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Aquaculture's future lies with an aerospace engineer

Roundtable

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The freshness and quality of Japanese seafood are renowned, and people come from around the world to experience the taste. Japan is home to some of the most diverse coastal regions in the world, with thousands of species of marine life. But how do the aquafarmers who produce half of Japan's seafood cope with ever-increasing demand and rising water temperatures? In The Japan Times' 40th Roundtable, Ross Rowbury was joined by the co-founder and CEO of the "fish tech" startup Umitron, Ken Fujiwara, who shared insights and told how he made the fascinating transition from aerospace engineer to aquaculture innovator.

As an aerospace engineer, Fujiwara designed spacecraft and analyzed data. He enjoyed the work, yet struggled with how far removed it was from most people's day-to-day lives. He saw the vast resources that went into space study and exploration. "What is the most important data we can get from satellite observation?" he asked himself. "And I came to think about the ocean." Seeing how 70% of the Earth's surface is covered by oceans, he began to contemplate how he could apply his skills to the sea rather than the sky. In 2016, he founded Umitron to

address aquaculture challenges with science and technology.

One of the most important issues is how to optimize feeding, which accounts for 50% to 70% of production costs. "Most of the feed ingredients come from natural fish meal, which is wild-captured fish and dried powder," he said. "And since we have the scarce resource of marine fish, the fish meal price has been skyrocketing." He realized he could use data and technology to optimize feeding. They installed sensors and smart feeders in fish pens to observe what variables caused fish to eat at some times and not others.

For example, if the water temperature is too high, the body temperature of the fish rises, changing their digestion. If farmers don't know when this happens, they will continue to feed them the standard five times a day even though the fish simply aren't hungry, producing a huge amount of waste. Umitron's image-processing sensors, remote satellites and smart feeders can monitor fish in order to ensure they are being fed the proper amounts at the proper times. This way, farmers can avoid wasting fish meal and letting uneaten feed end up on the ocean floor. Not only is this more cost-effective for farmers, it improves the overall sustainability of the farm by reducing waste. Impressively, Fujiwara said, "We can reduce 20% to 30% of feed used to grow the same amount of fish."



Co-founder and CEO of Umitron, Ken Fujiwara THE JAPAN TIMES

Considering the sensitivity of fish to rising temperatures, one can imagine the impact that climate change has on the aquaculture industry. Different species of fish have different optimal temperature ranges, and if the temperature changes too drastically they simply cannot survive. Fujiwara said, "The rise of ocean temperatures is definitely becoming an issue for aquafarmers because most farmers can't relocate their farms from one point to another." Recently, environmental changes have become increasingly volatile. "We are losing a kind of balance in the ocean environment," he said solemnly. It is possible to reach a point where fish simply

stop eating altogether, so there is a sense of urgency and necessity for the innovations Umitron is bringing to the market.

When diving into observational data on oceans, he found that most of it was used to understand overall environmental changes rather than focus on coastal regions like those where fish farms are located. "A lot of the data is about the outer ocean, and what we are working on is aquaculture, so that data has to be from the coastal areas," he said.

Of the data that did exist for coastal regions, separate variables such as river flows, algae, human activity, fish, plankton and many more were all studied individu-

ally, but in order to understand the real coastal environment it is necessary to observe how these variables all interact as an ecosystem. Fujiwara recognized the need to integrate all of this data — and noticed how different the results were for specific regions. Due to the level of marine diversity in Japan, there are countless microenvironments, each with its own set of data that will impact the daily activities of aquafarmers. Advances in AI and computer science are changing the game, making it possible to create better data-processing models. This has led to great advancements over the last 10 years, making it possible to do more with the same data.

Another issue faced by the aquaculture industry is the aging population in the countryside. The industry needs to attract the younger generation who can physically go to the ocean and work on these farms. As AI can gradually take over more and more of the technical tasks, the types of tasks that fish farmers dedicate their minds to are shifting to creative problem-solving and practical solutions. Due to the mind/body balance of physical work and creativity, Fujiwara is already starting to see an increase of college graduates going into aquafarming as more young people reject traditional office culture to seek more rewarding experiences working outdoors with their hands.

With these rapid advancements in technology, the volatile environment and increasing demand, it is safe to say the aquaculture industry is shifting. Rowbury asked Fujiwara what the biggest changes he has seen in the eight years since Umitron was founded are. Fujiwara answered, "More and more, it's the increasing price of feed." Fish caught in the wild are the cheapest source of protein, ground into fish meal that is exported globally to feed farmed fish. The rising costs cause problems for everyone from fish farmers to restaurant owners to consumers. One



Together with chef Shusuke Kubota (right), Umitron introduced its AI-powered sea bream to Singapore. UMITRON

solution to this is the gradual introduction of alternative food sources. Fish feed made of insects, although still a bit controversial to some, could significantly lower costs without negative impacts on the fish.

Another area Umitron is venturing into is "blue carbon," or carbon dioxide that is captured and incorporated into coastal and marine ecosystems. Similarly to how we plant trees to absorb carbon dioxide, Fujiwara is focusing on utilizing seaweed and seagrass to reduce atmospheric carbon dioxide. Umitron is using its satellite and sensor technology not only to observe activities on fish farms, but also to monitor seaweed and seagrass in coastal regions. Blue carbon ecosystems are several times more efficient at sequestering carbon than forests are.

The long-term positive effects of the blue carbon work and innovations within aquafarming that Umitron has pioneered point to exciting new horizons, not only for seafood lovers, but for all of the marine life that calls Japan's coastlines home.

Roundtable is a monthly series of English-language events organized by The Japan Times Cube. For more information or to assist a Roundtable scan the QR code or visit <https://sustainable.jpantimes.com/roundtable>



Fujiwara said that due to recent environmental changes, we are "losing a kind of balance in the ocean." THE JAPAN TIMES

Kose takes pride in creating beauty in the world

Mission: Sustainability

OSAMU INOUE
RENEWS

In July 2024, the cosmetics maker Kose Corp. launched a campaign to help coral reefs around Okinawa, part of the Japanese company's "Save the Blue" project channeling some of the proceeds from its flagship Sekkisei cosmetics into restoring reefs.

Established in 1946, Kose also makes home products like shampoo and sunscreen, and operates in 68 countries and regions, with its international business representing about 37% of its sales.

Kose commands a high reputation as a company actively working on sustainability projects. In July it was included in the FTSE4Good Index Series, a major stock index for investors who look for environmental, social and governance (ESG) factors, for the fifth straight year. It was put on the 2023 A list for both climate change and water security announced in February by the international nonprofit group CDP. Kose and Kao Corp. are the only Japanese cosmetics companies to have been included on the A list in two divisions for two consecutive years.

In April 2020, Kose announced a sustainability plan that set targets for 2030, driving the company significantly forward in terms of contributions to people and society, as well as to the global environment.

Kose does not have products specifically for men or women in its flagship brands. It has enlisted Shohei Ohtani to serve as a model for Sekkisei and Decorte ads since 2023. Yoshinori Haratani, director and general manager of Kose's corporate strategy department, said: "[Our products] help

people maintain their skin in healthy conditions regardless of their gender. We don't need to make separate products for different genders, which helps us become more eco-friendly."

Planting coral

Sekkisei is sold in 15 countries and regions, mainly in Asia. Starting in 1985 with a toner made from Japanese and Chinese herbal extracts, it has grown into a skin-care brand and a major seller for the company. At least 67 million Sekkisei toners had been shipped by November 2023.

Under the "Save the Blue" project, launched in 2009, Kose makes a donation to fund coral conservation activities for areas equivalent to the total area of the bottoms of the containers of all eligible Sekkisei products purchased during two summer months.

Now the project supports coral conservation in a total of nine countries and regions, including Japan. Over the past 15 years, the project has planted more than 20,000 corals in areas totaling 12,269 square meters.

Reducing plastics

In September 2020, Kose introduced the first full Sekkisei rebranding: Sekkisei Clear Wellness, a new series featuring unique ingredients extracted from plants grown in Japan, and reviewed all factors related to packaging and containers to reduce the use of plastics.

The bottles for the series use a "green nano" resin additive, reducing CO2 emissions when the plastic is incinerated as waste, and biomass PET, reducing the amount of petroleum-derived materials. A no-label design reduces the amount of plastic and ink used, and the plant-derived ink is biodegradable.

A cardboard material was chosen for the outer packaging, and instead of printed instructions, a QR code lets users access detailed instructions online. Kose also introduced refills for the series, part of its participation in a project initiated by the Ministry of the Environment in 2022 for a model project for investigating CFP calculation, reduction planning and presentation.

Furthermore, Medicated Sekkisei Brightening Essence Lotion, launched this March, uses biomass plastics and reduces overall plastic, allowing Kose to reduce CO2 emissions by about 9% for the product's regular size and 10% for the large one.



Yoshinori Haratani (left) and Seiji Kawano OSAMU INOUE

Remaining a pioneer

Thanks to these efforts, the sustainability plan introduced in 2020 has been progressing steadily. Kose gave an update on progress in April.

"The most significant update is the addition of the target of achieving net-zero CO2 emissions, including Scope 3 emissions (in the supply chain), by 2050, clarifying the target we'll aim for after the existing target of 30% reduction by 2030," said Seiji Kawano, general manager of Kose's office on sustainability strategy. "Going forward, we plan to work on horizontal recycling, where we'll collect bottles of cosmetics, including Sekkisei. We are also preparing to decide by April 2025 on target figures for the introduction of refills for more products."

In 2021, Kose and Kao signed a comprehensive collaboration deal on sustainability for cosmetics. In the first project under the deal, the two companies have been working to realize horizontal recycling of plastic bottles for cosmetics and other products since April 2022. They are also working on a project to recycle cosmetics into paints.

It is still uncommon for rivals to work together on sustainability, but "a pioneering spirit and showing examples for others to follow is also part of what makes Kose Kose," Director Haratani said.

"Kose was a pioneering company to introduce [powdered] foundation and lotion products in the skin-care genre," Haratani continued. "We're doing the same thing in the sustainability field. We hope to offer products and services that have new added value and are good for the global environment."

Scan the QR code to read the full article about Kose's commitments and initiatives that contribute to the environment



Japan's innovative performance wins at World Cosplay Summit

Media partner

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As top athletes competed in the Paris Olympics last month, top cosplayers from Japan and abroad similarly gathered in Nagoya's Sakae area to participate in the 22nd World Cosplay Summit, with the teams from Japan, Sweden and Germany taking the gold, silver and bronze.

It was the first time in 12 years that Japan took the title at the championship, the main feature of the three-day WCS, an annual gathering of cosplay fans involving stage performances, photo shoots and parades. Cosplayers representing 36 countries and regions — including newcomers Mongolia, the Czech Republic and Costa Rica — competed in the championship this year after winning preliminary regional rounds.

Mamemayo and Mioshi, the duo representing Japan as the characters Naruto Uzumaki and Sasuke Uchiha, respectively, from their favorite manga, "Naruto," obviously had the "home-game" advantage at the Aichi Arts Center Main Hall — yet that may also have meant more pressure.

"I'm just so relieved," Mioshi said on stage after accepting the Grand Champion award.

"We're grateful to our teachers who taught us how to make the costumes and hone our performance. Most of all, it's thanks to those of you here today who supported us and perfected our performance. Thanks a lot, *dattebayo*," Mamemayo said in Japanese to a roaring crowd, using Naruto's signature phrase, often translated as "believe it!" or "ya know."



Mamemayo (right) and Mioshi perform with their balloon floats. WCS/WCS2024

The championship on Aug. 3 kicked off with Team Thailand performing their "Disidia Final Fantasy" skit. Every team, in pairs, had 2½ minutes to perform a skit based on a video game, anime or manga from Japan. They were evaluated on their handmade costumes and stage performances. The 4½-hour event featured online viewers from Spain and Malaysia, as well as a live show by singer Hironobu Kageyama, the "prince" of the *anison* (anime song) world.

Appearing 21st, Team Japan's stage began with Naruto and his rival and best friend, ninja Sasuke, in a dance-like fight with music and digital images in the background. After a moment of darkness, their ninja outfits suddenly inflated into huge, glowing balloons resembling traditional Aomori Nebuta Festival floats and the stage turned into a *matsuri* scene. The ecstatic audience went wow, cheered and called out, encouraged by the pair on stage. The dramatic re-creation of a scene from Sasuke and Naruto's final battle involving avatars Kurama and Susanoo, in the form of balloons, was a spectacle that clearly stole the show.

Team Sweden, who re-created the tranquil world of Hayao Miyazaki's anime "My Neighbor Totoro" as the young girl Satsuki and a full-size furry Totoro, baring its teeth and blinking its eyes, came in second. In third place was Team Germany with their "Monster Hunter XX" performance.

Speaking to The Japan Times 10 days after the competition, Mamemayo and Mioshi revealed that their seemingly flawless stage performance had a rough start. "Actually, 10 seconds into the performance, I stumbled on a prop and fell flat," said Mioshi. "I panicked. I thought that was the end of it, but Naruto called out, 'Get up!' and I snapped back in," Mioshi said.

Cosplaying for nearly 20 years, the pair had given it their all to win the championship. After losing the regional round in 2016, they competed in 2018 as Team Japan but didn't win any awards.

"After 2018, we definitely stepped up our game mentally, and in terms of craftsmanship. The COVID pandemic allowed us to concentrate on costume design and crafting," said Mioshi, who works in the beauty and makeup industry.

Mamemayo, in the cosplaying business, said, "We knew we'd put in a lot of effort to get to where we were, so in that sense



Mamemayo (right) and Mioshi smile on stage after winning the championship. WCS/WCS2024

we were confident." But the pressure was greater. "We had a bunch of people supporting us. I had asked our social media followers, kind of like our fans, to come and help with the call-and-response performance."

The two had decided on the Nebuta float idea last September. They sought advice from a professional pattern maker and stage carpenter and researched thoroughly. Their 27-page costume production report submitted for evaluation detailed the meticulous work involved in creating the costumes, wigs and other accessories. Over 10 types of fabric were dyed, soiled and damaged, and stitched together. For the balloons, they traced the patterns onto styrofoam before working on a light but heavy-duty fabric. The process of crafting took nearly five months in all.

"We wanted to do something different. Teams tend to focus on re-creating scenes faithfully to the source material, as we did in 2018, but this time we tried to think outside the box and focused on how to create a performance that would be fun and exciting," Mioshi said.

Mamemayo said she was delighted when Team Portugal told the winners after the championship that the unprecedented balloon performance had given them inspiration to try crafting something new. One of the championship's greatest appeals is meeting and befriending people from different countries with shared interests, the two agreed. "Next year there will be 42 representatives at the championship. Even an avid traveler wouldn't get to meet people from so many different countries," Mamemayo said.

Aiming to highlight cultural events, The Japan Times gave its support to this event by becoming a media sponsor.



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