

KEYNOTE



LECTURES



Food
for
Brain

ONE HOUR LECTURE...

ONE SPECIALIST...

ONE HOT TOPIC...

More information:

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- IWWG website www.iwwg.eu

ORGANIC WASTE MANAGEMENT FOR LAND-BASED FISH FARMS

Cage based aquaculture production of Atlantic Salmon amount to about 3 million tonnes annually of which the Norwegian production accounts for approximately half. Production has surged almost exponentially since its early beginning in the late 1970s and is today the main source of nutrient release and organic pollution to the Norse marine environment. European directives and local environmental regulations limit further growth which has led the industry to adopt novel production techniques, like land-based farming, enclosed and semi-enclosed cage technology and offshore open-cage farming. Land based and enclosed systems are almost exclusively designed as recirculated tank systems (RAS: Recirculated Aquaculture Systems) which reduce water consumption and optimize growth factors like temperature and water quality. Both dissolved and particulate fish wastes (mainly faeces and feed spill) are collected by inline nitrifying biofilters and mechanical drum filters for particle removal, wastes that in open cage farming was directly discharged to the environment. This represents a dramatic improvement in fish farming environmental footprint, and a significant development towards sustainable fish farming.

An overview of the environmental effects of traditional fish farming and description of land-based systems and how these represent a significant reduction in environmental load will be provided. Furthermore, some ideas and current research on how to use fish waste as an internal carbon source for effluent nitrogen removal will be presented. The latter includes novel data from the first full scale activated sludge denitrification system (to our knowledge) for nitrogen removal in RAS.



Prof. Roald Kommedal

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Roald Kommedal is Associate Professor in Environmental Engineering at University of Stavanger, Norway. He studied environmental and aquaculture engineering as an undergraduate (Univ. Stavanger), and graduate studies in Marine resource development and protection (Herriot Watt University) before working as marine environment manager in western Norway. He earned a PhD in environmental biotechnology at the Norwegian University of Science and Technology in 2003 on a thesis studying particle and polymeric organic removal in biofilm systems. Following post doc studies on biodegradation of hydrocarbons at psychrophilic marine conditions, his research focused on anaerobic wastewater and sludge treatment technologies. Prof. Kommedal is program tutor for the Environmental Engineering program at UiS and teach subjects in environmental process analysis and water and wastewater treatment technologies.



13:00 CET



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