

The rising tide of seafood alternatives

Plant-based meat alternatives have come on leaps and bounds in recent years, with the sudden influx of substitutes being added to supermarket shelves worldwide. However, the seafood alternatives sector remains largely untouched, perhaps due to the difficulty in replicating such distinctive tastes and textures. *FoodBev's* Lauren Ford dives into the burgeoning world of plant-based seafood.

Earlier this year, Netflix made waves when its controversial documentary, *Seaspiracy*, revealed the darker side of the fishing industry and shone a spotlight on the increasing threats towards marine life. With it came uproar and the demand for change – not just a change in the way we fish, but in the availability of seafood alternatives.

Vegconomist predicts that the market for vegan seafood will reach \$1.6 billion within the next decade. Meanwhile, data platform A Billion cites that reviews for ocean-friendly alternatives have grown almost tenfold since the start of 2020, with exceptional growth in Spain, Argentina and the UK.

ProVeg International recently surveyed over 6,000 consumers across nine European countries, revealing that 85% of respondents who followed a plant-based diet reported a lack of on-shelf choices, especially seafood alternatives.

Commenting on the report, Verena Wiederkehr, head of food industry and retail at Proveg, said: "The combination of strong potential consumer demand and low consumption rates is a recipe for extensive growth opportunities".

"We are seeing this in the plant-based seafood sector, which is still very much in its infancy, with

relatively few manufacturers and little competition. So we recommend that manufacturers seriously consider expanding their product portfolios to include plant-based seafood."

As consumers act to minimise their impact on marine environments, companies are rushing to create authentic versions of traditional fish products.

Taste, texture and ingredients

To create a realistic and credible alternative to seafood, meticulous developments in taste and texture, as well as the correct choice of ingredients, needs to be at the centre of all product design.

Although the market still has a lot of catching up to do compared to the plant-based 'beef' and 'chicken' sectors, some brands are already paving the way when it comes to fishless fish.

Dalton Sweet, associate product manager at New Wave Foods – a US company that creates sustainably sourced plant-based shrimp – told *FoodBev* about the brand's mission to replicate the crustacean: "New Wave Foods' first product, plant-based shrimp, has the bite, texture and taste





of ocean shrimp...it's interchangeable with ocean shrimp and performs in recipes and foodservice applications as ocean shrimp does."

Companies small and large are now innovating with a wealth of ingredients to create their seafood alternatives, including soybeans, seaweed, beans, pulses, yeast and numerous oils and starches.

"Very few competitors are utilising seaweed and mung beans," Sweet added. "Seaweed has been singled out as one of the top flavour and ingredient trends of the year by Flavor & The Menu. It's loaded with nutrients like potassium, magnesium, vitamin B12, iodine and tons of calcium. Mung beans are packed with nutrients and antioxidants and come with a host of health benefits. Both of these ingredients have a great track record for sustainable cultivation."

Anne Palermo, founder of Chicago-based food tech start-up Aqua Cultured Foods, plans to create seafood alternatives with a realistic taste, texture and nutritional profile. The company has developed whole-muscle cuts of fish using biomass fermentation and a specific strain of fungi "to deliver a high protein content comparable to cod," but with added fibre and omega-3.

"The flavourings are all-natural and organic, and will incorporate different seaweed species traditionally used in cooking," said Palermo. "Our team is also evaluating different yeast extracts, mushroom extracts and algal oils to replicate the perfect piece of sashimi. Aside from the flavour, natural colouring will be added by beet or tomato extracts to give the appearance as much of a 'wow' factor as the taste."

While Aqua Cultured Foods uses a proprietary method, the company pulls much inspiration from other fermenting traditions, such as beer brewing or cheesemaking. "A broth is made of the sugar, amino acids, vitamins and nutrients

that our microorganism strain thrives in," Palermo explained. "It's allowed to ferment at its optimal temperature and acidity environment while our team monitors its growth."

She continued: "The protein is separated from the remaining liquid and is brought down the line to turn it into our fish products. Because this process is quite malleable, we're able to form this protein into a variety of seafood products and each one requires different cutting and flavouring techniques."

Another company at the forefront of the vegan seafood movement is Good Catch. Founded by plant-based pioneers Chad and Derek ▶





Sarno, who are behind the Wicked Healthy blog and line, the US business has produced a portfolio of fish alternatives that are healthy and kind to the ocean.

Chad Sarno said: "We use real ingredients to amplify the flavour of our products. Our proprietary six legume blend offers the same taste, texture, comparable protein and experience of seafood."

He added: "Good Catch products evoke the experience of real seafood through our exceptional taste and texture. Through our flavour profile, we captured the authentic ocean flavour and are thrilled to have nailed the flaky texture consumers expect from traditional seafood."

Good Catch's legume blend consists of peas, chickpeas, lentils, soy, broad and haricot beans, and is used to make products such as plant-

based tuna, crab cakes, fish cakes and breaded fish sticks.

Californian company Sophie's Kitchen offers both frozen and shelf-stable 'fish' substitutes. Konjac root or pea protein forms the base ingredient for many of the company's products. Konjac is a rich source of soluble dietary fibre, while pea offers high protein and enables the replication of the shreddable texture, smell and look of seafood.

Sophie's Kitchen's range includes plant-based shrimp, crab cakes, fish fillets, smoked salmon and its own variation of tuna, named Toona.

"Many of our competitors use soy and gluten as cheap fillers, while all of our products are gluten-free, soy-free and non-GMO," said Miles Woodruff, CEO and co-founder of Sophie's Kitchen. "We're changing and reformulating our products all of the





time to keep up with the rapid innovation in this space. We have chosen to focus our innovation on products that we want to feed our children."

In the global effort to create a sustainable and robust supply chain, alternative protein sources such as fishless fish will be undeniable, as Aqua Cultured Foods' Palermo told FoodBev: "Alternative proteins, including alternative seafood, will be required to support population growth because our Earth cannot handle the traditional agriculture and aquaculture practices we use today".

With this in mind, the future is looking bright for the plant-based seafood market, as companies small and large continue to innovate using unique ingredients that can successfully replicate the taste and texture of their ocean counterparts. While the sector might still be considered a small fish in the big plant-based pond, seafood alternatives are certainly starting to make waves. ●



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