Mouth Rot

Tenacibaculosis / Mouth rot / Yellow mouth

*Tenacibaculum maritimum*

A severe example of pathological presentation of mouth rot in an Atlantic salmon. Classical mouth plaques and haemorrhage can be observed within the mouth, swelling and necrosis of the gingiva can also be observed.

**Animal model:** Atlantic salmon

**Source of CAT isolates:**
West Coast Canada (BC)

**Typical duration of study:** 21-60 Days

**Applications:** Vaccines, functional feeds, physical barriers, environmental treatments, immersion treatments, benchmarking commercial treatment efficies, genetic selection/phenotyping

**Type of model:** Immersion

**Clinical Signs of Disease in our Model:** Mouth plaques, fraying of fins, scale loss, skin lesions, gill necrosis and haemorrhage

**Challenge conditions:** Salt water 25-36 ppt

**Other end points:** Semi-quantitative gross path scoring

**Starting Fish Size:** 50-300 grams

**Summary:**
The aetiological agent of Tenacibaculosis (or yellow mouth) *Tenacibaculum spp.* infects multiple finfish species around the world. *Tenacibaculum spp.* are a major pathogen of sea bass (*Dicentrarchus labrax*), sea bream (*Sparus aurata*), turbot (*Psetta maxima*), and Atlantic salmon (*Salmo salar L.*). In Atlantic salmon, the disease and associated mortalities occur in smolts soon after transfer to sea and also in larger adults. While the disease exhibits a variety of pathological manifestations, yellow mouth lesions, fin erosion, and skin lesions are characteristic of the disease. In Canada, the disease causes significant losses to the industry and is a priority health and welfare issue with an annual cost for one Canadian company of $1.6 million/year. Moreover, instances of outbreaks in other geographical regions, e.g. Chile, Norway, and...
Scotland have increased in recent years which has escalated the research interest in the disease. Because there are no commercially available vaccines against *Tenacibaculum* licensed for use in salmonids and, since farmers are working to reduce their reliance on the therapeutic use of antibiotics, there is a strong need to identify alternative effective treatments.

The Tenacibaculum disease challenge model developed at the Center for Aquaculture Technologies has been designed to assess the efficacy of treatments administered prior to and/or after infection with *Tenacibaculum* by immersion. Execution of the challenge model can be tailored to deliver both acute and chronic infections; this flexibility enables CAT to evaluate different types of treatments. For instance, during the peak of clinical disease, it is very common for fish to reduce feed intake significantly. Therefore, in addition to a pre-challenge feeding period, the model can be designed to mimic pathologies and mortality levels characteristic of chronic infections when testing functional feeds. In addition to traditional end-point measures, the CAT team recommends periodic sampling for assessment of gross pathology using a semi-quantitative scoring system and collection of tissue samples for molecular and biochemical analysis.