14.1 Introduction

Two communities with a completely different taxonomic composition may have identical univariate or graphical/ distributional structure, and conversely those comprising the same species may have very different univariate or graphical structure. This chapter compares univariate, graphical and multivariate methods of data analysis by applying them to a broad range of studies on various components of the marine biota from a variety of localities, in order to address the question of whether species dependent and species independent attributes of community structure behave the same or differently in response to environmental changes, and which are the most sensitive. Within each class of methods we have seen in previous chapters that there is a very wide variety of different techniques employed, and to make this comparative exercise more tractable we have chosen to examine only one method for each class:

- Shannon-Wiener diversity index $H ^ \prime$ (see Chapter 8),
- *k*-dominance curves including ABC plots (Chapter 8),
- non-metric MDS ordination on a Bray-Curtis similarity matrix of appropriately transformed species abundance or biomass data (Chapter 5).

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