EWOS sea lice management
• Mode of action is to inhibit deposition of chitin
• Effective against all moulting stages
• MRL and withdrawal period established
• Commercial use Chile and Norway
• Assessing requirements in UK and Canada
• Resistance monitoring and management a key focus
• EWOS Norway – product manager Hege Hovland (tomorrow)
EWOS Releeze®

• Resistance monitoring – LD$_{50}$ test (VESO)
• Cold temperature efficacy
• Egg string / viability of infective stages
• Rotation of compounds (remove adults)
• Development of integrated pest management
• Additional tools to remove lice surviving treatments
Immune suppressants released

- Prostaglandin PGE$_2$
- Range of proteases
- Phosphatases
- Macrophage inhibitors

Effect on a range of factors
- Reduced respiratory burst
- Lower macrophage activity
- Increased cell death
- Decreased numbers of mucosal cells
- Down-regulation of immune genes (interleukin IL-1β and MHC-1)
- Local and systemic immune suppression
Growing understanding of suppression


- Nolan D., Raune N., Van Der Heijden M., Quabis E.S, Costelloe J., Wendellar S.E. (2000). Juvenile Lepeophtheirus salmonis (Kroyer) affect the skin and gills of rainbow trout Oncorhynchus mykiss (Walbaum) and the host response to a handling procedure. Aquaculture Research. 31. 823–833.


Boost Control

- Can reduce sea lice attachment (38%)
- Improved when combined with medicines

Burrells et al., 2000
Surviving lice – slow development

- Lice developmental stages
- Lice levels: 0ppb, 1ppb, 5ppb

Graph showing the surviving lice levels for different treatments (Ch 4, PAM1, PAF1, PAM2, PAF2, AM) across 0ppb, 1ppb, and 5ppb concentrations.
Other Control Mechanisms

- Some lice survive treatment
- Less robust against immune response
- Boosted fish remove >50%
- Removing resistant population

Reduce effectiveness from the treated lice

Allow increased immunity against lice

Wadsworth (1998)