



Universidad de Concepción



AUSTRAL SUMMER INSTITUTE XIII (ASI XIII)

Department of Oceanography & COPAS Sur-Austral

University of Concepcion, Chile

Why do diseases emerge in marine aquaculture? And what can we do to limit this?

Alexander Murray and Nabeil Salama, Marine Scotland Science, Scotland

7-11 January 2013

PROGRAM

The five day course consisted of a series of lectures and exercises that covered the emergence of disease from an epidemiologist view point. This started with introductory talks from the students, whose interests and backgrounds were very diverse. Introductory lectures gave overviews of aquaculture and disease concepts before provision of a series of case history examples of disease modeling. Principles of modeling were described and the SIR (susceptible-infected-removed) modeling concept introduced with examples of SI models of the spread of IPNV and BKD explored. The role of transmission processes was emphasized and this led into the next days talks on models of hydrodynamic transmission of diseases and pathogens, especially sea lice. Wednesday morning was given over to surveillance with a lecture describing principles of surveillance, including how to design surveillance schemes and the evaluation of test sensitivity and specificity, including for pooled testing. On Thursday, lectures on long distance spread of diseases; both in natural waves and anthropogenic transport, and the principles of risk assessment were followed by an introduction to programming in R, including examples from SI modeling. A final lecture combined some principles of production economics and the role of OIE in international disease control. We completed Friday with a discussion of solutions for fish health including management and technical solutions such as vaccines.

An exercise in surveillance was carried out using white beans mixed at different prevalence and black beans to represent diseases individuals in healthy populations.

Open lecture: “Modeling: How does it help us understand aquatic animal health”