

2015 CHaMP Camp Workshop

Design and model based analysis of CHaMP

June 2, 2015

8:30 a.m. – 11:30 a.m.

Lead Trainer Matt Nahorniak, South Fork Research

Objectives: Describe in detail how CHaMP data are analyzed with both design and model based statistical tools

Software needs: R, with R-packages survey and spsurvey installed; Excel

Additional Resources:

Abstract: CHaMP data are measured at sites utilizing stratified GRTS sampling. Benefits of stratified GRTS sampling include efficient estimation and assurance that sufficient sampling occurs in high priority sites. However, while stratified GRTS sampling has benefits, it presents challenges in the analysis stages, as careful accounting for sampling design must be considered during both design and model based analysis.

Design based analysis methods are well suited for status and trend estimates across a range of spatial scales, while statistical modeling is needed to examine complex relationships between variables, and to make estimates at sites or spatial scales beyond those directly sampled. This workshop will review the basics of stratified sampling and GRTS sampling, introduce design based statistical methods for status and trend estimation, and introduce techniques to enable model based analysis (such a linear regression) on data from complex survey designs, using CHaMP data as examples. Hazards of failing to account for survey design will be discussed.

In addition, a hands on session will walk users through R-code used to analyze an example CHaMP dataset, with focus on graphical tools, design based analysis, and model based analysis (linear regression).

Attendees are encouraged to come with questions pertaining to their own survey design and analysis challenges.