

# A (brief) introduction to ordination and the vegan package

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# Datasets

# Demonstration: Salinization and Pesticides

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Szöcs, E., Kefford, B.J., Schäfer, R.B., 2012. Is there an interaction of the effects of salinity and pesticides on the community structure of macroinvertebrates? Science of the Total Environment 437, 121–126.

# Demonstration: Salinization and Pesticides

```
setwd('your/workingdirectory')
```

```
abu <- read.table('melbourneAbu.csv', sep = ';')  
env <- read.table('melbourneEnv.csv', sep = ';')
```

# Exercise: Doubs river fish communities

## Unconstrained Ordination

# Unconstrained Ordination

- ▶ Principal Components Analysis (PCA)
- ▶ Nonmetric Multidimensional Scaling (NMDS)



# Your turn!

Load the doubts data.  
Is there a downstream gradient?

## Constrained Ordination

# Constrained Ordination

- ▶ Redundancy analysis (RDA)
- ▶ Transformation-based RDA
- ▶ Distance-based RDA
- ▶ Permutation Tests

# Your turn!

Using the doubts data.

# Permutation Tests

# Your turn!

Using the doubts data.