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Healthy fish: Recap of Day 1 at GOAL 2016

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By James Wright

Aquatic diseases, animal health and welfare remain the industry's most-limiting factor





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Yet again, attendees of the Global Aquaculture Alliance’s (GAA) annual GOAL conference on Sept. 20 reported that health and disease management is the most important challenge limiting aquaculture’s growth and, ultimately, its role in feeding a growing global population.


A poll of the audience attending the event in Guangzhou, China, found that 53 percent agreed with that statement, ranking diseases above feed, environmental and social responsibility, investment, education and other issues – just as it has every year since audience polling commenced.

Expert speakers who presented during Day 1 of the conference – themed “healthy fish,” with “healthy people” and “healthy planet” themes to follow on Days 2 and 3, respectively – delivered pointed information about some of aquaculture’s most challenging health issues, such as Early Mortality Syndrome (shrimp), streptococcus (tilapia) and sea lice (salmon).

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The latest, and perhaps the most challenging puzzle to solve to date, has been EHP (*enterocytozoon hepatopenaei*), a tiny spore-forming parasite that has hampered shrimp production in Southeast Asia, the world's most productive shrimp farming region.

"EHP is one of the most insidious diseases in the shrimp world because shrimp farmers often don't have a clue that they have it, or how to prevent it," said George Chamberlain, GAA president. Common issues that allow EHP to flourish, Chamberlain explained, include high concentrations of producers in certain regions, uncontrolled movement of animals, insufficient knowledge about the pathogen, weak regulations, ineffective strategies and limited resources to prevent its spread.

No "silver bullet" for EHP exists, noted shrimp farming expert Robins McIntosh reported, adding that hard work and extensive research over the past few years at farms in Thailand are giving the industry new tools to fight it. McIntosh, senior VP at Thailand-based Charoen Pokphand Foods – the world's largest shrimp hatchery and broodstock producer – said that EHP was originally misidentified as vibriosis. Instead, it is a toxicosis.

"We often miss it because we're dealing with a complexity that we don't understand," he explained. The parasite is not unlike an insecticide – and shrimp are in many ways a different form of an insect, he said.

But why has EHP become such a massive problem? McIntosh said it's carried "silently" in broodstock and has many "stealthy" characteristics. Therefore, the need for specific-pathogen-free (SPF) broodstock is essential.

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The best defense against EHP, thus far, is keeping bacteria levels in shrimp ponds low, and the pond bottoms clean. To accomplish that, many shrimp farmers have reconfigured their ponds to include "toilets," or depressions at the pond bottom that serve to flush the water from the shrimp pond into a sludge pond, and then into a tilapia pond, where the water is cleaned before being recycled and reused.

The innovation is working: McIntosh cited a Thai shrimp farmer who had suffered tremendous losses from EHP in his four shrimp ponds. After installing the pond toilets, his fortunes turned for the better. "He made more money this year in just two ponds than he ever did with four ponds without the toilet," said McIntosh.

“We’ve been through a bad time in Thailand. But the future is very bright, because we understand these diseases now,” he said.

Turning to other fish diseases, Hamish Rodger, founder and principal of Vet-Aqua International and global managing director of Fish Vet Group (a component of Benchmark Holdings), spoke in detail about sea lice, the “most serious threat” facing Atlantic salmon farmers in the Northern Hemisphere.

Rodgers ran through a litany of techniques the industry has employed to defend its fish from this naturally occurring parasite, the presence of which can be exacerbated by over-crowded conditions that cause stress to the animals. Chemotherapy (bath treatments), site fallowing and other codes of good practice, genetic selection, mesh nets surrounding existing open-ocean net pens and the use of cleaner fish have all demonstrated degrees of success.

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Each remedy has its challenges, Rodgers added, because lice management is not just about health management. It has public, media, political and retail expectations and communication ramifications as well. “Bath treatments have mortalities. There are restrictions on medicines, and discharge consents, as well as [drug] residue issues,” he said.

Cleaner fish – “partner” species that feed on the lice that affix themselves to salmon’s skin – have tremendous potential and major salmon farming companies are investing millions in their deployment. Some are even farming wrasse and lumpfish, but cleaner fish bring about their own challenges, such as sustainability, feed and mortality rates in culturing species that are relatively new to producers.

“With lumpfish – which are amazing animals – the survival rate is low. They only last six to seven months in a pen, but [salmon] farms operate for 18 months. The farming of this species requires a lot of investment, and there is a lot still to learn,” he said.

Tilapia is a \$5 billion global industry, but the bacterial infection *Streptococcus sp.* is a major challenge for producers. There are two strains – *S. iniae* and *S. agalactiae* – that have historically been treated with medical control (antibiotics) and vaccines (injection).

Producers have strived to reduce stress by stabilize the environment (oxygen, temperature, reduced stocking density), but much more work remains. Important to note: Both strains are potentially infectious to humans, which poses a crucial safety issue.

Finally, Iain Shone, development director at GAA, delivered the latest on area management, a form of collaborative resource management that is gaining traction and support among producers and NGOs as a means to mitigate disease.

“Although practiced in certain areas with certain species, it’s certainly not the norm,” said Shone. “And where it is practiced, it can be a regulatory requirement and may not necessarily involve farms working together. Biosecurity may be good, but it’s often what happens between or outside of farms is what contributes to disease.”

Shone moved through a proposed risk assessment and management plan that would potentially be overseen by GAA and audited by certification bodies, or CBs.

Shone polled the conference attendees to gauge their sentiment toward area management standards, asking the question: “How should GAA communicate the BAP (Best Aquaculture Practices) Biosecurity Area Management standards?”

It was a mixed bag of results: 29 percent said to incorporate as a future element of the BAP farm standards; 28 percent said to include as a BAP fifth star; 25 percent were in favor of a special area management status listed on the BAP website; and 18 percent said to include in the BAP system, but to revamp the star structure.

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