bean, CEFAS)
- Oyster Herpes virus: The UK last stand (Michael Gubbins, Fish Health Inspectorate)
- Climate change and current understanding of its impacts on the UK Shellfish industry – CACHE Project (Melody Clark, British Antarctic Survey)
- Practical biosecurity responses to the threat of invasive species (Liz Cook, SAMS)
- Live transport and depuration: what we learned from the MusselAlive Project (Sara Barrento, Swansea University)
- Progresses and ambitions of the UK Shellfish Industry (Lee Cocker, Seafish)
- Closing remarks (Nick Lake, ASSG)



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Oysters and longevity go together



While the ASSG is celebrating their 30th anniversary other shellfish enterprises are celebrating more august events still. Bentley's restaurant, who started life 100 years ago out of being a storage and distribution facility for the company's Essex oyster beds had a party this week to celebrate their centenary. Pictured above Loch Ryan oysters being prepared by master shucker, Helio Garzon (also pictured on right). Mario Armani, Managing Director of Corrigan's Restaurants (which includes Bentley's) said "Bentley's now source bivalves from all over the British Isles but some of the favourites are the wonderful Loch Ryan oysters, popular with our mollusc

masters who eagerly await the return of the natives every September the 1st, a wonderfully hand selected complex oyster, the husbandry of which has become a showcase of ethical and sustainable practices."



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(Shell)Eye in the sky

Kelly-Marie Davidson

Those with good memories may recall an article in the October 2015 edition of *The Grower* on ShellEye; a research project using satellites to monitor marine conditions to provide a state-of-the-art, cost-effective water quality bulletin service for shellfish farmers. Over the last year great progress has been made and as ShellEye moves into its testing phase, we thought this an opportune time to recap on the project's aims and provide an update on the bulletin service's development.

Shellfish aquaculture is rapidly becoming more recognised as a key source of protein around the world and global shellfish consumption is increasing by around 5% per year. Recent reports have highlighted mussels as the most sustainable protein source from land and sea, as they filter feed from the water they live in and require no extra food supply to thrive.

With this increasing demand and advocacy, there are many opportunities for the shellfish industry to grow considerably, particularly in the UK. There have already been many advances in shellfish farming methods in recent years, such as alternative cultivation methods and disease prevention, however, there is still much progress to be made if the industry is to take full advantage of expansion opportunities and meet growing demand safely and sustainably.

A key constraint on this expansion is the risk and impact of spontaneous environmental events, like harmful algal blooms and other microbiological episodes. Algal blooms are a vital ecological process in the marine environment, forming when sunlight, temperature and nutrient levels are sufficient to support a boom in the abundance of algae or other microscopic marine plants (phytoplankton). Most of the time algal blooms have a positive impact and provide an important source of food to animals higher up the food chain. Evidence shows that marine regions that experience frequent algal blooms are more biologically productive, providing better seafood yields. However, there are two sides to every coin and this benefit also brings with it great risk; the harmful algal bloom (HAB).

HABs can have a detrimental effect on other marine organisms and even humans. When certain species bloom, they can deplete the oxygen supply in the water and/or produce toxins, which when consumed by other marine creatures such as filter-feeding mussels, can be damaging to the organism. In addition to the environmental effects, if these toxins pass up the food chain to humans, it can create significant food safety risks. In the face of such events, farms are usually closed for the duration of the bloom and beyond, until the shellfish are deemed safe for human consumption. One farmer reports that closures of this type cost his business around £25-30k a week.

The development of a HAB very much depends on the intensity of the bloom as well as the species forming it and subsequently, HABs can be very hard to detect let alone forecast. They often occur with very little warning, having significant impact upon on a range of industries that rely on good water quality. Not only are



Kelly-Marie Davidson is Senior Communications Officer at Plymouth Marine Laboratory and Knowledge Exchange Co-ordinator for the ShellEye project. Kelly-Marie has worked at the lab for 10 years, following positions in a TV production company and regional newspaper, and has recently gained an MSc in Science Communication. Keep up-to-date with marine science news at Plymouth Marine Laboratory's Twitter account @PlymouthMarine.

these events having a significant impact now but as the effects of climate change continue, such events are likely to increase in frequency and therefore, put even more pressure on shellfish farms and their farmers, as well as limiting expansion ambitions.

To help address the unpredictability and potential negative impact of such events, the Biological Science Research Council (BBSRC) and Natural Environment Research Council (NERC), funded scientists from Plymouth Marine Laboratory (PML), Centre for Environment, Fisheries and Aquaculture Science (CEFAS), Scottish Association For Marine Science (SAMS) and University of Exeter, through the ShellEye project, to expand the use of satellites in identifying

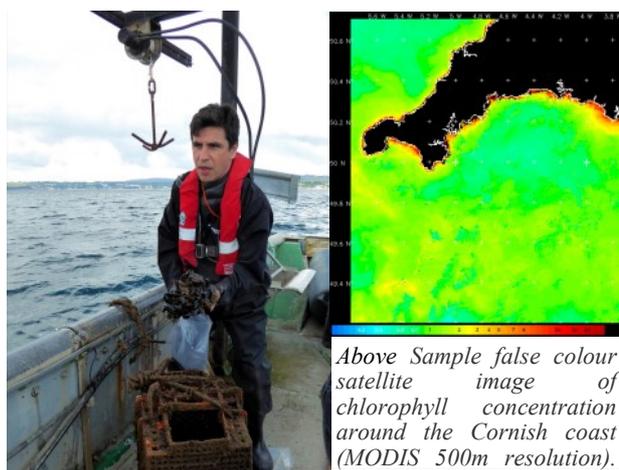


(Shell)Eye cont.

HABs and pilot an early-warning bulletin service for target areas.

The first stage of ShellEye was to undertake sampling of the target areas; two buoys laden with monitoring equipment were deployed in Cornwall and research trips recorded species abundance in Scotland. This data was used to help calibrate software to “read” satellite images, provided by the European Space Agency, and detect potential occurrences of HABs, by recognising the “optical fingerprint” of HAB species, such as *Karenia mikimotoi* and *Pseudo-nitzschia*. As well as highlighting bloom events, the images also show river plumes, which are an indication of coastal inflows from land-sources that can influence the abundance and distribution of bacteria in the water. The next phase of ShellEye was the development of a biotoxin model. It uses a range of data, including weather and water dynamics data, to forecast okadaic acid, *Dinophysis* toxins and pectenotoxins in the water, all of which are known to cause diarrhetic shellfish poisoning. This forecasting model is currently being tested against measurements from direct sampling, to help refine the model forecasts, and will be included in future bulletins.

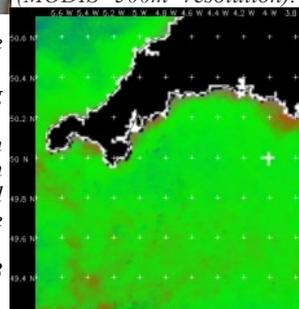
The satellite images, along with a risk indicator, biotoxin forecast and brief explanation of any potential impacts, will be circulated to users to feed into their monitoring activities and help inform stock management decisions. Over the last month test bulletins have been sent to partner shellfish farms in the target areas in order to test and refine the detail and design of the information



Above Sample false colour satellite image of chlorophyll concentration around the Cornish coast (MODIS 500m resolution).

Pictured above: ShellEye scientist, Carlos Campos, shows his mussels before taking samples.

Right: Harmful algal bloom risk map to be included in bulletins. Satellite chlorophyll measurements help determine how much algae is in the water. Red areas show a higher HAB risk.



provided. The bulletins will then be sent to a wider test group for a robust evaluation of the service’s ease-of-use and helpfulness.

If you would like to help with the development of this bulletin service by providing feedback on the test bulletins or would like to receive project updates then please register your interest on the ShellEye website (www.shelleve.org) or email the ShellEye team on shelleve@pml.ac.uk.

Pictured below ShellEye team from left: Kelly-Marie Davidson (science communication, PML), Dr Peter Miller (ShellEye Lead, PML), Jennifer Lockett (ShellEye Project Manager, PML) and ShellEye scientists, Dr Wiebke Schmidt (University of Exeter), Dr Hayley Evers-King (PML), Prof. Keith Davidson (SAMS), Dr Andrey Kurekin (PML), Carlos Campos (Cefas), Full details on <http://www.shelleve.org/Contact>



Tackling ocean acidification requires collaboration

Ryan Ono

Ocean acidification is generally seen as an American problem, or rather a Pacific Northwest problem, but it is increasingly a concern among the global shellfish industry. Scientists are beginning to discover that other regions around the world are vulnerable in the future. So what does that mean for the shellfish industry in these areas?

Ocean acidification is a change in seawater chemistry that is occurring when carbon dioxide pollution from fossil fuel burning is absorbed by the ocean, acidifying the seawater (decreasing water pH). This hinders the growth of oysters, clams, mussels, as well as salmon, crabs and corals.

In late June, American and British shellfish growers and I met in Euston, London to discuss and develop responses to this growing threat to shellfish businesses and coastal communities. While there are no definitive cases of acidification impacts in the UK, no one is saying none will arise in the future either. The American growers represented both the Pacific and Atlantic coasts, specifically the states of California, Washington, New York, and Virginia. I'm from the US non-governmental organization [Ocean Conservancy](http://oceanconservancy.org). British participants included shellfish growers, scientists, civil servants, and environmental advocates.

Two of the scientists, Dr. Rob Ellis from the University of Exeter and Dr. Silvana Birchenough from Cefas, shared recent scientific findings and monitoring efforts in the UK. Dr. Ellis talked about how ocean acidification causes reduced growth and calcification in lobsters, clams, mussels and oysters. However, he noted some studies have indicated sufficient diet for mussels might mitigate negative impacts of environmental stressors. Also, exposure of adult oysters to acidification can lead to more tolerant larvae, and selective breeding of genetic oyster strains can also help increase tolerance to acidification relative to wild populations. If his name sounds familiar, it is because Dr. Ellis has also led an ocean acidification workshop during a previous ASSG conference, and trained a number of aquaculture managers on water chemistry monitoring.

[Dr. Birchenough](#) discussed the economic impacts of acidification to the various UK regions. She noted that calcifying shellfish species generated more than 50% of the UK fisheries revenue, or £302 million, and £33 million for shellfish aquaculture in 2012, and these are the species most threatened by acidification. As a result, regions where these species are proportionally more important, such as Scotland, may be more economically vulnerable than others. Dr. Birchenough's team is looking at these impacts carefully, and they hope to publish this information soon.

After the science presentations, the US Pacific shellfish growers described how ocean acidification contributed to shellfish larvae losses upwards of 75% between 2007 and 2009 in their hatcheries. The US delegation also explained the industry-scientist-lawmaker



Ryan Ono is a Program Manager with the [Ocean Acidification Program](#) at Ocean Conservancy, a Washington, DC-based non-governmental organization (NGO). Ryan collaborates with shellfish growers, fishermen and other NGOs on legislative and management policies that address ocean acidification in the United States. Ryan also works outside of the US with shellfish growers and scientists to encourage conversations that raise awareness of acidification and encourage local actions. You can connect with Ryan over email- rono@oceanconservancy.org or via Twitter where he often muses about fish, and shellfish at [@ryanono](https://twitter.com/ryanono).

collaborations they created to help the industry adapt and respond to the changing ocean chemistry. Measures included local actions such as hatcheries adjusting the time or depth of water intake to avoid the more corrosive water, and regional actions such as the installation of sensors on offshore buoys and at hatchery sites up and down the Pacific coast. Funded by public revenues, the data from these pieces of equipment are monitored by shellfish hatchery operators, scientists and state agency

Below Tristan Hugh-Jones in discussion with Anaëlle Lemasson, PhD student at Plymouth University

Photo Katy Davidson



Tackling ocean acidification cont.

managers to alert the industry to harmful chemistry conditions. National and state lawmakers work to ensure these protective measures not only continue, but are also allocating funds to research the direct impacts of acidification on specific commercially important species, such as crabs and lobsters. Indirectly, these species may also be affected via food web impacts, which are under investigation as well, particularly in the Gulf of Alaska and Puget Sound. As collaborative and encouraging as these efforts are, acidification knows no borders and cannot be solved by the US alone.

"Ocean acidification is not an immediate concern for us, but we are tracking it. As a major producer of Europe's *Ostrea edulis* oysters, we were very interested to learn more how the US growers responded and now detect future acidification events. This helps prevent any possible shellfish die-offs from ocean acidification in the UK. And in that regard it's nice to know that this isn't an insurmountable problem." said Tristan Hugh-Jones of [Rossmore Oysters](#), who attended the event.

The United Kingdom has invested £12 million over the past five years through the UK Ocean Acidification Research Programme ([UKOA](#)). Aiming to reduce uncertainty around the changing ocean, better understand the responses of local species to acidification, and effectively use data to advise policy makers and resource managers on the risks to these organisms for mitigation and adaptation strategies, the

UKOA has begun to draw attention to the potential risks of acidification to fishermen and shellfish growers.

Ocean acidification is garnering attention worldwide well beyond the US and UK growers from Canada, Chile, France, New Zealand and Australia are also starting to work with scientists. Shellfish aquaculture production has been steadily growing worldwide for over 20 years, but to remain in business long-term, growers must balance everyday concerns with long-term environmental changes. We hope the conversations begun during this knowledge exchange will help UK growers plan for the future and sustain their way of life.

Pictured below; The American delegation also visited Richard Haward's Oysters in West Mersea on June 28th. They included (L-R) Ryan Ono, Mike Martinsen of Montauk Shellfish Company, Bill Dewey of Taylor Shellfish Farms, Richard Haward, Dan Grosse of Toby Island Bay Oyster Farm, and Terry Sawyer of Hog Island Oyster Company. CREDIT: Ocean Conservancy



About Gem Plastics



Gem Plastics was founded in 1988 in Cavan, Ireland as a division of the lubricants distribution company Gem Oils, which was established in 1962.

Since then, Gem Plastics has developed and expanded its range of blow moulded HDPE Drums, Jerricans, associated services and customer portfolio, supplying fillers - mainly those in the chemicals, pharmaceuticals and food and beverage industries - throughout the British Isles, including some of the world's leading multi-national players in these sectors.

The vast majority of Gem's containers have UN packaging performance certificates, approving them for the international Transport of Dangerous Goods. Additionally, they are made in conformance with ISO 9001 quality management systems, as well as a high level of GMP compliant processes and full observance of environmental welfare issues. Gem is also fully accredited to the Food Safety Management System ENISO 22000:2005 and PAS 223:2001.

28 years later, Gem Plastics remains a family owned company with inherent traditional values centred on upholding the highest standards in everything it does. The business is led by an experienced management team who, along with a loyal and dedicated workforce, places customer's needs at the forefront of its everyday activities. Equally, it maintains an avid R&D focus in key areas such as raw materials, processes, products and customer service.

Mussel Float

Alongside its mainstream industrial packaging activities, Gem Plastics manufactures other blow moulded articles for industrial and consumer applications.

Prominent amongst these items, is its innovative Mussel Float that was developed in collaboration with the Irish Mussel Farmers and Bord lascaigh Mhara - The Irish Fisheries Board, for use in the cultivation and harvesting of mussels. Its novel and useful functionality resulted in Gem being granted a full European patent for the product in 2008.

The float is made in three sizes by the extrusion blow moulding process, using high-density polyethylene (HDPE) giving it strength and guaranteeing a long working life. Coloured 'Battleship Grey' helps it blend in with its natural surroundings.

All the materials used in the manufacture of the float have been authorised for use with contact with foodstuffs.

The Gem Mussel Float was designed with the purpose of playing a pivotal role in the cultivation of mussel spat on ropes suspended from twin anchorage points on the float, positioned top and bottom. A special valve is fitted to allow air pressurisation before and during use. This feature ensures that both shape and buoyancy are preserved in all marine conditions. Compared to the method of dredging mussels from the seabed, the Gem float offers a number of distinct advantages.

Advantages of Gem Floats

- ◆ 3 different Types (300 Litre, 200 litre, 100litre submerged)
- ◆ High strength handles for optimum usage.
- ◆ Manufactured from 100% Virgin polyethylene.
- ◆ Non- Toxic.
- ◆ High Performance floats for all types of inshore & offshore farming conditions.
- ◆ Long operational life with no maintenance.
- ◆ Easy clean surface.
- ◆ Special valve fitted to allow air pressurisation before and during use.
- ◆ Excellent value on return of capital.
- ◆ Stackable easy to handle



We look forward to seeing you again at the ASSG conference in Oban!



**Gem Plastics Ltd, Regaskin, Cavan, Ireland Phone 00353494331077
sales@gemplastics.ie**

NEWS

Loch Fyne oysters micro hatchery plans

Loch Fyne Oysters are planning to build a micro oyster hatchery on the Isle of Lewis. David Attwood, Aquaculture Director (pictured right) shared this news with The Grower just before we went to press and said "Talks are already in progress with the Scottish Government and Marine Scotland."



We will hope for more details in forthcoming issues but wish them good luck with their enterprise.

ICSR invitation for Tristan Hugh-Jones

The ICSR organising committee have invited Tristan Hugh-Jones to be one of their three plenary speakers at their forthcoming conference to be held in historic Charleston November 16th-19th November. Tristan will be speaking on his work on restoring native oyster populations, mainly on Loch Ryan but also his family's long term work in Cork Harbour. Tristan said "Absolutely delighted to be invited to speak, and can't wait to meet shellfish restorers from all over the world, and to visit the historic city of Charleston."

This is not Tristan's first appearance at the conference—he gave a presentation when it met in Prince Edward island and must have wowed his audience well enough to be invited back!

Registration is now open for the conference which will be held this year in Hyatt Place in the historic quarter of Charleston. Registrations can be made at www.scseagrant.org/content/?cid=335

The theme for this years conference is "Celebrating and Inspiring Healthy Coastal Communities"

Oyster shucking championships

The 2016 Tabasco® brand British oyster opening championship

The TABASCO® Brand British Oyster Opening Championship will be taking place on 13th September 2016 at HIX Soho.

The annual event, now in its 24th year, celebrates the start of Britain's native oyster season by honouring the skill and expertise involved in the craft of oyster shucking. The scored competition challenges shuckers to open and present 30 native oysters as quickly and professionally as possible, before serving their platter of impeccably presented oysters to a panel of judges.

The judging panel is made up of key figures from the fish and seafood industry including Chris Leftwich, retired Chief Inspector of the Fishmongers Company, David Jarrad, Director of the Shellfish Association of Great Britain and Mike Berthet, Fish and Seafood Director of M&J Seafoods. This year the event will also be hosted by renowned chef Brian Turner CBE.

Contestants will compete head-to-head for the chance to win the much coveted championship trophy, a cash prize and the opportunity to represent Britain at the World Oyster Opening Championships in Galway, Ireland on 23-25th September.

OYSTER FARMING EQUIPMENT FOR SALE

- *Mulot oyster grader*
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- *Cochon delivery belt*
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ASSG Conference preview

Early October in Oban before the clocks go back can be a lovely time in Oban and the shellfish lunches are often taken out on the balcony of the Corran Halls where the conference is held. This year the ASSG is 30 years old so the theme is to be “Scottish cultivated shellfish – past present and future?” While there may be some element of looking back over the 30 years the main thrust will be the future of the industry. With The Crown Estate as one of the main sponsors the opening speaker will be Gareth Baird, (Pictured right) The Crown Estate Commissioner for Scotland.



Michael Tait of Shetland Mussels (pictured right) will pose the question as to whether Scottish shellfish have the room to grow, addressing the 2013 vision and challenges. A mixture of recent past and future will be covered by Ian Wright of Isle of Barra oysters/ Traighe Mhor Oysters in his talk on the problems their company has faced in setting up their business, now in its second year of operation with tips for other growers setting out. We will also have the opportunity to hear about the mussel hatchery development in Shetland from Gregg Arthur of



Morven Robertson of Friend of the Sea will also be presenting a talk

NAFC and also the potential for oyster selection from Tom Ashton of Xelect Ltd St Andrews (pictured left on a sunny day in St Andrews).



There is a strong international element in the programme. Joe Franklin (pictured right) New Zealand who has addressed the conference before and



has a wealth of knowledge of the worldwide mussel industry will no doubt provide a riveting talk.

ASSG is also fortunate in being able to host from the USA, Dr Carter Newell (pictured right) who will bring the USA view on mussel culture with an update and new advancements in mussel growing technology in the U.S. including his own patent pending submersible mussel raft plus a variety of technological innovations including utilization of coastal monitoring LOBO (Land/Ocean Biogeochemical Observatory) buoys and development of a novel low-cost coastal observer buoy (COB) for key shellfish growth drivers. Carter is also a renowned fiddler so we hope he will further enliven the traditional shellfish dinner. Dennis Overton of Aquascot (right) will be talking on Scotland Food and Drink Vision 2030 - Scottish Food Producers Perspective and Shellfish Implications.



The full programme is available on the ASSG website where bookings can be made very easily.

Shellfish culture



Pictured above the prizes on offer this year. These are made for us by Richard Bramble and sponsored by HIE.

This year Richard Bramble is offering a special discount for conference attendees and ASSG members of 20% using the code ASSG 20 (excludes existing offers). See his new designs at www.richardbramble.com