Background

Amoebic gill disease (AGD) on salmon is caused by the protozoan ectoparasite *Paramoeba perurans* which causes acute and chronic damages to the gill tissue. These changes can be estimated visually with a gross gill score (1). The disease can progress rapidly and cause loss of appetite and death if not treated.

AGD was diagnosed for the first time in Norway in 2006. Since 2012, AGD has become a major problem for salmon farmers in the Southwest of Norway.

Experiences from veterinary field work with AGD

Gross gill score is one of the most important diagnostic tools when to follow the development of amoebic gill disease. Typical observations in the acute state are the formation of white mucoid spots and plaques on the gill surface, whereas the chronical changes includes swelling and necrosis of gill tissue and a general whitening of single lamellas.

By dividing the score in two, we can describe an overall gill status where treatable and non-treatable lesions are separated. The benefit of such an approach is to better identify an optimal treatment timing, whilst maintaining the crucial information regarding the total gill health.

Therefore a gross gill score of two scoring system was developed, and have been used since 2014.

Result

- When the active and total score is used systematically, the gill health is easier monitored
- Time for treatment and the evaluation of the treatment is improved with the use of active and total gill score.

References

THE USE OF A DOUBLE GILL SCORING SYSTEM FOR FIELD EVALUATION OF GILL HEALTH IN ATLANTIC SALMON (SALMO SALAR L.)

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Amoebic gill disease (AGD) on salmon is caused by the protozoan ectoparasite Paramoeba perurans which colonize the gills and causes acute and chronic damage to gill tissue. Typical observations in the acute state are the formation of white mucoid spots and plaques on gill surfaces. Chronic changes are more diverse, but includes necrosis of gill tissue, tissue swelling and a general whitening of single gill lamellas.

An optimal treatment strategy are often based on the development in gross gill score, thus is a score system focusing on the acute and treatable damages an advantage. On the other hand, the severity of the chronic damages and pathological changes caused by other pathogens, provide vital information regarding gill function and fish health status. All which needs to be considered to maintain animal welfare during treatment. It is our experience, from several years of working with AGD along the south-west coast of Norway, that we need a divided gross gill scoring system that take into account both acute and chronic damages on gill tissue. We present a modified gross gill score system with two scores called “active gill score” and “total gill score”.

The active gill score is similar to the score system described by Taylor et al (2009), whereas visible white patches are described on a scale from clear to heavy (score 0-5). We define the active gill score to include all white mucoid spots and plaques typical for the acute phase of amoebic gill disease. The total gill score includes all visible pathology on the gills, both acute and chronic damages caused by AGD and other pathogens or irritants. The observed changes are described on the same scale from clear to heavy (score 0-5) as for the active gill score system. When using this combined scoring system, all gill arches are observed, however only the most affected arch determine the score of the individual fish.

When using total and active gill score continuously on salmon farms during an AGD outbreak they have shown to be an effective and successful tool in handling this disease.

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