

FISH 503 Advanced Limnology (University of Idaho, Moscow Idaho Campus)

Metrics and indices - lab

Purpose/goals: The purpose of this laboratory exercise will be to i) explore data sets using a variety of different metrics and indices so that participants become familiar with their computation, and application; ii) design a small study to sample several different areas of a small stream, (with different gear - time permitting), to familiarize participants with the actual design and execution of sampling to assess stream health using macroinvertebrate indices similar to those used by the EPA and IDEQ; and iii) complete the small scale study and compute the indices.

Outcomes: Participants should gain an appreciation for the application of various indices, their use, advantages, disadvantages, and time required to process samples and compute indices.

Tasks:

- 1) Use the Chl a, TP and Secchi data provided on the course web site to calculate the annual (Jan-Dec) and summer (Jun-Oct) trophic status index for each parameter in each year for which data are available and prepare 3 graphs on a single page showing TSI index versus time. Provide a brief interpretation comparing all three and discuss any discrepancies between them. Pool your resources to tackle this efficiently.
- 2) In the group, design a small study to implement during Day 2 of the workshop keeping in mind the time limitations of the 1 day (morning field - afternoon processing and analysis) time frame for this. You may wish to examine such factors as species area curves, commonly calculated metrics, or simply variation associated with sample number from one area in the creek to estimate how many samples would be required to detect differences between sites using some of the indices.
- 3) Use the training data set to calculate as many of the metrics as possible - you will not be able to calculate all of them given some require specialized knowledge of the invertebrates or interpretation of the tolerance values. Set up the spreadsheet so you can enter your values from the field lab and efficiently calculate the metrics. Briefly interpret your results and classify the site(s) we sampled in the context of stream health.