**Title:** Thermally suitable or thermally stressful: physiological tolerance of summer steelhead

**Abstract**

We are seeing the effects of climate change in marine and freshwater ecosystems. With excessive heat warming the ocean, changes in temperatures are leading to cascading effects in marine systems, e.g. sea level rise, acidification, heatwaves. Similarly, freshwater streams and rivers are measurably warmer, low flows and stream drying are becoming more common, and drought is a persistent feature across the region. Species distribution limits and responses to climate change depend on how physiological performance varies as the environment shifts between optimal and extreme conditions. Thermal tolerance data can help us understand how species are physiologically responding to these environmental shifts. Intraspecific comparisons in thermal tolerance are helpful to ascertain the vulnerability of different fish populations to climate change and to identify which populations may be more susceptible to extirpation and which may be more resilient to continued warming. To best use our management levers, we need information characterizing thermal regimes as well as information regarding species physiological response.