

Net Pen Liver Disease Workshop:

What we know.

What we don't know.

Friday, May 29, 2015

9:00 am to 4:00 pm

*Maritime Heritage Centre
Campbell River, BC*

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Hosted by Grieg Seafood BC Ltd.

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9:00 – 9:30	Registration
9:30 – 9:40	Introduction - Dr. Jim Powell (<i>BC Centre for Aquatic Health Sciences</i>)
9:40 – 10:10	Dr. Michael Kent (<i>Oregon State University, Department of Microbiology and Biomedical Sciences</i>) - Netpen Liver Disease: Pathology, source of disease & links to Microcystin
10:10 – 10:40	Dr. Barry Milligan (<i>Grieg Seafood BC Ltd</i>) - Site Case Study of Net Pen Liver Disease in Preharvest Fish
10:40 – 11:00	Break
11:00 – 11:30	Dr. Heindrich Snyman (<i>BC Ministry of Agriculture, Animal Health Centre</i>) - Histopathology of chronic liver disease in Atlantic Salmon raised in Nootka sound in 2014.
11:30 – 12:00	Morning Presentation Discussion & Questions
12:00 – 1:00	Lunch
1:00 – 1:30	Dr. Stephanie Smith (<i>Beagle Bioproducts Inc</i>) - Looking for Microcystin Associated with Netpen Liver Disease: Does ADDA Add Up
1:30 – 2:00	Dr. Nicky Haigh (<i>Harmful Algae Monitoring Program</i>) - Toxic Cyanobacteria & their possible role in Net Pen Liver Disease
2:00 – 2:20	Break
2:20 – 2:50	Dr. Asit Mazumder (<i>University of Victoria, Department of Biology</i>) - Causes & Consequences of Algal Toxins in Aquatic Systems & Food Webs
2:50 – 4:00	Workshop Discussion & Closing Comments

This workshop is funded by Fisheries and Oceans Aquaculture Collaborative Research and Development Program - a Fisheries and Oceans Canada (DFO) initiative to increase the level of collaborative research and development activity between the aquaculture industry and the department.

PRESENTERS

Dr. Jim Powell, BC Centre for Aquatic Health Sciences

Dr. Jim Powell has over 30 years experience in the areas of fisheries and aquaculture sciences and is an established authority on fish reproduction and broodstock management both locally and internationally. His primary work has been in the area of fish physiology and adaptive management strategies of fish culture for a range of fresh- and salt-water species. He has extensive experience in aquaculture drug development, testing, registration and implementation in addition to work in fish health. Most recently, Jim was involved in fisheries and aquaculture management in the recreational and conservation sector with involvement in threatened and endangered species recovery. Dr. Powell is a founding Board member of the BC CAHS and has served on the board since inception.

Dr. Michael Kent, Oregon State University, Department of Microbiology and Biomedical Sciences

Since 1999, Dr. Kent has been a Professor at Oregon State University. Dr. Michael Kent was employed at Fisheries Oceans Canada, Fish Health Section, Pacific Biological Station (PBS) from 1988-1999, and was head of the Fish Health Section his last 2 years there. He did a post-doc at the Battelle Marine Lab in Sequim, Washington, from 1986-1988, and this is where he discovered and named “netpen liver disease” from a fish farm in Port Townsend Bay. At PBS, his research was largely focused on diseases of pen-reared salmon, and he has published over 250 papers on fish diseases.

Dr. Barry Milligan, Grieg Seafood BC Ltd.

Barry Milligan has been a veterinarian and production planner in salmon aquaculture for more than 12 years. Prior to working for Grieg, Barry was a small animal veterinarian on Vancouver Island for 1 year, a research associate in Population Medicine at the University of Guelph for 3 years, and a research associate at the Centre for Food Animal Research in Ottawa for 4 years. Barry holds a BSc in Biology from the University of Regina, a MSc in Biology (Marine Ecology) from the University of Victoria, and a DVM from the University of Guelph.

Dr. Heindrich Snyman, BC Ministry of Agriculture, Animal Health Centre

Dr. Hein Snyman is a board certified Veterinary Diagnostic Pathologist specializing in diagnostic Fish Pathology. Hein was born in South Africa and completed his BVSc degree from the University of Pretoria in 2008. After spending some time in private practice in South Africa as an exotics and wildlife veterinarian, he joined the Department of Pathobiology at the Ontario Veterinary College in Guelph as a graduate student. He completed his DVSc in Veterinary Anatomic Pathology in November 2013 and also successfully completed the certification examination of the American College of Veterinary Pathologists (ACVP) in anatomic pathology, September 2013. In December 2013, Hein joined the Animal Health Centre, the BC Ministry of Agriculture's AAVLD accredited veterinary diagnostic laboratory, as veterinary diagnostic pathologist. During this time he developed a keen interest in aquaculture and fish pathology and in July 2014 Hein became the second full time diagnostic fish pathologist with the Animal Health Centre.

Dr. Stephanie Smith, Beagle Bioproducts Inc.

Dr. Smith is the co-founder and Chief Scientific and Operations Officer of Beagle Bioproducts, Inc. in Columbus, OH. Beagle was founded for the purpose of providing products and services to people who study, mitigate, and otherwise encounter harmful algal blooms (HABs) and their associated toxins. Dr. Smith developed Beagle's technical capabilities, which include the production of analytical-grade toxins and Beagle's primary service offering, cyanotoxin testing for water and unusual sample matrices. Beagle has been built on Dr. Smith's training in photosynthetic microbiology at

PRESENTERS

The Ohio State University, where she earned her doctoral degree in 2002. She has served as a Senior Scientist and Associate Manager at Battelle Memorial Institute, as an officer in professional organizations such as the Ohio Branch of the American Society for Microbiology, and as an expert on a panel testifying before Congress regarding the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA). Dr. Smith is an active blogger about HABs, with the aim of raising public awareness and support for the study of HABs, so that technologies and strategies for mitigation can ultimately be developed.

Dr. Nicky Haigh, Harmful Algae Monitoring Program & Microthalassia Consulting Inc.

Nicky Haigh is a specialist in harmful marine algae, particularly the species that are harmful to finfish. The CEO of Microthalassia Consultants Inc., she is best known as the Manager and Senior Phytoplankton Analyst of the Harmful Algae Monitoring Program (HAMP) in Nanaimo, British Columbia. Building on her education with Dr. Max Taylor at UBC and four years of experience on a BC salmon farm, she developed HAMP, originally with Dr. Ian Whyte of Fisheries and Oceans Canada, to help the BC finfish aquaculture industry with issues of harmful algae monitoring, management and mitigation. In the past 16 years Nicky and HAMP have: helped BC salmon farmers to develop a long-term database of phytoplankton species abundance and diversity; identified new fish-killing species of phytoplankton in BC; and, through annual workshops and online courses on phytoplankton identification, increased the competence of fish-farming personnel on monitoring and identification of harmful algae species. Nicky also works with BC shellfish growers, academia, and government agencies on identification and monitoring of marine algae. She is the author of the *HAMP Harmful Plankton Handbook* (updated annually), and the *Plankton Identification Handbook for Shellfish Growers on the West Coast of Canada*. She has presented research papers at conferences in Canada and abroad.

Dr. Asit Mazumder, University of Victoria, Department of Biology

Asit Mazumder is a Professor of Biology at the University of Victoria. He is best known for his research in quantifying and modeling how nutrients and foodwebs interact in determining responses of freshwater and marine ecosystems in terms of water quality, nutrient dynamics, foodweb structure, contaminant transport, plant biodiversity and salmon productivity. In partnership with water utilities, communities, academics, government and industries, his research focuses on the integration of inter-disciplinary ecological, engineering, epidemiological and public health sciences into sustainable clean and healthy water for communities. He has published over 125 peer-reviewed papers in international journals including some of the top journals like Science, Ecology, Limnology and Oceanography, Canadian Journal of Fisheries and Aquatic Sciences, Environmental Science and Technology and Environmental Health Perspectives. He had been awarded the Chandler-Misener Award by the International Association for Great Lakes Research for the best scientific paper on the Great Lakes, and the Miller Institute Professorship for Basic Science at the University of California Berkeley. In 2013, the American Society of Limnology and Oceanography (ASLO) awarded him Ruth Patrick Award for his outstanding contributions to aquatic sciences towards environmental solutions for water quality. During the last decade, has been invited to serve as members of several national grant selection committees, as members of Research Management Committees for Research Networks on water, expert advisor to BC Auditor General on water issues and as a member of the panel advising BC Government on Aquaculture Waste Management.