

# REGULATORY CHALLENGES IN SEAFOOD INNOVATION: THE THAI UNION EXPERIENCE

By Sirilak Suwanrangsri

*Innovations in the seafood industry hold great promise for addressing overfishing, reducing environmental impact, and meeting the rising global demand for protein-rich foods. Highlighting the crucial fact that such innovations enable companies to remain relevant to consumers and customers, this article gives an insight into the portfolio of the biggest tuna business in the world, Thai Union PCL, where the company's stated mission is to develop game-changing solutions for enhanced consumer satisfaction, shared value, and sustainability. However, these innovations are not without their regulatory challenges. The author examines the complex regulatory landscape surrounding seafood innovations and discusses the implications of these rules for sustainable growth and responsible development.*



Credit: Thai Union PLC

ZEAVITA, Thai Union's flagship supplement brand, continued strengthening its product portfolio in 2022. Strong momentum was noted in the new product launches, especially with regard to tuna collagen products.

The role of food nowadays is not only to provide basic nutritional needs to consumers but also to support both physical and mental health in a sustainable way. Accordingly, the seafood industry is undergoing a transformative phase driven by technological advancements, sustainability concerns, and changing consumer preferences.

In line with this global momentum, Bangkok-based Thai Union PLC invested in seafood innovation by establishing the Global Innovation Incubator in 2015, with the emphasis being on the full utilization of the company's core raw material, tuna, using new and novel technology. The Incubator evolved into the Global Innovation Center which focuses on developing game-changing solutions for enhanced consumer satisfaction, shared value, and sustainability. Successful innovated products have been produced, which are commercialized in different regions of the world. These products, which contain marine ingredients (tuna head fish oil, tuna bone calcium, collagen and protein hydrolysate), include food supplements, tuna essence, calcium-rich canned tuna products, all of which reach

consumers in user-friendly and environmentally-friendly packaging. In fact, sustainable packaging plays a key role in supporting SeaChange®, Thai Union's sustainability strategy, along with the company's goal of 'Healthy Living, Healthy Oceans.' The company is committed to achieving 100 percent reusability, recyclability, or compostability of our branded packaging by 2025.



The OMG brand launched in June 2022 is an example of a line of commercial products that make use of Thai Union's plant-based shrimp technology

**New Fortify your brain**  
**ZEA Tuna Essence**  
**Tuna 3X Action**  
 Omega-3, Vitamin B12 and Zinc from natural Brain Nourishment to Sharpen Memory

Benefits: Nourish the brain, Good memory, Promote deep sleep, Improve nail and hair health.

ZEA Tuna Essence is a functional nutrient beverage enriched with Vitamin B, zinc, selenium and Omega-3. The product comes in two flavours: original and passion fruit. It was launched in Thailand across modern trade channels in Q4 2021



Lisa DHA Shot is a milk-based drink high in DHA, EPA and Vitamin B

## Regulatory challenges

Some of the main challenges with regard to product regulations are as follows:

- Regulations applicable to novel ingredients and products

The emergence of alternative seafood products derived from plant-based, cellular agriculture, or microbial sources poses labeling and safety challenges. Regulatory agencies must determine the appropriate terminology and establish safety standards for these novel products. Ensuring that these products are accurately-labeled and meet nutritional requirements is vital to prevent consumer confusion and protect public health;



The high-pressure processed tuna slice is a ready-to-eat product which comes in two flavours: smoked and paprika

- Novel technology

The development and use of novel thermal and non-thermal technologies and 3D printing to process foods are on the increase worldwide. For the food manufacturing industry, this means that the use of novel technologies ultimately must result in the production of nutritious, safe and high-quality foods at a reasonable cost for the consumer. Yet considerable work remains to be done to validate the safety and efficacy of many of the novel technologies, in order to achieve food safety assurance required by regulatory authorities. So far, only high-pressure processing (HPP), irradiation and pulsed electric field technologies are being used commercially.

- Laboratory-grown seafood

Cellular agriculture has enabled the cultivation of seafood without the need for traditional fishing or aquaculture. However, the regulatory framework for laboratory-grown seafood is still evolving. Questions surrounding food safety assessment, labeling, and traceability need to be addressed. Collaborative



Tuna bone calcium is utilized in the protein and calcium-rich tuna product line of John West Australia, a brand under Thai Union ([www.johnwest.com.au/ourrange/tuna/protein-calciumriched-tuna](http://www.johnwest.com.au/ourrange/tuna/protein-calciumriched-tuna))

efforts between regulators, scientists, and manufacturers are essential to establish guidelines that ensure the safety and quality of laboratory-grown seafood.

- **Labeling issues**

The food industry faces many challenges that include adhering to an increasingly complex set of global regulations, maintaining supply chain visibility and meeting localization requirements such as language. New ingredients, flavouring agents, enzyme-added water, for example, should be included in the list of ingredients on the products. The claims to be made on packaging are regulated but they are somewhat in a grey area of interpretation. Uses of terms such as natural, vegan, gluten-free, plant-based, culture meat or seafood are yet to be regulated. Permitted health claims i.e. Omega3, EPA and DHA in products are still limited and approval requires humongous scientific support beyond the ability of a single food company.

- **Environmental impact**

Global environment sustainability requirements are ambitious. Sustainable seafood production methods such as recirculating aquaculture systems (RAS) and closed-containment systems, aim to minimize environmental impact. Regulatory agencies must balance encouraging these practices with ensuring compliance with environmental regulations. Striking the right balance requires ongoing assessment of the ecological effects of new production methods and adapting regulations accordingly.

- **Traceability and fraud prevention**

Seafood traceability systems are complex, but monitoring is attainable through electronic data systems and big data systems which identify catch or production to products throughout the supply chain. Regulatory requirements should be clearer with regard to what information to maintain, the records to be kept, and what should be labelled. Regulatory bodies also need to promote the adoption of traceability systems and to establish protocols for their integration into seafood supply chains. Seafood fraud, including mislabeling and misrepresentation of products, remains a significant concern. Regulations to prevent fraud to-date are still based on existing food safety and labeling regulations, making implementation to prevent fraud and enforcement inaccurate and liable for misinterpretation. For example, the use of phosphate and added water in seafood remain unsolved fraud issues. Clearer regulations and continued development of advanced traceability technologies, such as blockchain, can enhance transparency and combat fraud.

### International trade

- The global nature of the seafood industry requires harmonization of regulations across borders to facilitate trade. Differing regulatory approaches can lead to barriers to market entry

for innovative seafood products. Establishing international standards and agreements can streamline the utilization of fishery by-products and movement of seafood innovations while ensuring consistent safety and quality controls.

## Implications and future directions

- **Collaboration and education**

Regulatory agencies, industry stakeholders, and researchers need to collaborate closely to develop informed regulations that foster innovation while safeguarding consumer interests and environmental sustainability. Education and information-sharing are crucial to ensure that all parties are well-informed about the latest advancements and regulatory expectations.

- **Adaptive regulations**

The regulatory framework must be flexible enough to accommodate rapidly-evolving technologies and production methods. Regular updates and revisions are necessary to address emerging challenges effectively. Consultation among experts, regulatory authorities and industry is essential.

- **Public engagement**

Involving consumers in discussions about seafood innovations and regulatory decisions can enhance transparency and build public trust. Public input can influence the direction of regulations and contribute to responsible development.

## Summary

Seafood innovations have the potential to revolutionize the industry, addressing critical issues such as sustainability and food security. While regulatory challenges are inevitable, they also present opportunities to create a supportive environment for responsible and impactful advancements. By addressing these challenges collaboratively, regulatory agencies can pave the way for a future in which seafood innovations benefit both consumers and the planet.



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