**Tolerance Range**

**Graphing Activity**

Rainbow trout have seen a population decline in the Western United States over the last several decades. There are a wide variety of conditions that are threatening the population, including pollution, climate change, and invasive species. This activity will look at the effects of varying two specific **abiotic** factors on a controlled population of trout.

Graph the **Water Temperature** tolerance data below for Rainbow trout. Water temperature is an independent variables and should be graphed on the X-axis. The number of fish, a dependent variable, should be graphed on the Y-axis.

Graph the **Dissolved Oxygen** tolerance data below for Rainbow trout. Dissolved Oxygen is an independent variables and should be graphed on the X-axis. The number of fish, a dependent variable, should be graphed on the Y-axis.



**Conclusions**

1. Label the optimal range, zones of stress, and zones of intolerance on the graph above.

1. A Biological indicator species are those whose population can signal the overall healthy balance of an ecosystem. Why would the Rainbow trout be an effective indicator species?