

MAKING IT WORK.

ASF CO-HOSTS AN INTERNATIONAL SUMMIT ON LAND-BASED FISH FARMING.

Forty years ago, in 1973, a small group of scientists gathered at the College of Cape Breton in Sydney Nova Scotia, to hear a presentation about salmon aquaculture in Norway. The idea of net pen aquaculture in Atlantic Canada garnered much scepticism at that time. How could it be biologically and technologically feasible, let alone economically viable with the unforgiving lethal water temperatures (during winter), tides, and storms in the Bay of Fundy region? There was also a history of false starts or failures, and the private sector was reluctant to invest. However, six years after the Sydney conference, salmon were being harvested in the Bay of Fundy. Many entrepreneurs soon began commercial scale operations and it didn't take long for the industry to become well established. Dr. John Anderson expressed it well in his book called *The Salmon Connection* when he said, "It was a classic example of how best to transfer

technology to the private sector and make it work." (Ed's note: John Anderson's book covers the history and development of Atlantic salmon aquaculture in Canada and can be ordered through www.Chapters.Indigo.ca.)

Since then, we have learned that farming salmon in net pens has a very negative impact on wild salmon and the surrounding environment. But we've also learned to heed John Anderson's words about transferring technology to the private sector, and now the same cooperative attitude is helping shift salmon aquaculture from open-net sea pens to land-based close containment techniques. With the goal of increasing farmed fish production in land-based systems, 134 participants from 14 different countries representing industry, government, academia, NGOs, and First Nations gathered in Shepherdstown, West Virginia. Workshop participants are no longer naysayers—they know it can be done because The Conser-



ASF's director of research, Jonathan Carr, opened the summit by telling participants that land-based closed containment salmon have outperformed net pen salmon during blind taste tests by world renowned chefs. In addition, ASF has served these fish at special events to great acclaim over the past two years.

vation Fund Freshwater Institute (TCFFI), in partnership with the Atlantic Salmon Federation (ASF), have demonstrated through research trials and pilot projects that land-based closed containment recirculating aquaculture systems (RAS) are biologically, technologically and economically feasible.

ASF, TCFFI, the Gordon and Betty Moore Foundation (GBMF), and Tides Canada (TC) hosted the symposium at the National Conservation Training Center (NTC) in Shepherdstown, WV, September 4-6, 2013. Among the participants at the International Summit on Fish Farming in Land-Based Closed Containment Systems could be found several entrepreneurs that have started projects over the past 24 months.

Dr. Steven Summerfelt stated in his opening remarks, "As a collective group, we are pioneering the technologies necessary to increase farmed fish production in land-based closed containment systems, in an environmentally friendly and economically viable manner." The Summit allowed participants to share results from scientific studies and commercial experience. It also helped identify opportunities to advance the use of the technology and to address myths surrounding this production method. The Summit was an important forum for information on emerging aquaculture technologies aimed at senior level decision makers in government, industry and philanthropy.

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Participants at the International Summit on Fish Farming in Land-Based Close Containment Systems tour the facilities at the Conservation Fund Freshwater Institute. Large Atlantic salmon on view were cultured at approximately 90 kg/m³ in the grow out system. Highlights from the salmon grow out trials include: feed conversion of 1.09, no escapes, no disease pathogens, no sea lice, no vaccinations or antibiotics, and market size fish in about 6 to 9 months sooner than net pen fish.

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“I think that our impact was catalytic and critical to changing some minds and getting increased acceptance of this technology,” Summerfelt said.

Summit attendees also had an opportunity to tour the TCFPI, just minutes away from the NTC. The closed containment systems with their high-grade effluent management, and the large Atlantic salmon that were raised in the tanks created much interest and excitement among the visitors.

Workshop participants left with several “take home” messages: Land-based recirculating aquaculture systems must be predictable so that risk of failure is minimised; skilled people specialised in RAS are needed to run the farms; there needs to be repeatability and scaling up of facilities from pilot to commercial scale to build investor confidence; the value-added products, branding and premium quality must be emphasized; and the necessary research to improve the technological and biological parameters of land-based systems must continue.

As John Anderson said, RAS stakeholders must collaborate, share and transfer information to the private sector. To paraphrase Ben Franklin, “We can fail separately or work together to speed this industry up.” In order to keep the momentum going, ASF will host another land-based aquaculture innovation workshop in St. Andrews, NB on April 30 to May 1, 2014.

—JONATHAN CARR



Experts in the field of land-based closed containment aquaculture are working together to transfer this technology to the marketplace.



WORKSHOP AT THE INTERPRETIVE CENTRE BY TOM MOFFATT

SALMON RECOVERY WORKSHOP

EXPERTS IN SALMON RESTORATION FROM AROUND THE WORLD GATHERED IN CHAMCOOK, NEW BRUNSWICK.

On Sept. 18, 2013, Jonathan Carr, ASF’s Director of Research and Environment welcomed participants to a two-day workshop at the Wilfred M. Carter Atlantic Salmon Interpretive Centre. The “What Works? A Workshop on Wild Atlantic Salmon Recovery Programs” attracted participants from Canada, the United States, United Kingdom, Netherlands and France. There were 96 of them on site and many others contributed through live streaming from remote stations, located from Maine to Newfoundland. Among the topics addressed by speakers were gene banking and life history strategies, habitat recovery, dams and fish passage and water quality. The case studies that were presented highlighted both successes and failures of various initiatives. Discussion during wrap-up centred on identifying how the role of hatcheries and other supportive rearing programs had changed, the constraints and limiting factors that must be addressed to make progress in salmon recovery, and changes that could be made to individual recovery programs based on what was learned at the workshop. Carr, who took a lead role in organizing the meeting, is working with other steering committee members to prepare a report that will synthesize the findings, including recommendations on recovery strategies based on information shared at the workshop. The Communications Department issued blogs and tweets on the presentations as they were presented, and publicized the workshop in the media. To scan through blog posts of the presentations or to review the agenda and the abstracts, visit: www.asf.ca.

—J.C.