



NSERC Canadian Integrated  
Multi-Trophic Aquaculture Network

Réseau canadien d'aquaculture  
multitrophique intégrée du CRSNG

CIMTAN Snippets



The panelists of the session "Upscaling the ecosystem approach":  
Margareth Øverland, Thierry Chopin, Bela Buck and Geir Lasse  
Taranger.

The theme of Aqua Nor Forum 2011 – organized by the European Aquaculture Society, in Trondheim, Norway, August 17-18, 2011 – was "Upscaling aquaculture systems". **Thierry Chopin** was an invited panelist in the third session "Upscaling the ecosystem approach" and gave a presentation entitled "Progression of the Integrated Multi-Trophic Aquaculture (IMTA) concept and upscaling of the IMTA systems towards commercialization".

Read the Summary Report of Aqua Nor Forum 2011:

<http://www.unbsj.ca/sase/biology/chopinlab/articles/files/AQUA%20NOR%20Forum%202011%20Summary.pdf>

The Proceedings of the International Seaweed Symposium, held in Ensenada, Mexico, in 2010, are out. They are published as a special issue of the *Journal of Applied Phycology* (Vol. 23, issue 3). It contains the opening remarks of Thierry Chopin, who was finishing his three year mandate as the President of the International Seaweed Association. Farmed seaweeds (93.8% of the worldwide harvested seaweed resource) represent 46.2% of the total world mariculture, but represented only 0.6% of the presentations at the Aquaculture 2007 Conference of the World Aquaculture Society and 2.2% at the Aquaculture 2010 Conference of the same society (the increase was mostly due to abstracts on IMTA and biofuels). The problem is that 99.8% of the 15.8 million tons of cultivated seaweeds (worth US\$7.4 billion) come from China, Indonesia, the Philippines, Korea and Japan, hence the frequent ignorance in the western world. The phycological community needs to stop preaching to the converted, attend other scientific meetings and reach regulators, decision makers and politicians to be sure that the relevance of this group of organisms to society is understood, the ecosystem services they provide are appreciated and accounted for (representing as much as 23% of their present commercial value), and aquaculture practices, based on Marine Agronomy principles, are implemented. Obviously, much remains to be done to make the **Blue Revolution greener** to enter the era of the **Turquoise Revolution!**



Aquaculture of the red seaweed *Kappaphycus cottonii* in Bali.

Read the article: <http://www.unbsj.ca/sase/biology/chopinlab/articles/files/Chopin%202011%20ISA%20ISS.pdf>



NSERC Canadian Integrated  
Multi-Trophic Aquaculture Network

Réseau canadien d'aquaculture  
multitrophique intégrée du CRSNG

CIMTAN *Snippets*



From August 23 to August 25, 2011, **Thierry Chopin (UNBSJ)**, **Michael Szemerda**, **Nell Halse**, **Joe Middleton** and **Tom Taylor (Cooke Aquaculture Inc.)**, and **Chris Aerni (The Rossmount Inn)** worked on a television episode of **La Semaine Verte** for Radio Canada with **Gilbert Begin (journalist)**, **Bernard Laroche (producer)**, **Alain Villeneuve (cameraman)** and **Georges Sheehy (sound technician)**. The show is expected to be aired soon.

**Thierry Chopin participated in the 2011 New Brunswick Festival of Nature**, organized by Nature NB (formerly the New Brunswick Federation of Naturalists), which, this year, took place on Grand Manan Island on September 3-4. He was the group leader for the Seaweed Discovery Tour, which started in the kitchen with the preparation of a blanc mange pudding in the Acadian tradition. While the hot milk containing carrageenans, diffusing from a small bag of the red seaweed *Chondrus crispus* (commonly known as Irish moss), was cooling down, Thierry Chopin gave a presentation entitled "Integrated Multi-Trophic Aquaculture (IMTA): one of the solutions for the **Turquoise Revolution** (the **greener Blue Revolution**)". The tide getting low, the group went to Pettes Cove to discover, first hand, some common species of seaweeds along our shore and also get to know a little more about their biology, ecology and uses in our everyday lives. Once back, everybody enjoyed the blanc mange, which had turned into a delicious gelled pudding. Disseminating knowledge to various audiences will certainly be an important task if we want to increase the awareness of IMTA in the general public .



Read the comments of Thierry Chopin:

[http://www.unbsj.ca/sase/biology/chopinlab/imta/news/nb\\_nature\\_festival/](http://www.unbsj.ca/sase/biology/chopinlab/imta/news/nb_nature_festival/)



NSERC Canadian Integrated  
Multi-Trophic Aquaculture Network

Réseau canadien d'aquaculture  
multitrophique intégrée du CRSNG

CIMTAN *Snippets*

**“An innovative aquaculture practice that internalizes a number of environmental issues”.**

This is the way IMTA is portrayed in the paper “Let’s get certified; Exploring the certification of farmed seafood” authored by Trevor Ward, Bruce Phillips and Read Porter, and published in the September issue of *World Aquaculture*.

Read the article:

<http://www.unbsj.ca/sase/biology/chopinlab/articles/files/Ward%20et%20al.%202011%20Let%27s%20get%20certified.pdf>

**Renée Cho**, freelance environmental writer in New York City and a regular contributor to [The Earth Institute’s State of the Planet blog](#), wrote an article entitled “**The seaweed and shellfish solution**” in the September-October 2011 issue of *E-The Environmental Magazine*.

Read the article:

<http://www.unbsj.ca/sase/biology/chopinlab/articles/files/Cho%202011%20E%20The%20Environmental%20Magazine.pdf>

**CIMTAN holds its first technical workshop.** On September 19-21, 2011, CIMTAN held a workshop in Fredericton, New Brunswick, on the “Spatial modelling of IMTA shellfish”. The workshop arose from the need to combine network expertise with a multi-disciplinary approach necessary to develop an ecosystem-type shellfish model for open-water IMTA systems. CIMTAN researchers from across the country came to explore strategies specific to IMTA systems on both the Pacific and Atlantic coasts. The workshop was fortunate enough to be able to bring in some external expertise, which included Ramón Filgueira, as the model facilitator, and Pedro Duarte, from the University Fernando Pessoa, Porto, Portugal, as a guest presenter. Proceedings from the workshop are presently being written up for an issue of the *Bulletin of the Aquaculture Association of Canada*. Questions regarding the workshop can be directed to Gregor Reid, the organizer of this successful workshop ([greid@unb.ca](mailto:greid@unb.ca)).







NSERC Canadian Integrated  
Multi-Trophic Aquaculture Network

Réseau canadien d'aquaculture  
multitrophique intégrée du CRSNG

CIMTAN *Snippets*



Shawn Robinson and Thierry Chopin participated in the First Salmon Academy (<http://salmonacademy.com>), which was held in St. Andrews, New Brunswick, October 3-6, 2011. Shawn Robinson gave a presentation entitled "Aquaculture at thirty thousand feet" and Thierry Chopin gave another one entitled "Innovation in aquaculture: the development of integrated multi-trophic aquaculture (IMTA)".

"IMTA" was the highlight of a beautiful and thought provoking performance of "Perspectives" by Motus O Dance Theatre at the Imperial Theatre in Saint John, on October 14, 2011. The performance of Motus O Dance Theatre attracted a lot of press coverage because of this unique situation when science met dance to create a wonderfully choreographed dance piece called "IMTA".

Read the articles:

- "IMTA featured in dance presentation" by Barb Rayner, in *The St. Croix Courier Weekend*, on September 23, 2011. <http://www.unbsj.ca/sase/biology/chopinlab/articles/files/Rayner%202011%20IMTA%20featured%20in%20dance%20presentation.pdf>
- "A fishy dance performance – Show makes science accessible through movement" by Laura Lyall, in *Here NB*, Vol. 12, Issue 40, p. 22, on October 6, 2011. <http://www.unbsj.ca/sase/biology/chopinlab/articles/files/Here%20NB%20Motus%20O%20Dance%20Theatre.pdf>
- "When dance and science meet" by Kathy Kaufield, in *KV Style*, Vol. 7, Issue 39, p. 18-19, on October 7, 2011. <http://www.unbsj.ca/sase/biology/chopinlab/articles/files/KV%20Style%20111007%20binder.pdf>
- "Motus'O multi-trophic moves" by Kathy Kaufield, in *The Telegraph Journal*, on October 8, 2011. <http://telegraphjournal.canadaeast.com/salon/article/1446253>
- "A new perspective on science" by Alanah Duffy and Heather Campbell, on *UNB website*, on October 10, 2011. <http://www.unb.ca/excellence/sciencedance.html>



Read the comments of Thierry Chopin:

[http://www.unbsj.ca/sase/biology/chopinlab/imta/news/motus\\_o/index.html](http://www.unbsj.ca/sase/biology/chopinlab/imta/news/motus_o/index.html)

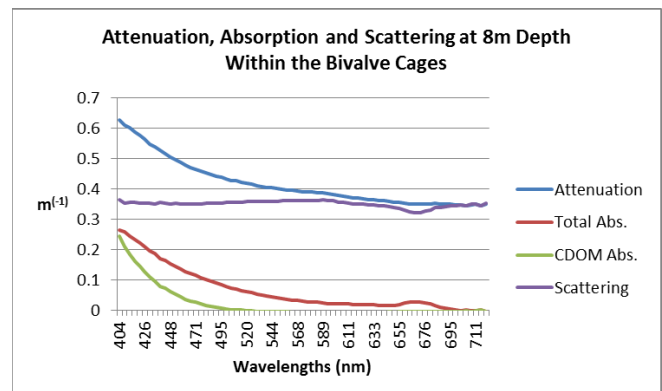
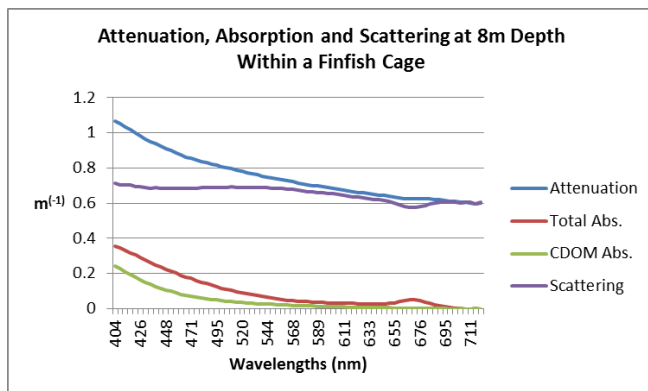
The event was generously sponsored by Cooke Aquaculture Inc. and CIMTAN.



The IMTA kiosk has been delivered to the new Fundy Discovery Aquarium at the Huntsman Marine Science Centre, in St. Andrews, New Brunswick. It is almost complete (the video monitor still needs to be installed). IMTA is also part of the large Cooke Aquaculture Inc. poster.



Justin Del Bel Belluz (MSc. candidate) has been working in the Spectral Laboratory of Maycira Costa at the University of Victoria, where he is **quantifying and characterizing the spatial and temporal distribution of the particulate waste plume produced by sablefish** at the west coast IMTA site, in Kyuquot Sound, British Columbia. To do this, he is using an array of cutting edge optical equipment including a hyperspectral attenuation and absorption meter, a backscatter sensor, colour dissolved organic matter (CDOM) and chlorophyll fluorometers, in-water radiance and irradiance sensors, and a nutrient profiler. This knowledge will aid in determining where extractive species should be placed for maximal waste uptake. Preliminary results from the July 2011 field campaign (Figures 1 and 2) show the variations in the attenuation, absorption (total and CDOM) and scattering coefficients at 8 m depth within a finfish cage and the corresponding down-current bivalve cages. Note the reduced values for attenuation, total absorption, and scattering within the bivalve cages, and also the peak in total absorption at 670 nm indicating a phytoplankton bloom in the area.





NSERC Canadian Integrated  
Multi-Trophic Aquaculture Network

Réseau canadien d'aquaculture  
multitrophique intégrée du CRSNG

CIMTAN Snippets



Justin Del Bel Belluz holding a hyperspectral  
attenuation and absorption meter.

**CIMTAN member quote of the month:**

"It is very exciting to be part of such a large west and east coast network and to be working on a project which will create a far more comprehensive understanding of how IMTA systems operate in the environment and will change how the aquaculture industry will operate in Canada."

*(Justin Del Bel Belluz, CIMTAN MSc. candidate).*

**Hot off the press...!** Alejandro Buschmann, head of the i-mar Research Centre at the Universidad de Los Lagos in Puerto Montt, Chile, has been **appointed to the Standards Oversight Committee (SOC)** that oversees the development of the **Global Aquaculture Alliance (GAA) Best Aquaculture Practices (BAP)** certification program. With his well-known expertise on seaweeds and IMTA, we hope that Alejandro Buschmann will make sure that these organisms and this aquaculture practice get the full recognition they deserve in certification programs. Congratulations Alejandro!



The three amigos (Alejandro Buschmann, Max Troell and Thierry Chopin) on their return from visiting an aquaculture site near Puerto Montt, Chile.



IMTA kelp (*Saccharina latissima*) wrapped salmon-avocado tartare, sesame "cran-apple" vinaigrette, citrus-soy glaze, cilantro and chives... one of the delicious dishes prepared by Chris Aerni, Chef and owner of the Rossmount Inn in St. Andrews.

**Even hotter off the press...!** Will seaweeds be the next big superfood? *Chatelaine Magazine* already thought so (see CIMTAN Snippets V2N4). Now, Cynthia Sass confirms the trend in *Shape Magazine*.

Read the article: <http://www.shape.com/blogs/weight-loss-coach/seaweed-next-big-superfood>