

André Dumas

AD Aquaculture Nutrition Services Inc.

Phone : 902-327-0134; Email : adumas@aquanutritionservices.com

CURRICULUM VITAE

EDUCATION

- 2003- 2008 Ph.D. Animal Nutrition
University of Guelph, Fish Nutrition Research Laboratory
Supervisor: Dr Dominique P. Bureau, Guelph (Ontario)
N1G 2W1
- 1993-94 M.Sc. Civil engineering (Wastewater Treatment Branch)
Laval University, GREREBA
Supervisors: Dr Joël de la Noüe and Dr Paul Lessard, Ste-Foy (Québec)
G1K 7P4
- 1989-92 B.Sc. Biology
Québec University at Trois-Rivières
Trois-Rivières (Québec)
G9A 5H7

SPECIALITY

- **Aquaculture nutrition**
 - Ingredient testing and commercialization
 - Feed formulation
 - Market assessment
- **Teaching and training**
 - Short- and Long-term course
 - Course curriculum development and Customized course
- **Sustainable aquaculture**
- **Mathematical modelling**
- **Animal ethics**
- **Innovation management**
- **Communication**
 - Workshop
 - Conference
 - Publication in trade magazines and scientific journals.

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WORK EXPERIENCES

- 2021 to present AD Aquaculture Nutrition Services inc.
Position: **Founder and Consultant in fish nutrition.**
- 2015 to 2021 The Center for Aquaculture Technologies Canada.
Position: **Director of fish nutrition.** Leader of seven scientists and technicians to conduct contract research (ingredient testing, mathematical modelling, feed formulation, shadow pricing) for private corporations and research institutions.
- 2010-2015 Coastal Zones Research Institute inc.
Position: **Scientific director of aquaculture.** Leader of four teams (Fish nutrition, Arctic charr breeding, Oyster breeding, Lobster hatchery) to implement the New Brunswick Aquaculture Research Program and conduct contract research.
- 2008-2010 Cargill Animal Nutrition
Position: **Research scientist.** Responsible for the development and deployment of innovative ingredients/technologies in our global fish and crustacean nutrition market. Participant on the nutrition modelling team to develop/refine models on animal feeding programs (swine, poultry and fish), energy partitioning and muscle growth dynamic.
- 1997-2006 Consultant in aquaculture
Research and development, Educational projects.
Consultant for local fish farmers and the Continental aquaculture research and development society (SORDAC).
Teacher in aquaculture for the native Mohawk community of Akwesasne.
- 2001-2002
(July-January) Society for Research and Development of Continental Aquaculture
Position: **Scientific coordinator, Inter-Provincial Sustainable Freshwater Aquaculture Development.** Five proposals were funded (> \$1M).

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SCIENTIFIC PAPERS

- Liu, A., V.P.T.H. To, E. Santigosa, **A. Dumas**, J.-M. Hernandez. 2022. Vitamin nutrition in salmonid aquaculture: from avoiding deficiencies to enhancing functionalities. *Aquaculture* 561 <https://doi.org/10.1016/j.aquaculture.2022.738654>.
- Lachapelle, V., M. Racicot, G. Comeau, M. Rhouma, A. Leroux, O.W. Noubissie, F. Proost, R. Zanabria, M.-L. Gaucher, M. Costa, Y. Chorfi, R. Holley, J. Smillie, M.-L. Bosch, A. Dumas, E. Brockhoff, S. Collins, P. Snelgrove, S. Quessy. 2021. Expert elicitation to estimate the feed safety impact of criteria included in the Canadian Food Inspection Agency risk assessment model for feed mills. *Journal of Food Protection* 84: 611-627
- Rhouma, M., V. Lachapelle, G. Comeau, S. Quessy, R. Zanabria, F. Provost, C. Italiano, R. Holley, J. Smillie, E. Brockhoff, M.-L. Bosch, S. Collins, **A. Dumas**, Y. Chorfi, M. Costa, M.L. Gaucher, M. Racicot. 2021. Identification and selection of animal health and food safety-related risk factors to be included in the Canadian Food Inspection Agency's risk assessment model for livestock feed mills. *Food Control* 121: 107642
<https://doi.org/10.1016/j.foodcont.2020.107642>
- Ignatz, E.H., **A. Dumas**, T.J. Benfey, T.S Hori, L.M. Braden, C.D. Runighan, M.L. Rise and J.D. Westcott. 2020. Growth performance and nutrient utilization of growth hormone transgenic female triploid Atlantic salmon (*Salmo salar*) reared at three temperatures in a land-based recirculating aquaculture system (RAS). *Aquaculture* 519
<https://doi.org/10.1016/j.aquaculture.2019.734896>
- Reid, G.K., S. Lefebvre, R. Filgueira, S.M.C. Robinson, O.J. Broch, **A. Dumas** and T.B.R. Chopin. 2018. Performance measures and models for open-water integrated multi-trophic aquaculture. *Reviews in Aquaculture* <https://doi.org/10.1111/raq.12304>
- Smith, A.A., **A. Dumas**, R. Yossa, K.E. Overturf, D.P. Bureau. 2018. Effects of soybean meal and high protein sunflower meal on growth performance, feed utilization, gut health and gene expression in Arctic charr (*Salvelinus alpinus*) at the grow-out stage. *Aquaculture Nutrition* 24: 1540-1552.
- Dumas, A.**, T. Raggi, J. Barkhouse, E. Lewis, E. Weltzien. 2018. The oil fraction and partially defatted meal of black soldier fly larvae (*Hermetia illucens*) affect differently growth performance, feed efficiency, nutrient deposition, blood glucose and lipid digestibility of rainbow trout (*Oncorhynchus mykiss*). *Aquaculture* 492: 24-34
- Tibbetts, S.M., J. Mann, **A. Dumas**. 2017. Apparent digestibility of nutrients, energy, essential amino acids and fatty acids of juvenile Atlantic salmon (*Salmo salar* L.) diets containing whole-cell or cell-ruptured *Chlorella vulgaris* meals at five dietary inclusion levels. *Aquaculture* 481: 25-39.

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- Smith, A.A., **A. Dumas**, R. Yossa, K.E. Overturf, D.P. Bureau. 2017. Effects of soybean and sunflower meals on the growth, feed utilization, and gene expression in two Canadian strains of juvenile Arctic charr (*Salvelinus alpinus*). *Aquaculture* 481: 191-201.
- Powell, C.D., S. López, **A. Dumas**, D.P. Bureau, S.E. Hook & J. France. 2017. Mathematical descriptions of indeterminate growth. *Journal of Theoretical Biology* 425: 88-96.
- Haché, R., **A. Dumas**, D. Thumbi, B.S. Forward & M. Mallet. 2017. Effect of live algae used as greenwater on survival, growth, behaviour, ontogeny and bacterial profile of lobster larvae (*Homarus americanus* Milne Edwards). *Aquaculture Research* 48:581-593.
- Reid, G.K., I. Forster, S. Cross, S. Pace, S. Balfry & **A. Dumas**. 2017. Growth and diet digestibility of cultured sablefish *Anoplopoma fimbria*: Implications for nutrient waste production and integrated multi-trophic aquaculture. *Aquaculture* 470: 223-229.
- Yossa, R. & **A. Dumas**. 2016. Approaches for controlling sea lice infestation in global salmon farming: what is applicable in Canadian aquaculture industry. *Journal of Applied Aquaculture* 28: 314-329.
- Overturf, K., F.T. Barrows, R.W. Hardy, A. Brezas & **A. Dumas**. 2016. Energy composition of diet affects muscle fiber recruitment, body composition, and growth trajectory in rainbow trout (*Oncorhynchus mykiss*). *Aquaculture* 457: 1-14.
- Haché, R., M.D. Mallet & **A. Dumas**. 2015. Effect of light regime on larvae survival, growth and settling behavior of hatchery reared American lobster (*Homarus americanus*). *Aquaculture* 443: 31-39.
- Haché, R., C.J. Pelletier & **A. Dumas**. 2015. Selected nutrient profiles in first larvae and postlarvae of American lobster (*Homarus americanus*). *Aquaculture International* 23: 929-941.
- Dumas, A.**, S. López, E. Kebreab, M. Gendron, J.H.M. Thornley & J. France. 2012. Selection of growth functions for describing length-at-age relationships in fish species displaying different life history traits: unexpected alternatives to the von Bertalanffy equation and advantages of a pluralistic statistical approach. *Animal Science Reviews* 2012, 101-114.
- Dumas, A.**, J. France, & D.P. Bureau. 2010. Modelling growth and body composition in fish nutrition: where have we been and where are we going? *Aquaculture Research* 41, 161-181.
- Darmani Kuhl, H., T. Porter, S. López, E. Kebreab, A.B. Strathe, **A. Dumas**, J. Dijkstra & J. France. 2010. A review of mathematical functions for the analysis of growth in poultry. *World's Poultry Science Journal* 66, 227-239.
- Dumas, A.**, I. Dijkstra & J. France. 2008. Mathematical modelling in animal nutrition: a centenary review. *Journal of Agricultural Science, Cambridge* 146, 123-142.

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Dumas, A. & J. France. 2008. Modelling the ontogeny of ectotherms exhibiting indeterminate growth. *Journal of Theoretical Biology* 254, 76-81.

Dumas, A., C.F.M. de Lange, J. France & D.P. Bureau. 2007. Quantitative description of body composition and rates of nutrient deposition in rainbow trout (*Oncorhynchus mykiss*), *Aquaculture* 273, 165-181.

Dumas, A., J. France & D.P. Bureau. 2007. Evidence of three growth stanzas in rainbow trout (*Oncorhynchus mykiss*) across life stages and adaptation of the thermal-unit growth coefficient. *Aquaculture* 267, 139-146.

Dumas, A., G. Laliberté, P. Lessard & J. de la Noüe. 1998. Biotreatment of fish farm effluents using the cyanobacterium, *Phormidium bohneri*. *Aquacultural Engineering* 17, 57-68.

BOOK CHAPTER

Lall, S.P. & A. Dumas. 2022. Nutritional requirements of cultured fish: formulating nutritionally adequate feeds. Pages 65-132. *In: A.D. Davis (Ed.). Feed and Feeding practices in Aquaculture, Second Edition.* Woodhead Publishing, Elsevier.

SELECTED CONGRESS WITH PRESENTATIONS

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|------------------|---|
| Aug. 15-18, 2022 | Aquaculture Canada and WAS North America
St. John's, Newfoundland and Labrador, Canada
Oral presentation "Nutritional evaluation of aqueous-processed canola in diets of Atlantic salmon (<i>Salmo salar</i>)" |
| Jun. 05-09, 2022 | XX International Symposium on Fish Nutrition and Feeding
Sorrento, Italy
Oral presentation "Optimal vitamin nutrition to foster sustainable salmonid aquaculture" |
| Feb. 09-12, 2020 | Aquaculture America 2020
Honolulu, Hawaii, USA
Oral presentation "Fatty acid deposition in fillets of post-smolt Atlantic salmon <i>Salmo salar</i> fed diets supplemented with DHA-rich oil extracted from <i>Schizochytrium</i> spp." |
| Jun. 03-07, 2018 | XVIII International Symposium on Fish Nutrition and Feeding
Las Palmas de Gran Canaria, Spain
Oral presentation "The oil fraction and partially defatted meal of black soldier fly larvae (<i>Hermetia illucens</i>) affect differently growth performance, feed efficiency, nutrient deposition, blood glucose and lipid digestibility of rainbow trout (<i>Oncorhynchus mykiss</i>)" |

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- Jul. 23-26, 2017 **Bio World Congress on Industrial Biotechnology**
Montréal, Canada
Oral presentation “Harnessing industrial biotechnology to meet aquaculture feed needs”
- Jun. 13-16, 2017 **FVG Select 2017 & Aquafeed Horizons**
Cologne, Germany
Oral presentation “Toward higher inclusion of soybean meal in salmon feeds”
- Jun. 05-10, 2016 **XVII International Symposium on Fish Nutrition and Feeding**
Idaho, USA
Oral presentation “Energy composition of diets affects muscle fiber recruitment, body composition and growth trajectory in rainbow trout”
- Aug. 31- Sept. 03, 2015 **35th Fish Feed & Nutrition Workshop**
Bozeman Fish Technology Center, Montana, USA
Oral presentation “Mathematical modelling in fish nutrition: value and opportunities”
- Jun. 1-4, 2014 **Aquaculture Canada 2014 Conference**
St. Andrews, CANADA
Oral presentation “Nutritional evaluation of an innovative shrimp protein concentrate as ingredient for carnivorous fish feed”
- Mar. 10-12, 2013 **International Boston Seafood Show**
Boston, USA
Oral presentation “Sea, processing and fish: a value creation pathway of seafood processing by-products”
- Jun. 18-19, 2012 **1st Annual Atlantic Canada Bio-refinery Conference**
Shediac, CANADA
Oral presentation “Field, fish and fuel: a value creation pathway of bio-refinery-based products”
- Jan. 24-25, 2012 **Marine Innovation Conference**
Oslo, NORWAY
Oral presentation “Modelling the carbon footprint of aquafeeds”
- May 26 – Jun. 01, 2006 **XII International Symposium on Fish Nutrition and Feeding**
Biarritz, FRANCE
Oral presentation “Modelling growth pattern, body composition and nutrient deposition of rainbow trout across life stages”

PROFESSIONAL ACTIVITIES

- 2022-2023 **Visiting Scholar** at the Department of Animal Biosciences, Ontario Agricultural College, University of Guelph
- 2008-2021 **Honorary Research Fellow** at the Centre for Nutrition Modelling of the University of Guelph

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- 2011-2020 Appointment as **Adjunct and graduate faculty (co-supervisory status)** at the University of Prince Edward Island – Faculty of Veterinary Medicine
- 2017 **Chair of the 36th Fish Feed & Nutrition Workshop** (North American conference)
- 2016-2018 **Chair of the Animal Care Committee** at the Center for Aquaculture Technologies
- 2010-2015 **Treasurer**, Inter-Provincial Sustainable Freshwater Aquaculture Development (Canada)
- 2013-2015 **Leader** of the \$2.8M national Arctic charr aquaculture project
- 2012-2014 **Member of the Industry Advisory Board** on plant-based ingredients in aquaculture nutrition led by Cargill Corn Milling
- 2011 **Leader of the Steering Committee** and organization of the international workshop *Arctic Char Aquaculture 2011: Assessing Status – Identifying Opportunity*
- 2011-2015 Appointment as **member of the Canadian Aquafeed Working Group**