

# *Gill Health Initiative*

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**16-17 April 2015**

Knowledge Gaps & Research Needs - *Discussion*

## Research needs for further development:

- Up-scale culture methods of the parasite
- Develop and refine challenge models
- Longitudinal studies on farms required
- More information on the biological & environmental factors influencing disease occurrence
- Descriptive epidemiology
- Molecular epidemiology
- Transmission methods of the parasite – well-boats, fish mortalities, water
- Sampling of wild fish species to detect potential hosts

## Knowledge gaps identified from discussions:

- Physiological response of the host: physiological, immunological
- Life cycle of the amoeba
- Alternative treatments – less labour-intensive, more ‘fish-friendly’
- Supportive therapies – is there a role of dietary supplements
- A better definition of gill pathologies e.g. AGD, PGI. Do other pathogens play a role e.g. *Desmozoon*, *Tenacibaculum*
- How important is smolt quality?

## Knowledge gaps identified by industry:

- Infection dynamics - Develop a better understanding of when disease is introduced to a site and the mechanisms for disease spread.
- Biophysical properties - Generate important knowledge to optimise treatment under different environmental conditions (Investigate temperature and salinity tolerances of *N. perurans*, half-lives & critical thresholds of *N. perurans* at different salinities & temperatures (inc. exposure periods, triggers for proliferation, temp x salinity influences), effect of various disinfection techniques on *N. perurans* (LC50) – UV, peroxide, ozone).
- Diagnostics - Ensure that available molecular based diagnostic tests have comparable sensitivity and specificity, ensure that sampling techniques are optimised and diagnostics tools used adequately.