

Thierry Chopin

AAC member since 1997

Affiliations to AAC

President 2004-2005, Past President 2005-2006

Treasurer 2001-2003, President Elect 2003-2004

Member of the Board of Directors 2001-2006



HISTORY

Two weeks after defending my PhD thesis, in February 1985, I arrived in Moncton, New Brunswick (NB), in the middle of a snow storm. I was starting my 16 months “cooperation” (an alternative to the French military service at that time) with Fisheries and Oceans Canada, based in Charlottetown, Prince Edward Island (PEI), and then Halifax, Nova Scotia. The topic of my PhD was the impact of phosphorus and nitrogen on the growth and production of the sugars called carrageenans in the red seaweed *Chondrus crispus*, commonly known as Irish moss. Carrageenans are among the sugars extracted from seaweeds and that we use every day without knowing it, from our orange juice in the morning to our toothpaste in the evening. During my first stay in Canada, I looked at harvesting issues on natural populations of *C. crispus*.

Then, I did a postdoctoral fellowship at Harbor Branch Oceanographic Institution, in Florida, under the supervision of Dennis Hanisak, and continued to look at the effect of phosphorus, more limiting than nitrogen in tropical environments, on carrageenan production in tropical/subtropical seaweeds. I returned to France for almost two years and from there applied for a job at the University of New Brunswick Saint John campus (UNBSJ). Chris Lobban, author of several well-known textbooks, had moved to the island of Guam and UNBSJ was looking for a new phycologist (yes, that’s what we call people who study algae, the small ones called microalgae or the large ones called macroalgae, and, if they are in the sea, called “seaweeds”, which is a misnomer in English because they are far from being weeds of the sea). I was given the job and started at UNBSJ on July 1, 1989 (well, a few days later because I did not want to miss the bicentennial of the French Revolution I celebrated with cousins in Paris on July 14).

From 1989 to 1999, I pursued more work on phosphorus metabolism, polyphosphate granules (observed for the first time in macroalgae) and the chemistry of seaweed sugars (phycocolloids). I was able to demonstrate an inverse relationship between phosphorus concentration in red seaweeds and carrageenan production, which some colleagues were kind enough to call the “Chopin effect” by analogy to the “Neish effect”, demonstrated with nitrogen by Arthur Neish when he was Director of what later became the Institute for Marine Biosciences of the National Research Council of Canada in Halifax.

By then, I had also realized that with the development of salmon aquaculture in the Bay of Fundy we had a significant source of dissolved nutrients (such as inorganic nitrogen and phosphorus) available and that we could do something with them by recognising them as nutrients for another crop rather than wastes (like in the proverbial “what is waste for somebody is gold for somebody else”). In September 1995, I gave a presentation entitled “Mixed, integrated, poly-, or multi-level aquaculture - whatever you call it, it is time to put seaweeds around your cages!” at the Conference on Cold Water Aquaculture to the Year 2000, at the Hunstman Marine Science Centre, in St. Andrews, NB (the abstract was published in the Special Publication No. 2 of the AAC in 1997). I could see a number of faces in the room saying “What is this guy with a strange accent talking about?”!

In 2000, at the AAC meeting in Moncton, I gave a presentation entitled “Nutrients, fish, and seaweeds: integrating “fed” and “extractive” aquaculture for bioremediation of coastal nutrification”. I started this presentation with an aquarium in which I had little salmon cages and little fishes. I added a dye and a reddish coloration developed to visualize nutrients. Then, I added a curtain of “seaweeds” (a carpet underlay cut in strips)



all around inside the aquarium. While continuing to give my presentation, I discretely added some basic solution from time to time and at the end of the presentation I removed (harvested) the seaweeds and *Oh, Magic!* the red coloration had disappeared, *i.e.* the seaweeds had done their trick and absorbed the dissolved nutrients released by the fish. Due to the success of that gimmick, and the mesmerized looks on the faces in the room, I repeated it at several other conferences.

The period 1995-2000 was the period of “preaching in the desert” for what was just “integrated aquaculture”. Shawn Robinson, from the St. Andrews Biological Station, had joined the cause with a similar approach involving shellfish recapturing organic particles. We started to be taken seriously when we joined AquaNet, the Network of Centres of Excellence for Aquaculture, in 2001, with our first industry partner, Atlantic Silver Inc., and later with Heritage Salmon Ltd. In 2005-06, after a period of consolidation and acquisitions in the aquaculture industry, we started to work with Cooke Aquaculture Inc., which has remained our partner ever since.

In the interim, we had given a name to what we were doing. At a workshop in Saint John, NB, in March 2004, I came with “Integrated Aquaculture” and Jack Taylor (Fisheries and Oceans Canada) with “Multi-Trophic Aquaculture”. By combining the two, “Integrated Multi-Trophic Aquaculture”, or “IMTA”, was born and in almost 10 years more than 400 publications referring to IMTA have been published worldwide.

When people tell me that even IMTA is still a mouthful, I tell them that they can also sing this acronym to the music of “YMCA” by Village People (I know, it’s starting to date me... 1978!). I am known to do my “IMTA dance” at the podium at some conferences and generally it leaves an impression on people who, the next time I meet them, say “I remember, you are the crazy IMTA Frenchman”... best trick for them to remember IMTA!



At the Joe Brown Barbecue of AC2007 (in Edmonton, Alberta), the IMTA team performed brilliantly at the karaoke competition with an original adaptation of “YMCA” by Village People. From left to right: Christie Whelan, Tim Jackson, Thierry Chopin, Cyr Couturier and Bill Heath



A biased Master of Ceremony (Gregor Reid) and jury (Chris Pearce, Linda Hiemstra and Shawn Robinson) failed to recognize the originality of that approach and the IMTA team finished second

In 2009, Shawn Robinson and I were the recipients of the AAC Research Award of Excellence for taking the IMTA concept from the laboratory to the realm of commercial production.

Over the years - with the support of the New Brunswick Innovation Foundation (NBIF), the Atlantic Canada Opportunities Agencies-Atlantic Innovation Fund (ACOA-AIF), the Natural Sciences and Engineering Research Council of Canada (NSERC) strategic Canadian Integrated Multi-Trophic Aquaculture Network (CIMTAN) and its partners (Fisheries and Oceans Canada, the University of New Brunswick, the New Brunswick Research and Productivity Council, Cooke Aquaculture Inc., Kyuquot Seafoods Ltd., Marine Harvest Canada Ltd. and Grieg Seafood BC

Ltd. - we have been progressing along the continuum from R (Research) to D (Development) to c (small scale commercialization) to now enter C (larger scale commercialization) and making the Blue Revolution greener to enter the new ERA of Ecosystem Responsible Aquaculture through the Turquoise Revolution!

The world-renowned phycologist Max Doty talked about “marine agronomy” in the 1970’s. However, the Turquoise Revolution is not only targeting practices in the marine environment, but also in the freshwater environment, and in open-water as well as in closed containment operations. Instead of talking about agronomy (in Greek, “the laws of the [land] fields”) in marine or freshwater environments, it may now be time to give a proper name to this discipline and talk about aquanomy (“the laws of the aquatic fields”), especially if we want to responsibly produce large amounts of diversified crops.



Shawn Robinson (left) and Thierry Chopin (right) received the 2009 AAC Research Award of Excellence from AAC President Debbie Martin-Robichaud at AC2009 (in Nanaimo, British Columbia)

INVOLVEMENT WITH THE AAC

Dennis Hanisak not only cultivated seaweeds; he inoculated deeper in me the bug of associative life, which I had started to develop in France with my involvement in the renowned sailing centre, the Centre Nautique des Glénans.

I was recruited to the Board of Directors of the AAC in 2001 by Andrew Boghen, who had noticed that I already had quite a lot of experience with the running of associations. From 1994 to 2000, I was the Membership Director of the Phycological Society of America and, in 2000, I became also the Treasurer of the International Phycological Society. So, I was elected to the Board of Directors of the AAC in 2001 and immediately convinced to be its Treasurer until 2003. I was President Elect of the AAC in 2003-04, President in 2004-05 and Past President in 2005-06.

During these years, I was also very involved with the other two associations:

- The International Phycological Society: Treasurer from 2000 to 2005, and
- The Phycological Society of America: Vice President in 2003, President in 2004 and Past President in 2005.

If that was not enough, I was also Chair of the Biology Department at UNBSJ from 2002 to 2005. All these

activities require a lot of multitasking and some days I wondered if I should have contemplated a sex change, as women are generally much better than men at that!

I also started to be involved with the International Seaweed Association (ISA; no, this is not always a salmon disease!), becoming a member of its Council in 2004. Having concluded my time on the AAC Board of

Directors, I became President Elect of the ISA from 2004 to 2007, President from 2007 to 2010 and Past President from 2010 to 2013. I am now its Secretary General.

I have truly enjoyed this period of dedication to associative life: it is a wonderful school of responsibility, management and decision making. It gives you a unique opportunity for networking and developing many professional contacts and some long-term friendships.

The drawback with all these volunteer organizations is a significant turnover of their officers and a certain tendency to reinvent the wheel. To avoid that, it is very important to keep the institutional memory of the association and to remember what has been tried before and what worked or did not work. This is not an easy task and it demands that a balance be found between allowing creativity and innovation and being careful not to repeat past and forgotten failures. This is what I am trying to do with the ISA presently.

The AAC recently changed its structure with the creation of an Executive Director position. This is a significant evolution in the Association and I hope this will free the President up from pretty much spending all his/her presidency organizing the next annual conference and having no time for reflecting and, hopefully, participating in the evolution of policies and regulations of the aquaculture sector. However, to allow a President to be fully up to speed, I believe his/her mandate should be extended to two years.

Long live the AAC! Tous mes voeux de succès durable à l’AAC!

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Consul Honoraire de France

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