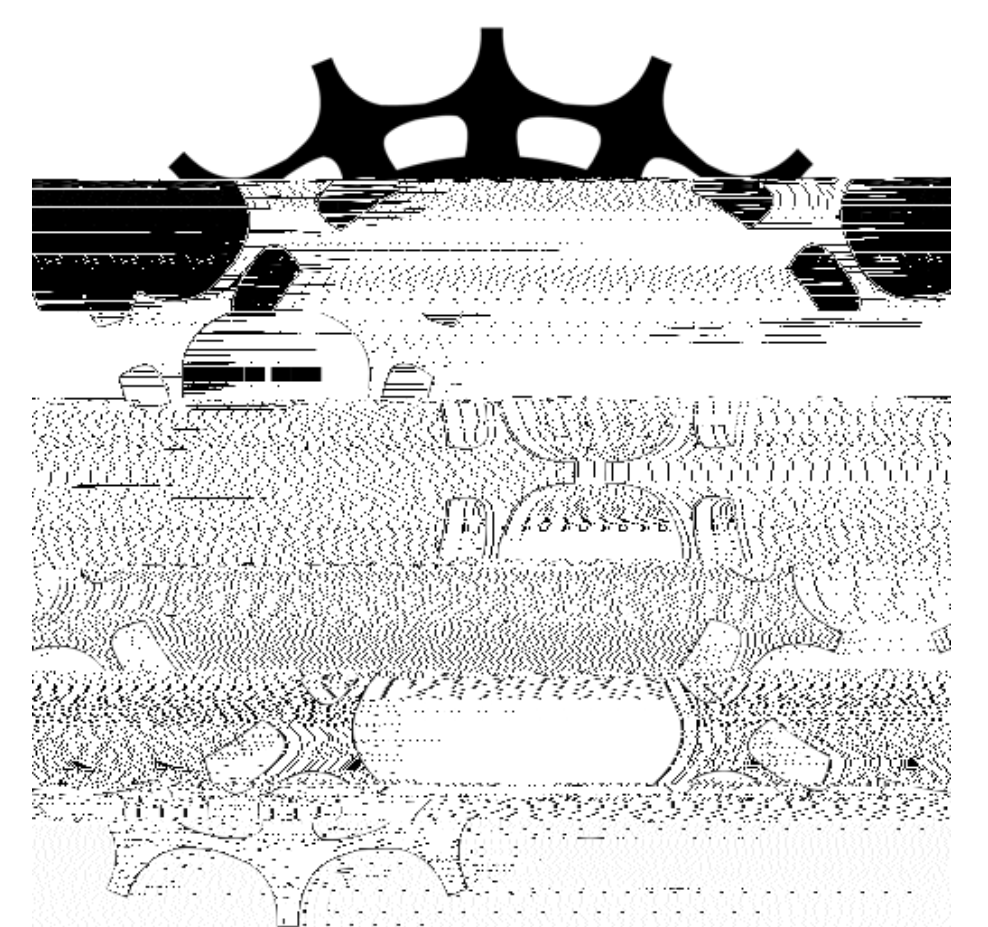
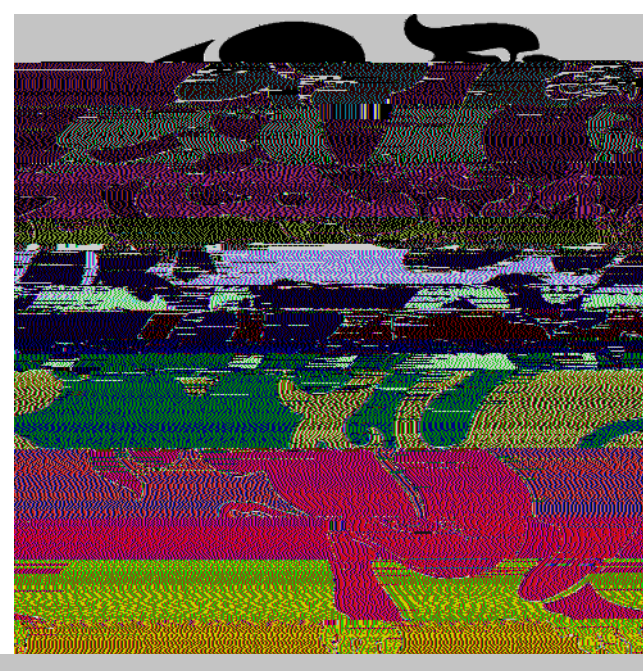


Modeling Phytoplankton Movement and Fitness in Lakes

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Motivation

- Phytoplankton are ectotherms and cannot independently regulate body temperature.
- Body temperature strongly affects fitness. [1]
- Movement can allow an ectothermic organism to change body temperature.

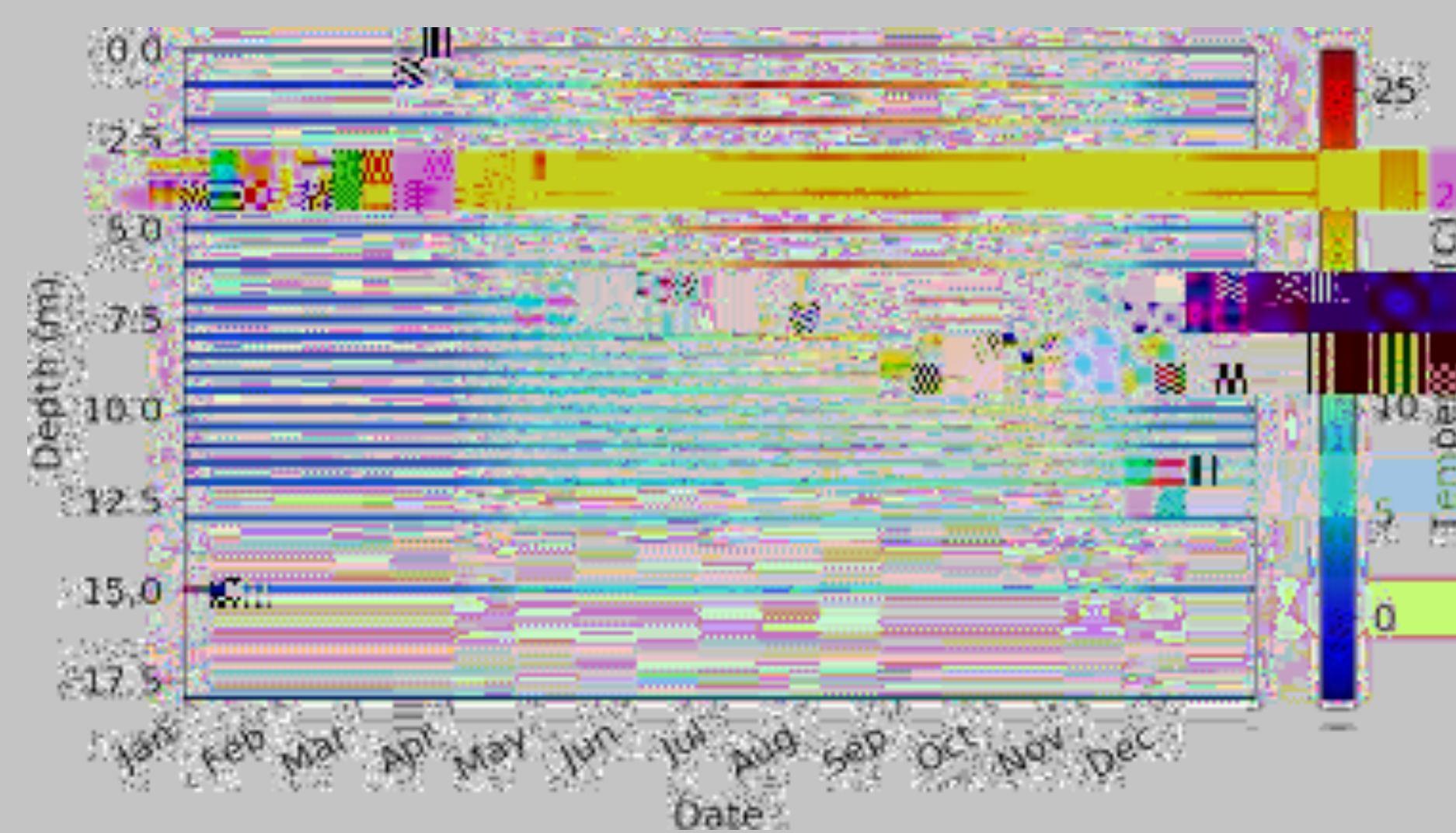
What is the range of temperature phytoplankton experience, and how does it affect fitness?

Data Interpolation Workflow

Temperature data collected from 0.5 to 3m intervals throughout Sparkling Lake in Vilas County, Wisconsin from 1989 to 2014 at one minute frequency [2]. (2005 shown below)



Gaps in time (circled above) filled with averaged temperature across all years.



Linear interpolation between known depths for every 0.01m.

