

A HEALTHY FISH CAN HANDLE WHAT NATURE THROWS AT IT: ALLOSTASIS IN FISH HEALTH.

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Determining the criteria for what is a healthy fish poses many challenges and alternate definitions. Given that health is not merely the absence of disease, that an infected fish is not a diseased fish, it is important to look at the physiological capacity of a fish to respond to a wide range of biological and environmental challenges. The concept of allostatic load is one in which an organism can respond to a range of challenges within an allostatic range – a range of adaptation and tolerance. However, once a threshold is reached, the response goes from being one of adaptive to maladaptive crossing over the patho-physiological limit. In response to infectious and non-infectious challenges, determination of the pathophysiological threshold is difficult. The application of current studies using clinical chemistry and histopathological responses to infectious and non-infectious disease, environmental and management challenges in salmon highlights the plasticity of fish pathophysiological processes. Using current evaluation techniques for gill responses, gill pathophysiology and histopathology we examine whether the cure can sometimes be worse than the disease and how compounding effects of treatments can compromise a fish that is in a state beyond the pathophysiological threshold.

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