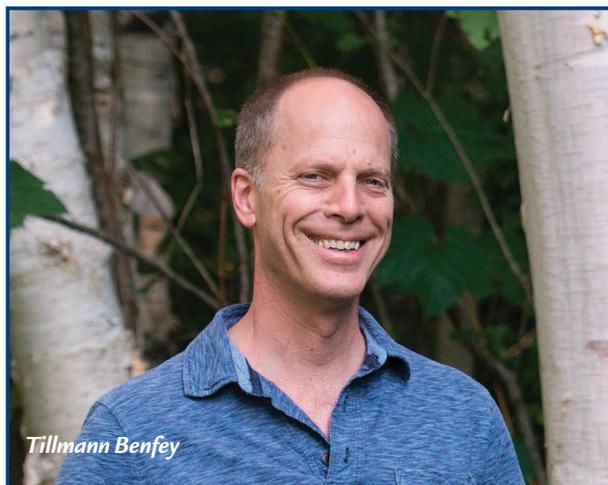


A CONVERSATION WITH TILLMANN BENFEY

RODRIGUE YOSSA

Tillmann Benfey obtained his B.Sc. (Honours) in marine biology from McGill University in 1981, followed by applied aquaculture research for his M.Sc. (Memorial University of Newfoundland, 1984) and Ph.D. (University of British Columbia, 1988). He has been employed at the University of New Brunswick since 1989, where he teaches courses in animal physiology and aquaculture. Dr. Benfey's research focuses on sex and maturity control in coldwater fish, including the production of single-sex and sterile populations of fish for aquaculture. He has supervised the programs of 36 graduate students and has been an advisor to the United Nations (WHO and FAO), US Food and Drug Administration and several Canadian regulatory agencies. As of December 2016, he is the President of the Aquaculture Association of Canada.



AQUACULTURE IS AN APPLIED SCIENCE, WHERE THE SCIENTIST DOES RESEARCH TO SUPPORT THE AQUACULTURE INDUSTRY. SUCH A SCIENTIST SHOULD IDEALLY BE SOMEONE WHO KNOWS HOW TO DO GOOD SCIENCE BASED ON APPROPRIATE SCIENTIFIC PRINCIPLES BUT WHO ALSO FOCUSES ON HOW THEIR RESEARCH CAN IMPROVE AQUACULTURE. THIS SCIENTIST SHOULD UNDERSTAND EXACTLY WHERE SCIENCE IS NEEDED IN THE AQUACULTURE INDUSTRY.

Tillmann Benfey: An ideal aquaculture producer is somebody who does not only focus on the short term but who also makes investments into activities that will pay off in the long term. Such a producer should be able to understand that science can advance aquaculture production. This producer should also be a good communicator who shares his/her concerns with the aquaculture community and the public.

Rodrigue Yossa: What do you think are the main challenges of aquaculture in the short, medium and long run?

Tillmann Benfey: In the short and medium terms, the main challenge of aquaculture in Canada is about building public trust because there is still a lot of public concern regarding aquaculture and aquaculture products. The building of public trust will require support from the

Rodrigue Yossa: Why have you chosen to work in aquaculture?

Tillmann Benfey: I have always been interested in marine biology and had the desire to contribute to sustainable food production. As a university student, I realized that we could not continue to only rely on nature to provide seafood and we had to find environmentally friendly approaches to produce seafood. Getting involved in aquaculture thus seemed like an obvious path to follow. So, I always try to do research and training that somehow contributes to aquaculture.

Rodrigue Yossa: How would you describe the ideal aquaculture scientist?

Tillmann Benfey: Aquaculture is an applied science, where the scientist does research to support the aquaculture industry. Such a scientist should ideally be someone who knows how to do good science based on appropriate scientific principles but who also focuses on how their research can improve aquaculture. This scientist should understand exactly where science is needed in the aquaculture industry.

Rodrigue Yossa: How would you describe the ideal aquaculture producer?

federal government and more communication from the aquaculture industry and scientists. Another challenge is the Canadian regulatory environment, which is a little bit too strict and does not necessarily promote the expansion of the aquaculture industry. The long-term challenge of aquaculture in Canada will be dealing with climate change, which includes changing water temperature, ocean acidification, and so on.

Rodrigue Yossa: What does the future of aquaculture look like in your region?

Tillmann Benfey: In Canada, the main aquaculture product is Atlantic salmon. However, there is a huge potential to expand aquaculture in the country and this will be done through diversification. In Atlantic Canada, there is interest in expanding the farming of other species such as shellfish (oysters) and coldwater fish species (cod and halibut). With recent advances in aquaculture technology, there is also a push towards land-based Atlantic salmon farming, which might ultimately become a more environmentally friendly system.

Rodrigue Yossa: What does the future of aquaculture look like in the world?

Tillmann Benfey: With an ever-increasing global population and increase in people's wealth in some parts of the world, there will be a need for more aquaculture products and it is therefore critical that we expand aquaculture production globally. However, the future growth in global aquaculture must be done in a sustainable way.

Rodrigue Yossa: What do you think about professional certification of aquaculturists?

Tillmann Benfey: I believe that farm certification has been a success so far in spurring best aquaculture practice in the industry. The certification of professional aquaculturists is a great idea, which could complement farm certification, and therefore play an important role in the sustainable growth of aquaculture in the future.

Rodrigue Yossa: What would be the steps towards the professionalization of aquaculturists?

Tillmann Benfey: It might be interesting to establish an internationally-recognized organization that certifies aquaculture professionals on the basis of international criteria and standards, which can be developed in collaboration with international associations such as World Aquaculture Society and the FAO of the United Nations, for instance.

Rodrigue Yossa: What would you have done differently if you had to restart your career in aquaculture?

Tillmann Benfey: My career has been great and continues to be great. Being able to do research and teach aquaculture at a

university is the career I wanted. If I had to restart my career, I would still wish to end up exactly where I am now but I would try to work more in the vicinity of aquaculture farms. Through my projects, I collaborate with farms and I have had some involvement in their production facilities but I have never been fully immersed in the practical aspects of aquaculture; I am thus not sufficiently familiar with day-to-day work in the aquaculture industry. I would have loved to do such an immersion in the aquaculture industry for at least a couple of years in the course of my career. In addition, I would have liked to get more involved in aquaculture research in less-developed countries; in this manner, I would not only conduct research to advance companies that make money, such as the salmon industry here in Canada, but I would also conduct research to contribute to food security in less-developed countries.

Rodrigue Yossa: What advice would you give to young aquaculturists?

Tillmann Benfey: I would advise young aquaculturists to always remember the importance of what they are doing and thus keep in mind that the ultimate goal of their work is to provide healthy aquatic food to people. Also I would invite them to keep an open mind, avoid exclusion and not be afraid of new ideas.

— Rodrigue Yossa, *WorldFish, Penang, Malaysia*,
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