

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

Coring and Paleolimnology Module

Module Goals: The aim of this module is to familiarize participants with paleolimnology and coring techniques, and to offer hands-on experience with equipment encountered during sampling of bottom sediments in aquatic environments. Specifically, we will examine the information gained- and inferences made from paleolimnological investigations. Participants will leave with a clear understanding of coring techniques, pros/cons of different approaches and receive hands-on experience in the field and laboratory with various techniques and analyses.

General Description

Why core? What can be learned? Importance to limnology, tracking landscape changes, climatic changes. Methods and techniques - overview of coring devices with discussion of pros and cons of each; handling of cores and material obtained; planning a sampling program for different purposes; sectioning (fresh, and frozen); analysis - dating, ^{210}Pb , ^{137}CS , ^{14}C , etc.; calculation of bulk densities, water content, organic content, sediment accumulation over time interval; role of each of these in calculations for dredging; examples of dating calculations; pitfalls, hardpans, bioturbation, sediment focusing, smearing, other contamination. What indicators are used, algal, biological, sedimentary; and how are inferences are made e.g., development of transfer functions.

The field and laboratory hands-on components will include coring through the ice with gravity corers, long corers, and freeze corers, running comparisons among each, and will be done on a local water body. Laboratory analysis will include core sectioning, and calculation of bulk density, water content, and loss on ignition as well as interpretation of results.