**Speaker: Paul Venturelli**

**Date: April 18, 2014**

**Title:** Degree-days: a new old paradigm for understanding temperature effects on fish

[note that ‘new old’ is not a typo]

**Abstract:** In this (hopefully) entertaining talk, I extoll the virtues of using degree-days to describe fish growth and development, but also warn against adopting a cavalier attitude toward the base temperature at which these processes are assumed to be zero (*To*). The first cautionary tale begins in the late 1970s and early 1980s when an historical accident resulted in the common practice of setting *To* to 0oC when estimating hatching degree-days for eggs. This practice resulted in inaccurate predicted hatch times and degree-days quickly fell out of favor. However, our meta-analysis shows that degree-day predictions are quite accurate when *To* is not assumed to be 0oC. The second cautionary tale involves a growing interest in using degree-days to describe fish growth (good) but a diversity of methods for estimating *To* and a diversity of *To* values in use for a given species (potentially bad). Using conceptual models and a large dataset, we show that i) *To* matters little in a within-population study, ii) *To* can matter a great deal in an among-population study, and iii) there is ample scope for assigning species to one of four *To* standards (0, 5, 10 or 15ºC).