(Calafuria macroalgae experiment)

The Calafuria macroalgal recolonisation experiment monitored the same physical rock patches over one year, having first cleared the (subtidal) rockface. Replicate patches were tracked for 8 different ‘treatments’, namely different times of year for the clearance. The 2STAGE analysis matches the recolonisation time patterns of all replicates, and a 1-way ANOSIM on the 2nd stage matrix tests whether different treatments give different recolonisation profiles (which they do). The individual time points in the recovery sequence cannot be assumed independent, since the same rock patch is returned to bi-monthly – this is *repeated measures*. But the 2nd stage analysis treats that inter-dependent time sequence of recovery as a single experimental unit, in effect. It becomes a single point on the 2nd stage MDS plot and a single replicate in the 2nd stage ANOSIM, independent of other replicates (other rock patches), and thus gives a fully valid test. An equally valid alternative would have been to throw away the intermediate recovery times and just analyse the assemblages at one year after clearance (which is the data analysed in Section 9, which also introduces a lower level to the design, of plots within areas, under the different treatments). In fact, the second-stage analysis is more incisive here because it allows the whole recovery profile to be assessed rather than solely its end point – but different hypotheses are being tested, and both are of interest.

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