

Impacts of jellyfish nematocyst toxins on Atlantic salmon (*Salmo salar*) tissues

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Complex Gill Disease (CGD) is an important cause of Atlantic salmon (*Salmo salar*) mortality in the marine stage of commercial aquaculture. Depending on the season, jellyfish blooms will form and pass through the mesh of the sea cages. They then come into contact with the skin and gills, releasing nematocysts into the water column, then entering the oral cavity of salmon to cause direct damage to the gills. The purpose of this study was to simulate gill damage resulting from jellyfish nematocyst toxins and assess the pathological changes and expression of specific genetic markers in salmon tissues. Field collections of lion's mane (*Capillata cyprinid*) and moon (*Aurelia aurita*) jellyfish were performed on Prince Edward Island followed by the maceration of their tentacles in a 1:1 solution of PBS to stimulate nematocyst release creating a jellyfish slurry. The resulting slurry was then filter-sterilized and used for exposures on salmon at different concentrations to analyze histological changes and genetic markers such as immune, redox and mucus biomarkers. The results of this study are still pending, but based on a preliminary study, exposure of salmon tissue to homogenized jellyfish nematocysts results in increased cytotoxic effects and will likely result in increased damage to the salmon tissues. This damage is likely to be a contributing factor to the development of complex gill disease in farmed salmon.

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