The synthetic products discussed in the previous section are essential for building community knowledge and especially for providing tools for effective feedback between scientists, managers, and the general public. However, any synthesis is only as good as the information on which it is based, and the information available (through both published materials and directly from scientists knowledgeable on a topic) is completely reliant on the raw scientific resources—the data. In this section, the process of turning data into information is considered, highlighting a number of approaches and techniques that can feed directly into syntheses and reporting frameworks as well as fulfilling specific requirements of appropriate and rigorous data analysis.

**Environmental statistics:** Statistical analyses are a useful tool not only to assess the confidence in generating conclusions and gathering information from data, but also in providing dynamic and insightful ways to present data and develop explanations. Balancing simplicity and explanatory power is essential when using and applying statistics.

**Environmental models:** Models can assist in the understanding of elements of a system that cannot be directly observed, either due to the spatial or temporal scale of the question or due to interactions that can only be measured in isolation. By providing synthesis, analysis, simulation, and prediction, models can be a useful management tool.

**Spatial analysis:** One of the most effective ways to turn data into information is to provide relevant context, and presenting data on a map is an excellent way to help a reader realize why they should care. Maps also place data in context to each other, so that inferences and relationships can be determined. Often this requires spatial analysis, which allows the calculation of confidence in an observed spatial pattern.