

7<sup>th</sup> International Conference on

# AQUACULTURE & FISHERIES

October 19-21, 2017 | Rome, Italy



## Rune Waagbo

*NIFES, Norway*

### Micronutrient requirements in salmon aquaculture and legal concerns

The increasing growth in global aquaculture production needs input of available, suitable and affordable feed ingredients. The major input has until now been covered by refined plant ingredients, replacing and adding to the traditional marine ingredients fishmeal and fish oil. The micronutrient composition of novel feed ingredients differs largely from traditional well-suited marine ingredients, and the feed producers find themselves in a situation where they must focus on micronutrient contents and bioavailability, both to cover the fish requirements and to comply with legal upper limits. Vitamins (vitamins B and D especially) and minerals in seafood are associated with good consumers health and prevention of non-communicable diseases (NCDs). By using novel feed ingredients to farmed fish this is no longer an obvious assumption. A recently finalized EU project focusing on micronutrient supplementation to practical plant based fish feeds to five major European farmed species, among these Atlantic salmon, indicated elevated requirements for selected vitamins and minerals. Among these, dietary zinc was reviewed by the European Food Safety Authority (EFSA), which recommended a reduction of the legal upper feed concentration based on environmental concerns. Additional challenges deal with changes in nutrient bioavailability when using novel feed ingredients and additives. The resulting narrow gap between nutrient requirement and legal upper limit is problematic both to the industry and to food authorities, especially under variable farming conditions. To meet requirements is a prerequisite to promote fish welfare and robustness along the production chain. The solution implies further research on nutrient bioavailability for better estimates of requirements and upper limits from studies on sublethal toxicities. A natural approach is to explore if different chemical forms (for example organic forms of minerals) in selected feed ingredients or pure additives can contribute to the wanted predictability and license to operate. Example will be given on selenium.

### Biography

Rune Waagbo is Head of research for the section Requirement and Welfare NIFES. He has been involved in studies and experiments concerning feed ingredients, fish nutrition, micronutrient requirements, and fish health and welfare aspects since the nineties. He is holding the position as Editor in Chief for the international journal *Aquaculture Nutrition* (Wiley-Blackwell, UK), besides being a part-time Professor at the University of Bergen.

[rune.waagbo@nifes.no](mailto:rune.waagbo@nifes.no)