



Healthy and safe

This year has been the worst in decades for the growth of toxic algae in Shetland waters, due to unusually warm weather and uncharacteristically flat, calm waters.

With this subject having recently been in the news, Isle of Shuna has kept up stringent testing of its mussels for any signs of contamination, and an ongoing toxin-monitoring programme with the Food Standards Agency ensures that the quality of our mussels is as it should be. Due to the way we grow and harvest the mussels, Isle of Shuna ensures high standards which other suppliers cannot guarantee.

The unusual weather conditions have contributed to the growth of toxic algae and other harmful marine organisms. One such algae is the North American comb jelly, which has been found in the Caspian Sea, and feeds on zooplankton, depleting shellfish food stocks and so altering the ecosystem and food chain. Increasing seawater acidity has also contributed to a disturbance of the eco-balance.

So-called 'red tides' of toxic algae have returned to the North Sea after an absence of more than 300 years. The algae is transported to new areas in the ballast water of ships; it is estimated that around 3 to 10 billion tonnes of ballast water is transferred each year, potentially moving different forms of sealife from one location to another, possibly causing ecological harm where organisms are released into inappropriate habitats. Harmful algae blooms can result, and depending on the species,



marine life can be killed through oxygen depletion and the release of toxins.

So what can be done? The International Maritime Organisation adopted the International Convention for the Control and Management of Ship Ballast Water and Sediments in 2004. This international treaty aims to prevent the transit of the algae in ballast water. All ships now have to carry a Ballast Water Record Book and are required to carry out ballast-water management procedures to a given standard.

Read the adjacent interview with our Shore Manager, Philippa Raven, for more detailed information about what Isle of Shuna is doing to ensure a healthy product.

MEET PHILIPPA RAVEN

SHORE MANAGER, DEMLANE MUSSELS

Philippa Raven, Shore Manager for Demlane mussels (pictured right), describes what the company is doing to safeguard its mussels against the current threat of toxic algae, divulges some interesting facts about seafood harvesting, and tells us what the future holds for mussels.



Q: What has Demlane done about the fact that high levels of toxins from algae can contaminate the mussels?

A: *Demlane carries out pre-harvest toxin tests on mussels before the site is due to be harvested. This involves taking a sample of mussels and sending them for laboratory testing. IoS also checks the mussels once they have been harvested. The frequency of these tests is determined by the risk of toxins. At the moment the risk is very low. Demlane is also involved in the Food Standards Agency toxin-monitoring programme. This involves sending a weekly mussel sample from a specific site to be tested for toxin levels. Another programme with which we are involved is phytoplankton monitoring, which identifies the levels of algae in the water and gives an indication of an increase in toxins in the mussels.*

Q: What are the toxins, and why and where do they occur?

A: *Mussels can accumulate toxins from the algae that they consume. Outbreaks of harmful algal blooms occur naturally in Scottish coastal waters and are usually more abundant during the summer months due to the higher water temperature.*

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Who are we?

Isle of Shuna is one of the largest independent producers of rope-grown mussels, operating from the west coast of Scotland and the Shetland Isles, producing the famous Demlane mussels.

We use only rope-grown mussels to ensure the production of the highest-quality shellfish, free from grit. Because they are grown on ropes in a tightly controlled environment, they are much less likely to suffer contamination – something that affects many other producers of seafood. In addition, production is strictly controlled so that every mussel batch is safety-tested

before sale. Our mussels are cultivated in a sustainable manner in the waters surrounding the Scottish West Coast and the Shetland Isles.

The combination of the high quality of our product and the care we apply to quality control means that our mussels are unquestionably premium-grade foodstuffs.

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Q: How is the laboratory toxin testing that looks for substances carried out?

A: *Shellfish toxins have traditionally been detected by testing on mice. However, this method is progressively becoming redundant because of the inappropriate use of live animals, although the Food Standards Agency's regulation testing is still carried out by this method. The alternative is to carry out chemical tests that can also detect these toxins, and that's what IoS is doing.*

Q: Does an affected mussel look any different from an unaffected one? Are there any identifying signs that it may be unsafe to eat?

A: *There are no visual indications that a mussel carries toxins. This is why it is so important to carry out pre-harvest and batch testing that ensures the mussels are safe.*

Q: What has been done to minimise the effects of the toxic algae on the mussels?

A: *Because the algae occur naturally in the water, nothing can be done to stop them accumulating. It is important to keep track of their appearance by looking at the results from the phytoplankton tests, the weekly toxin monitoring, and also by carrying out our own pre-harvest checks.*

Q: What does the future hold for shellfish and mussels?

A: *The future for mussels looks particularly good. UK mussel demand is steadily increasing, and in fact is outstripping supply. It is vital that these regulatory tests are carried out to ensure the product is safe before it reaches the consumer.*

MUSSELS – A RICH SOURCE OF OMEGA 3

Professor John Stein of the Oxford University Laboratory of Physiology, is a leading light in the research of the beneficial effects of omega 3 fatty acids on dyslexia, dyspraxia and ADHD (Attention Deficit Hyperactivity Disorder) in children. He is also a co-founder of the Dyslexia Research Trust at Oxford University, and the brother of top seafood chef Rick Stein. We talk to him about mussels, omega 3 and health.

IoS: Is it true that mussels have a high content of health-giving omega 3 fatty acids?

JS: *Yes. On average they contain 0.7g of omega 3 per typical 3oz portion. That compares very favourably with, say, shrimps which have half that amount, and non-oily fish such as haddock and cod, which often have as little as 0.2g. Mussels are certainly as good as the very best oily fish (mackerel, for instance) in terms of omega 3 content. But what's of additional importance is the fact that – for children in particular – mussels are a more agreeable seafood, and are therefore arguably the best natural dietary source of omega 3.*

IoS: Is it as beneficial to take omega 3 in supplement form as it is through natural dietary sources such as mussels?

JS: *Absolutely not. Apart from the fact that taking your omega 3 from a food source such as mussels is enjoyable, the natural source comes with various other nutrients, and vitamins and minerals that can help the body assimilate the fatty acids.*



Professor John Stein

IoS: Does your research suggest that omega 3 may actually represent a cure for disorders such as dyslexia?

JS: *A 'cure' suggests that dyslexia is a disease, which it isn't; rather it is a different 'wiring' of the brain – so to speak. But yes, while there isn't yet any firm proof that a high-omega 3 diet can significantly improve many of these learning and behavioural disorders in children, there is significant evidence that it can. Our recent Durham trial – a double-blind placebo-controlled study, showed very clearly that omega 3 helped cases of dyspraxia. And after three months of treatment in parallel groups, children who received the fatty acid supplement showed significantly better progress in both reading and spelling than those who received the placebo. Similarly, active treatment was associated with highly significant reductions in ADHD-related symptoms according to teacher ratings of the children's behaviour.*

IoS: If omega 3 can significantly improve a dyslexic, would you expect them to regress if they moved to a low-omega 3 diet?

JS: *Yes, I would very much expect that.*

IoS: Have there been any other placebo-controlled trials of omega 3 on children with behavioural disorders?

JS: *I am aware of another placebo-controlled trial carried out in the past few years, which was prematurely aborted because the subjects on omega 3 showed such great improvement that to continue the study was deemed unfair on the placebo subjects, and for that reason, unethical.*

Professor Stein's team needs more funding to prove these findings. If you would like to help John and his colleagues further their important work, please make a donation at www.dyslexic.org.uk/donate.htm.

ISLE OF SHUNA OAK-SMOKED MUSSELS

IT'S NO SECRET THAT ROPE-GROWN DEMLANE MUSSELS CULTIVATED IN FRESH, CLEAN SHETLAND WATERS WARMED BY THE GULF STREAM ARE THE FINEST THAT CAN BE SOURCED. ONLY THIS HIGH-GRADE PRODUCE IS USED FOR THE TRADITIONAL SMOKING PROCESS USING OAK WOOD – THE 'QUEEN OF SMOKING WOODS'.



Lightly smoked in their shells at source in order to maximise freshness and virtually eliminate the possibility of contamination, our oak-smoked mussels have a subtle yet very distinctive flavour.

Isle of Shuna employed the expertise of shellfish expert Rod Knutton to refine, indeed perfect the smoking process, which has created a truly premium retail product. Our smoked mussel line provides a great opportunity to capture a new market by virtue of the unique taste and the lengthened shelf life that smoking affords. These mussels are very versatile and are sure to inspire culinary creativity!

GREEN MUSSELS

AT ISLE OF SHUNA WE PRODUCE OUR MUSSELS IN AS ECO-FRIENDLY AND SUSTAINABLE A WAY AS POSSIBLE. OUR GROWING AREAS ARE LOCATED FAR AWAY FROM INDUSTRY AND CONCENTRATED POPULATION, SO THE WATERS WE GROW IN ARE THE CLEANEST YOU CAN GET. CONSEQUENTLY OUR MUSSELS ARE CLEANER, HEALTHIER AND TASTIER.

Our farming methods are also completely natural and avoid the use of any chemicals. Isle of Shuna mussels do not consume any chemicals or artificial additives during their growth, and none are added at any stage of processing.

Sustainability is another of our aims: as the cultivated shellfish spawn directly into the open sea

during their growth cycle, they help to sustain and renew the very resource from which they are drawn. The long lines that are home to these premium shellfish act as floating reefs, providing food and shelter for numerous other marine species.

Our environmental concern even extends to the way we harvest the mussels: the shellfish are taken

from mid-water rather than being dredged off the seabed, the result being a grit-free product of unparalleled taste.

Isle of Shuna makes no compromise with mussel production; our methods are in tune with nature, caring for the habitat that makes our seafood the delicious, high-quality product that it is.

Mussel beards and the advantage of debyssing

Mussels use their byssal threads (the byssus, or beard) to attach themselves to ropes or the seabed, and the threads are removed during their preparation for cooking. But did you know that these threads are as strong as watertight adhesive?

The mussels attach themselves either to a surface or to each other using these threads. A special gland located at the base of the mussel's strong foot forms the byssus, which comprises elastic threads capable of bearing tremendous strain.

If conditions deteriorate in the area in which the mussels have settled, however, they are capable of detaching themselves and moving over short distances. To do this they push their foot between the threads and rip them, one after another, before using the tip of the foot to attach new threads some distance away, using these to pull themselves along. Mussels can even defend themselves from predator snails by tying them down with byssal threads.

Demlane mussels are farmed using the rope method, whereby the mussels attach themselves to ropes suspended in the sea and supported by a



series of floating buoys. The cultivation takes a number of years, after which the mussels are harvested by stripping them from the ropes into a container aboard a boat. They are then washed and graded on the deck and subsequently transported ashore to the factory, where they are further prepared.

The next step of the operation is known as debyssing, where the mussels run through a specialised machine which tears off the

byssus 'beards' of the mussels. Mussels are then sorted by size, picked over by sorters who discard any with broken shells, packed with ice in boxes to ensure freshness, and tagged so that each lot can be tracked.

Philippa Raven, Demlane's Shore Manager, says: "Debyssing at source is a great advantage for those who want maximum convenience; Shuna is always on the lookout for innovative products and ways to make our customers' lives easier."

8 THINGS YOU DIDN'T KNOW ABOUT MUSSELS

1 Mussels rely on fish to carry their eggs in their gills during part of their life cycle.



2 Mussels have been cultivated for almost 800 years in Europe, and have been used as a food source for more than 2,000 years.

3 When buying mussels, the shells should be bright, undamaged and closed. Open mussels should be given a tap – if they close they are still alive; if not they are dead and unfit for consumption.

4 Mussels affix themselves to substrata such as rocks by their byssal threads or 'beards'.

5 The byssal threads are incredibly adhesive; scientists are trying to develop a mussel-based adhesive for use in eye surgery.

6 The mantle of a female mussel (the soft tissue that lines the inside of the shell) is orange, while the male mussel's is white.

7 Mussel meat is rich in protein, and has much less fat, many more mineral nutrients and a quarter of the calories of beef.

8 In the late 1800s Higgins' eye mussels were used as buttons.

Bored with moules mariniere?

Steamed mussels with black bean and pepper sauce

(Serves six)

INGREDIENTS

2kg Demlane mussels
 3 tbsp salted black beans (roughly chopped)
 1 green bell pepper (finely diced)
 1 red bell pepper (finely diced)
 1 bunch of spring onions (sliced, save 2 for garnish)
 4 garlic cloves (finely chopped)
 20g ginger (finely chopped)
 3 tbsp soy sauce
 2 tbsp rice vinegar
 120ml water
 2 tbsp sesame oil
 a good pinch of cracked pepper

INSTRUCTIONS

Combine the black beans, soy sauce, rice vinegar and cracked pepper with water. Set aside for later. Heat a large pan with the sesame oil and fry diced peppers and spring onions for 30 seconds. Add garlic, ginger and mussels, and cook for a further 30 seconds. Add black bean sauce prepared earlier and stir. Cover the pan and leave on a high heat for three minutes. Stir when the mussels begin to open. Discard any mussels that have failed to open and ladle into warm bowls. Finely chop the remaining spring onions to garnish and serve with fresh crusty bread.

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YOUR BUSINESS

For locals and tourists alike, if you want a plate of mussels in London, you will probably end up in Belgo, the hugely successful Belgian-inspired themed restaurant and Bierodrome chain where four in every ten customers selects moules from the menu. We caught up with Muir Picken, Belgo's Executive Chef.

Muir explains: "Belgo started in 1992 and I joined just a few months after it opened. It was tremendously successful from the start and the themed concept has been much copied since. We started with a restaurant in Chalk Farm called Belgo Noord, and three years later opened Belgo Centraal in Covent Garden.

"We've now got five outlets in total – two restaurants and three Bierodromes. We stock a vast range of Belgian beers such as Duvel, Maes and Chimay. Our philosophy is simple – great food, specialist beers, friendly service and excellent value for money."

Every week an astonishing 12,500 people eat at one of five outlets and 40 per cent of customers eat mussels – week in, week out, from midday to midnight, all year round. Most weeks, Belgo restaurants buy between five to five and a half tonnes of mussels. Muir Picken knows a lot about mussels!

We asked Muir, what matters most about the mussels he buys?

"First things first, I want to offer the best product on the market, all year round, and for me that would ideally be Scottish loch, rope-grown mussels. I know that producers such as Isle of Shuna are striving to achieve continuous supply with their blend of Shetland and West coast product – I know they can deliver."

In spite of fierce loyalty to his Scottish roots, Muir did concede that Newfoundland rope-grown mussels were also pretty good in season.

"Secondly, they have to be debysed, not just because the labour intensive nature of removing



Executive Chef
Muir Picken

the beards from five and a half tonnes of mussels every week would be uneconomic and grind us to a halt, but also because when you buy in such quantities the weight penalty is considerable, and with our turnover the slightly shorter shelf life means nothing.

"Finally, they have to be consistently good quality with a high meat yield. We live and die by the product we offer our customers and I won't accept anything but the very best fresh, high quality ingredients."

With that he was off to his kitchen, where he produced the most sublime plate of moules and double-cooked Belgian frites we had ever tasted!

Belgo Restaurants can be found at Covent Garden, Chalk Farm, Kingsway, Clapham, and Islington.
www.belgo-restaurants.com

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