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Partner: Myself

1. The modeling dichotomy “Scope and Approach” follows two very different approaches, but both very useful in their own way. The first set of words fall into the theoretical/mechanistic group. Theoretical data tends to consist of more precise measurements but are used in complicated models. But fall short when trying to explain whats happening in the system ecologically. Often times theoretical results are more qualitative and too over simplified to make specific/precise conclusions about a population. However theoretical models are more useful at getting at underlying causes and extrapolating data. The other group are applied models. They seek to capture exactly whats happening in a system. They can make more precise predictions because they rely on complicated models with simple math. Because of this they explain ore of whats happening ecologically. They are useful in management because they are less general and have predictions that can be applied to the ecological processes.

My background is in applied fisheries management, so I can already tell my definition of the theoretical modeling is a little harsh. I’ve used recruitment, growth and mortality modeling to characterize fish populations on the Mississippi River.

1. There is a source of bias in that the scientist (me) in the bird scenario takes the side of science because I’m a scientist doing the research and wants to see those results. I side with climate change because that’s what I’m trying to prove. However I should have approached it unbiased and used all the tools at my disposal and considered all possible drivers. Next time, the committee or general public may not believe what I’m saying purely because I’m biased towards climate change. It could really hinder management efforts and public support.
2. Description and Inference. Descriptive statistics are often used to describe patterns in the data or system and used as preliminary studies to see what needs more research. An example would be a length at age bar graph showing a distribution of fish length by age. An inferential statistic is one that takes known data and tries to extrapolate it to unknown data. To get a model to fit. An example is if I took the lengths of known aged fish and applied them to the lengths of the unknown aged fish in order to assign them ages.
3. The statistical population is a collection of data from which were interested in. It is represented as numbers and formulas. It is almost always a subset of the biological population. The statistical population infers characteristics of the biological population from samples. The biological population is the collection of individuals under consideration. A biological population may vary depending on the spatial or temporal scale of the research question.
4. Cascades snowpack. **Continuous variable on an ratio scale**: I could measure the percent of ground covered in a plot by snow because the amount that’s covered out of the total is important. **Discreet variable**: I could also count the number of trees present in a plot. They may have something to do with the snowpack.