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AquaInnovate showcases regional aquaculture innovation and nature-based solutions

AquaInnovate participants.

The first AquaInnovate event, held in Bangkok from 12-16 May, brought together aquaculture startups, entrepreneurs, researchers, and investors from across the Asia-Pacific region for an intensive week of learning, pitching, and collaboration. Convened by NACA and FutureFish, with funding support from Canada's International Development Research Centre (IDRC), the programme focused on accelerating nature-based aquaculture innovation and building a stronger regional startup ecosystem.

A platform for innovation

AquaInnovate was designed to provide entrepreneurs with the knowledge, networks, and tools to transform promising ideas into viable businesses. Over 25 participants from across Asia-Pacific joined the event, representing a diverse mix of early-stage companies, researchers, and innovators. Across five days, they engaged in interactive sessions, personalised coaching, field visits, and practical workshops, all aimed at sharpening business models and fostering partnerships.

Startup pitches and feedback

A key feature of the event was the startup pitch sessions, where 14 aquapreneurs presented solutions ranging from sustainable aquafeeds and probiotics to shrimp health innovations, aquaculture automation, and circular economy approaches. Each pitch was followed by questions and feedback from peers, industry experts, and investors.

Entrepreneurs received practical advice on investment readiness, market positioning, and scaling strategies, helping to refine their value propositions

Industry representatives from HydroNeo and UniFAHS shared lessons on scaling aqua-tech and biotech innovations, stressing the importance of affordability, trust-building, and local validation. Their insights reinforced the challenges and opportunities for startups navigating fragmented markets in Asia.

Expert sessions and coaching circles

The programme featured a series of expert-led sessions on core themes, including:

- Business fundamentals - practical steps to strengthen operations, build scalable ventures, and prepare for investment.
- Investing for impact - strategies to attract mission-aligned capital and engage with investors in developing Asia.
- Nature-based aquaculture solutions - aligning innovation with ecosystems, community resilience, and sustainability.
- Gender equality and social inclusion (GESI) ensuring aquaculture innovation is accessible, equitable, and empowering.

Small-group coaching circles gave participants the opportunity to workshop challenges directly with experts, covering issues such as IP ownership, commercialisation strategies, financing, and inclusive business design. These sessions provided targeted feedback and encouraged peer learning.

Field visits: Learning from Thai innovators

Participants travelled to two pioneering farms in Thailand for hands-on learning. At LST Farm, Somprasong Natetip demonstrated Thailand's only biosecure hatchery producing SPF all-male freshwater prawns, showcasing genetic RAS systems and low-energy water treatment innovations. At Boonsawang Farm, Gunn and Suthi Mahalao shared their approach to premium seabass farming, covering disease management, certification, and diversification into new species. These visits offered practical insights into the realities of farm operations, innovation adoption, and the commercial drivers shaping aquaculture businesses.

Watch the presentations

Videos of startup pitches and expert sessions from AquaInnovate 2025 are now available from the NACA website and YouTube channel, which you may access directly from the linked descriptions below:

https://enaca.org/?id=1403

An interim website for the AquaHub has also been established, and with the full website slated for launch in February 2026. For background on the participants and full programme details, please see the Aqua Hub website at:

https://aquahub.asia

Reimagine Fish Farming with RAS-P.I.N.A.S

Elisa Claire Sy of E-Primate presents RAS-P.I.N.A.S, a closed-loop, water-efficient system for land-based fish farming. The technology integrates biofiltration, aeration, and mechanical treatment to support high-density production while conserving water and land and reducing disease risk. RAS-P.I.N.A.S also offers flexibility in farm siting, with trade-offs in energy use and infrastructure costs. Recirculating aquaculture systems are gaining traction as a key innovation in Asia's sustainable aquaculture future.

Green Controller: Smart Farming for a Sustainable Future

Green Controller by ICM Electronics is a smart water quality monitoring system for aquaculture, powered by high-precision titanium sensors. It tracks dissolved oxygen, salinity, and pH in real time, with full control through a mobile app and instant anomaly alerts. The system enables automated aeration based on live data, reducing energy use, lowering aerator run time, and improving feed conversion efficiency for more sustainable aquaculture operations. This pitch was presented Sukmit Teekhasenee of ICM Electronics.

Cweed Aquasolutions: Empowering Communities Through Nature-based Solutions

Cweed Aquasolutions, a spin-off from Universiti Malaya, works with coastal communities to develop seaweed cultivation through integrated multi-trophic aquaculture. The initiative repurposes abandoned shrimp ponds in Peninsular Malaysia, providing training and technical support for farmers to start seaweed farming. Cweed Aquasolutions also buys back harvested product, creating a sustainable livelihood model that links community development with nature-based aquaculture solutions. This pitch was presented Adibi M. Nor, CTO of Cweed Aquaculture Solutions.

ShrimpGuard: Nature's shield for healthy shrimp

ShrimpGuard, developed by BIOTEC, NSTDA, and Kasetsart University in Thailand, is a phage-based innovation for managing shrimp health. It targets Vibrio infections using bacteriophages combined with immune-boosting agents, reducing antimicrobial use while improving farm productivity and sustainability across ASEAN. The project also engages farmers directly through training, outreach, and field trials to ensure practical application and lasting benefits for coastal communities and the wider aquaculture sector. This pitch was presented by Wanilada Rungrassamee of BIOTEC.

Circular Nutrition: Transforming Fish Byproducts into Sustainable Aquafeed

Circular nutrition in aquaculture focuses on reducing waste and closing nutrient loops by transforming fish byproducts into sustainable aquafeed. Simon Das from the Tropical Aquafeed Innovations Lab at James Cook University presents how this model can cut reliance on wild-caught forage fish while supporting cost-effective, nutritionally balanced diets. The lab's work includes developing weaning protocols for pellet-ready fingerlings, training farmers in advanced feeding practices and economics, and promoting gender and youth inclusion. Circular nutrition highlights how rethinking resource use can make aquaculture both more efficient and more sustainable.

TOMGOXY: Super Intensive Vannamei Shrimp Farming Towards Sustainability and Carbon Neutrality

TOMGOXY is an AI- and IoT-powered shrimp farming system developed by RYNAN Aquaculture in Vietnam. It transforms traditional ponds into super-intensive, high-efficiency systems that deliver higher yields with reduced water and energy use. The platform integrates smart sensors, cloud analytics, and advanced aeration to maintain optimal water quality, cut antibiotic reliance, and advance sustainable shrimp aquaculture. By combining digital technology with practical training and on-farm deployment, TOMGOXY helps farmers increase productivity, lower costs, and build long-term resilience in the shrimp industry. This pitch was presented by Dang Pham of RYNAN Aquaculture.

QS Aqua Technology: Nature-based Innovation for Sustainable Aquaculture

QS Aqua Technology, a startup from the InnoHub Program of Universiti Putra Malaysia, develops nature-based probiotic solutions for sustainable aquaculture. Their approach combines beneficial bacteria that support gut health and maintain balanced pond ecosystems with quorum sensing inhibition compounds from microalgae. These compounds block harmful bacteria from communicating, preventing disease outbreaks and reducing dependence on antibiotics. By improving pond health and resilience through microbial

and algal innovations, QS Aqua Technology offers farmers safer, more sustainable tools to manage aquaculture production. This pitch was presented by Maya Liyana Hamzah.

PowBio: A nature-based microbial solution turning fish pond waste into protein

PowBio is a microbial inoculant developed by NileBioFish (NINEBIO GROUP Co., Ltd.) in Thailand to support sustainable biofloc aquaculture systems. Co-developed with Maejo University's Faculty of Fisheries and Aquatic Resources and supported by the Thailand National Innovation Agency, PowBio uses high-efficiency microorganisms to turn fish pond waste into natural protein. By reducing ammonia and nitrite levels, improving water quality, and recycling nutrients within ponds, PowBio helps farmers cut feed costs, lower water exchange needs, and reduce chemical inputs. The result is healthier harvests without muddy off-flavors—delivered through a practical, low-cost, and easy-to-use solution for more productive and resilient aquaculture. This pitch was presented by Nissara Kitcharoen of NileBiofish.

DeepBlue Aquaculture: Phytogenics Approach to Improve Mud Crab Growth Performance

DeepBlue Aquaculture, the world's largest soft-shell crab operation, is pioneering the use of phytogenics to improve mud crab growth performance. Soft-shell crab farming is traditionally labor-intensive and low-yield, making it difficult to scale. Their proprietary plant-based additive, PhytoEcR, boosts mud crab growth and moulting rate—delivering up to 20% higher weight gain after 45–60 days, with a 40% increase in moulting rate and 35% faster moulting compared to control groups. PhytoEcR is now moving into commercial-scale testing, aligning with global trends in phytogenic feed solutions to enhance productivity and sustainability. This pitch was presented by Andrew Ng of Deep Blue aquaculture.

Life Cycle Assessment for Eco-friendly and Sustainable Aquaculture by Nature-based Practice

This presentation introduces a life cycle assessment tool designed to evaluate the sustainability of nature-based aquaculture practices. The tool measures environmental impacts such as carbon footprint and supports farmers, researchers, and policymakers in identifying mitigation strategies for more eco-friendly production systems. This pitch was presented by Kobboon Kaewpila of the Life Cycle Sustainability Assessment Laboratory, King Mongkut's University of Technology.

LEAPS: Leveraging Climate-Smart Shrimp Aquaculture Solutions in Indonesia

LEAPS is a climate-smart aquaculture initiative in Java that combines shrimp farming with mangrove restoration to strengthen coastal community resilience. Implemented under the AQUADAPT program with funding from Global Affairs Canada and IDRC, the project promotes inclusive, nature-based approaches for small-scale shrimp aquaculture. By integrating real-time IoT water quality monitoring, wastewater treatment and gender-responsive practices, LEAPS reduces greenhouse gas emissions while restoring mangroves and supporting communities. The project also informs evidence-based policy, helping scale sustainable aquaculture solutions across the region. Aligning shrimp farming with ecosystem restoration, LEAPS supports livelihoods and adaptation. Pitch presented by Rocky Pairunan and Burhanuddin Zein.

Digital Solutions for Farmers in Myanmar

Farm Suite by Greenovator is a digital farm management tool tailored for aquaculture in Myanmar. The platform helps farms and agribusinesses streamline planning and daily operations by tracking activities, inputs, and yields through a real-time, business-grade dashboard. Recognised as a top-3 innovation in the Grow Asia Challenge, Farm Suite provides an affordable, professional alternative to manual record-keeping. With its mobile app interface, it delivers actionable insights that empower aquaculture managers to boost productivity and sustainability. This pitch was presented by Yin Yin Phyu.

UniFAHS: The Startup Journey of a Thai Phage Biotech Pioneer

Kitiya Vongkamjan, co-founder of UniFAHS, shares the journey of building a pioneering phage biotechnology company in Thailand. UniFAHS develops bacteriophage-based solutions to tackle antimicrobial resistance and improve food safety in agriculture, aquaculture, livestock, and food processing. From its origins in research at Chulalongkorn University to recognition as a Global Finalist in the Extreme Tech Challenge 2022, UniFAHS has grown into a venture-backed startup, raising USD 1.4 million in seed funding from A2D Ventures, ADB Ventures, and InnoSpace (Thailand). The story highlights how cutting-edge science can be transformed into scalable commercial solutions with real-world impact.

HydroNeo: Startup Journey of a Smart Aquaculture Innovator

In this presentation, Fabian Reusch, founder of HydroNeo, shares the story of how HydroNeo began and the lessons learned along the way of building a tech startup in Thailand. Aimed at fellow aquaculture entrepreneurs and startup founders, his talk is an open and honest reflection on the realities of the journey — not a polished, glamorous pitch that only highlights the wins, but a candid look at both successes and setbacks, the difficult decisions, and the ongoing challenges that shape the real path of building a company.

Nature-based Aquaculture for Entrepreneurs and Innovators

Mariska Bottema (WorldFish) and Rebecca McMillan (IDRC) discuss the concept of nature-based aquaculture, why it matters for innovation and entrepreneurship, and how it can support ecosystems, communities, and profitability. Topics include: Defining nature-based aquaculture and its connection to nature-based solutions; criteria such as climate resilience, ecosystem health, reduced antimicrobial use, and inclusivity; global examples: mangrove–shrimp integration, women-led seaweed farming, integrated multi-trophic systems, and rice–fish farming; supportive technologies including IoT, renewable energy, and life cycle assessment; and opportunities for entrepreneurs: resilient farms, reduced risks, lower costs, premium markets, funding, and partnerships.

Nature-based Seafood Markets & Creative Partnerships

A discussion panel on how creative partnerships build markets for nature-based seafood from farm to fork with Special Guest Chef Black (Blackitch Artisan Kitchen)

Knowledge brokering for nature-based solutions in aquaculture

NACA's AQUADAPT knowledge-brokering project has released three new publications from Fiji, Thailand, and the Philippines, prepared to inform development of the Aquaculture Innovation and Investment Hub (AquaHub) and country innovation and investment plans. The work aligns with the FAO-NACA transformation agenda by documenting practical nature-based solutions (NbS) already in use, the conditions that enable them, and where further evidence is needed to scale. AQUADAPT is funded by Canada's International Development Research Institute (IDRC).

Climate change and social resilience

Across all three countries the focus is the same: Mitigate and adapt to climate change risks, improve efficiency and resilience, and capture social inclusion benefits where possible. The publications assemble farm-level cases and early metrics (productivity, energy use, costs, and-where available-emissions), providing a baseline for policy, technical assistance, and investment decisions.

Fiji

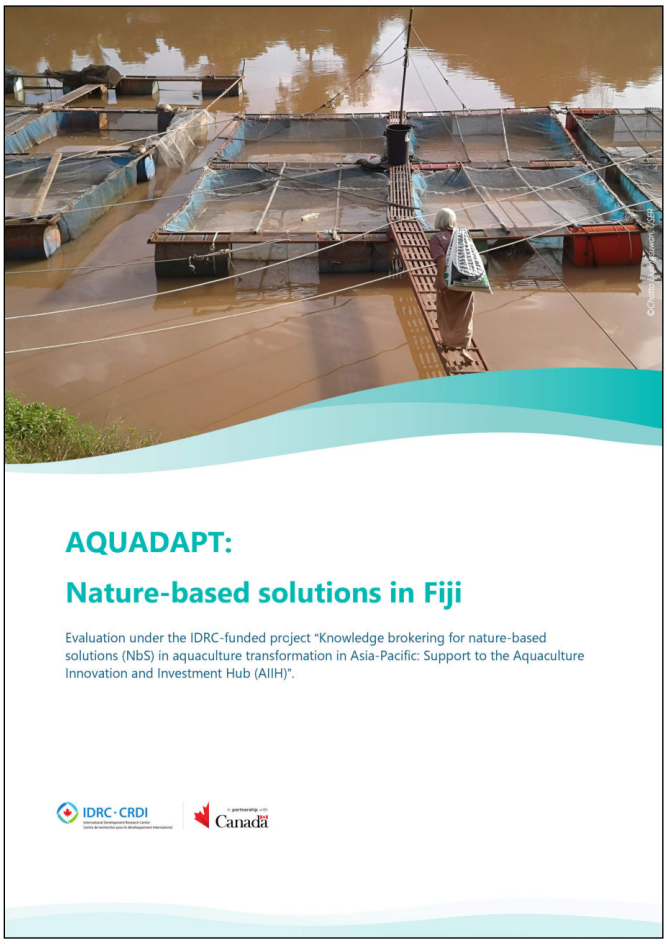
The Fiji report profiles four enterprises-Kerry Farms, SEAPAC PTE Ltd., Growa Fish Fiji Ltd., and the Muana-Ira community mangrove oyster project-covering tilapia, giant freshwater prawn, whiteleg shrimp and bivalves. Reported NbS include solar power (e.g., a planned 50-kW system at SEAPAC and solar pumping/aeration at Kerry Farms), hydropower and trompe aeration at Growa Fish, HDPE linings and biofloc, and an unfed, nature-positive oyster operation led by a women's group. The study also notes supply-chain realities for equipment (average landed-cost split ~71% purchase price, 14% shipping, 15% taxes/duties/inland freight), absence of major notifiable aquatic diseases at the time of reporting, and significant women's participation.

Thailand

Thailand's showcases present quantified outcomes from three energy-focused innovations. On a striped snakehead farm, adding on-grid solar for pumping and a daytime solar aerator increased productivity by ~21-25%, cut electricity per kilogram by ~42%, reduced energy costs per kilogram by ~42%, and lowered combined CO_2 emissions by ~28% (to ~0.79 kg CO_2-eq per kg of fish). At an intensive shrimp farm, a smart aerator control system reduced electricity per kilogram by 20% and lifted farm output by ~33%. A second shrimp site combining 50.4 kWp solar with smart aeration improved energy intensity by ~22% per kilogram and raised annual output by ~29%, while trimming costs and emissions.

Philippines

AQUADAPT: Nature-based solutions in the Philippines reports a preliminary scan of NbS in use-off-grid power, renewable materials and design improvements-plus an initial pipeline of 50 aquaculture innovations based on BFAR regional submissions, to be extended and screened with BFAR National Research Centers. Early field observations from CALABARZON and Region III document farms implementing NbS; forthcoming work will add GESI and transformation dimensions as detailed assessments proceed.



What this means for the AquaHub

Taken together, these findings begin to show where NbS are already delivering practical gains-lower energy intensity, steadier water quality, and, in some cases, measurable productivity improvements-while also exposing data gaps that matter to investors (e.g., consistent cost/benefit records, durability of performance across seasons). For the AquaHub, the near-term value lies in converting these documented practices into a structured pipeline: pairing innovators and farms with appropriate finance, technical partners and verification methods, and supporting governments with evidence for targeted incentives. As the datasets mature, the AquaHub can help standardise metrics (energy per kg, CO_2 per kg, survivals, payback) and convene partnerships that de-risk adoption at scale.

Publications & downloads

- AQUADAPT: Nature-based solutions in Fiji: https://enaca.org/enclosure/?id=1397
- AQUADAPT: Nature-based solutions in Thailand: https://enaca.org/enclosure/?id=1399
- AQUADAPT: Nature-based solutions in the Philippines: https://enaca.org/enclosure/?id=1398

INFOFISH has organised editions of the International Trade and Technical Conference and Exposition on Tilapia since 2001. The most recent was TILAPIA 2015, held in Kuala Lumpur in 2015 with the participation of more than 250 delegates from 25 countries. The Conference brought together more than thirty speakers comprising industry leaders, government representatives, researchers and experts who deliberated on the latest updates regarding production, markets and trade; innovations along the value and supply chains; industry initiatives on certification; and tilapia health management.

TILAPIA 2025, the 5th edition of the series, will be held in collaboration with the 13th International Symposium on Tilapia in Aquaculture (ISTA13); the University of Arizona; US Soybean Export Council (USSEC); and with the technical support from the Food and Agriculture Organization of the United Nations (FAO) and NACA. Themed “Innovation, Integration and Profitability in Tilapia Aquaculture: Modernisation for a New Era”, TILAPIA 2025 will present updates on the production status of global, regional and major tilapia producing countries. It will also deliver consolidated information on emerging markets; innovative technological developments along the value and supply chains such as integration of farming practices, genetics and reproduction, nutrition and feed technology, biosecurity and health management; standards and certifications; wellbeing of small-scale holders and tilapia itself; policies related to investing in climate-smart, gender-focused and nutrition-sensitive aquaculture projects; valueadded products; diversification of markets; and consumer awareness as per local and international market demand; which might be useful for key industry stakeholders and relevant decision-makers from the competent authorities to move forward.

Alongside the Conference, there will be an international trade exhibition which is expected to be held with the presence of about 20 exhibitors represented by leading tilapia hatcheries, farms, feed millers, buyers, processors, traders and cage manufacturers etc.

For more information, the programme and registration please visit the Tilapia 2025 website.

https://tilapia.infofish.org/

12th Symposium on Diseases in Asian Aquaculture 23-27 September 2025, Chennai, India

The Fish Health Section of the Asian Fisheries Society (FHS-AFS) invites everyone to the 12th Symposium on Diseases in Asian Aquaculture (DAA12), to be held from 23-27 September 2025 in Chennai, India. DAA12 continues the legacy of the DAA series by providing an exceptional platform for researchers, industry professionals, and students to come together and share their expertise in the vital field of aquatic animal health.

Hosted by FHS-AFS in collaboration with the ICAR-Central Institute of Brackishwater Aquaculture in Chennai, India, DAA12 promises to be an enlightening experience. With the theme “Transformative Innovations Shaping the Future of Aquatic Animal Health Management”, it reflects our commitment to addressing the pressing challenges faced by our industry today. Over the five-day event, participants can look forward to a dynamic program featuring seven technical sessions that showcase the latest advancements and research in aquatic animal health.

Key topics will include: Finfish and Shellfish Health, One Health and Aquatic Animal Biosecurity, Aquatic Animal Epidemiology, Disease Surveillance & Reporting and New Emerging Technologies in Aquatic Animal Health Management. Each session will feature esteemed experts delivering insights that will foster rich discussions and promote the sharing of cutting-edge research.

We warmly invite researchers, industry professionals, academia, and students to join this exciting symposium and collaborate on sustainable solutions for aquaculture’s future. Mark your calendars for an unforgettable experience in DAA12 at Chennai, India!

For more information, please visit the Diseases in Asian Aquaculture 12 website.

https://daa12.in/

Reported Aquatic Animal Diseases in the Asia-Pacific Region during the Fourth Quarter of 2024

Listed below are the reported aquatic animal diseases submitted by countries in the Asia-Pacific region, which covers the fourth quarter of 2024. The original and updated reports can be accessed at the QAAD page:

https://enaca.org/?id=8

Finfish Diseases

- **Infection with Infectious haematopoietic necrosis virus:** Australia in wild juvenile redfin perch (*Perca fluviatilis*).
- **Infection with red seabream iridovirus (RSIV):** Chinese Taipei in seabass (*Lates calcarifer*) and hybrid grouper (*Epinephelus fuscoguttatus* x *E. lanceolatus*); India, reported as Infectious spleen and kidney necrosis virus (ISKNV) in oscar (*Astronotus oscellatus*), blue acara (*Adinoacara pulcher*) and midas cichlid (*Amphilophus*) hybrid; and, Indonesia in barramundi (*L. calcarifer*).
- **Infection with Koi herpesvirus (KHV):** Indonesia in common carp (*Cyprinus carpio*).
- **Infection with Tilapia lake virus (TiLV):** Indonesia in Nile tilapia (*Oreochromis niloticus*) and saline tilapia.
- **Viral encephalopathy and retinopathy (VER):** Australia in farmed Queensland grouper (*E. lanceolatus*); Chinese Taipei in hybrid grouper (*E. fuscoguttatus* x *E. lanceolatus*) and orange spotted grouper (*E. coioides*), India in mangrove red snapper (*Lutjanus argentimaculatus*); and, Indonesia in barramundi (*L. calcarifer*), hybrid grouper and pompano (*Trachinotus* spp.)
- **Enteric septicaemia of catfish:** India in pangas catfish (*Pangasius hypophthalmus*); and Indonesia in pangas catfish.

Molluscan Diseases

Infection with abalone herpesvirus: Australia in blacklip abalone (*Haliotis rubra*).

- **Infection with Perkinsus olseni:** India in wild green mussel (*Perna viridis*).

Crustacean Diseases

- **Infection with white spot syndrome virus (WSSV):** Chinese Taipei in whiteleg shrimp (*Penaeus vannamei*); India in *P. vannamei*; Indonesia in *P. vannamei* and black tiger shrimp (*P. monodon*); and, the Philippines in *P. monodon* and *P. vannamei* (PLs and grow-out) and wild crabs and shrimps.
- **Infection with Infectious myonecrosis virus (IMNV):** Indonesia in *P. vannmei* and *P. monodon*.
- **Infection with taura syndrome virus (TSV):** Indonesia in *P. vannamei*.
- **Acute hepatopancreatic necrosis disease (AHPND):** The Philippines in *P. vannamei*.
- **Hepatopancreatic Microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP):** India in *P. vannamei*; Indonesia in *P. vannamei* and *P. monodon*; and the Philippines in *P. vannamei*.

Amphibian Diseases

- **Infection with *Batrachochytrium dendrobatidis*:** Australia in an unknown species of amphibian.

Other Diseases

- India reported **Infection with Tilapia parvovirus** in Nile tilapia (*Oreochromis niloticus*).

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NACA is a network composed of 20 member governments in the Asia-Pacific Region.