Preliminary Course Timetable And Contents

Day One - 24th January 2012

10:00 Welcome And Introduction.

10:05 1. Background Session One:
1.1 What is GIS and why is it useful in marine biology?.
1.2 The structure of GIS projects in ArcGIS software.
1.3 An introduction to data layers.
1.4 The importance of projections, coordinate systems and datums.
1.5 Understanding resolution and scale in GIS projects.

11:05 Coffee Break

11:25 Background Session Two:
2.1 Things to think about before you start your GIS project
2.2 An introduction to ArcGIS software

11:45 Practical Session One: Starting A GIS Project:
3.1 Setting the projection, coordinate system and datum for your data frame.
3.2: Adding existing data layers to your GIS project.
3.3 Adding locational data as a point data layer.
3.4 Re-creating survey tracks as line data layers from GPS waypoints.
3.5 How to create a new data layer.

13:00 Lunch.

14:00 Background Session Three: Collecting Data For Use In A GIS Project:
4.1 Data collection for GIS projects.
4.2 Using GPS data in a GIS project.
4.3 The importance of error checking your data during data input.
4.4 Error checking other peoples data.

14:30 Practical Session Two: Making A Map For A Presentation, Report Or Publication (with coffee break at 15:30):
5.1 Setting the extent of your map.
5.2 Selecting the right projection.
5.3 Making sure that your data layers are displayed correctly.
5.4 How to deal with legends
5.5 Adding latitude and longitude information around the edges.
5.6 Adding a scale bar.
5.7 How to ensure that multiple maps of the same area are identical.

17:00 Close.

Day Two - 25th January 2012

09:30 Background Session Four: An Introduction To Working With Raster Data Layers:
6.1 What are raster data layers and why are they useful?
6.2 Things you need to think about before creating raster data layers.

10:00 Practical Session Three: Working With Raster Data Layers:

7.1 Making a raster data layer of species distribution.
7.2 Making a raster data layer of survey effort.
7.3 Making a presence-absence raster data layer for a species.
7.4 Making a species richness raster data layer.
7.5 Making raster data layers of habitat variables (such as water depth, seabed slope, seabed aspect and standard deviation of seabed slope).

12:30 Lunch.

13:30 Background Session Five: Using GIS To Investigate Spatial Relationships

8.1 What are spatial joins and how can you do them in GIS.

14:00 Practical Session Four: Investigating Spatial Relationships (with coffee break at 15:15):

9.1 Linking species locational records to habitat variables such as water depth to compare habitat preferences between species.
9.2 Linking habitat variables to presence-absence data from a raster data layer.

17:00 Close.

Day Three - 26th January 2012

09:30 Background Session Six: How to Translate Biological Tasks Into The Language Of GIS:

10.1 Using flow diagrams to work out what steps you need to do to do a biological task in GIS.
10.2 How to find out how to do specific tasks in GIS.
10.3 Using Extensions and scripts.
10.4 Automating tasks in GIS.
10.5 Using non-GIS software to do specific tasks.

10:15 Coffee Break.

10:35 Practical Session Five: Creating And Using Polygon Grid Data Layers:

11.1 Using a polygon grid to calculate abundance per unit survey effort for each grid cell for a study area.
11.2 Linking environmental data to a polygon grid data layer.

12:30 Lunch.

13:30 Background Session Seven: Extracting Data For Statistical Analysis:

12.1 Preparing data for statistical analysis.
12.2 Exporting data from a GIS project for use in statistical analysis.

14:00 Practical Session Six: Exporting Data From Your GIS :

13.1 How to export data layers from a GIS project for use in other software
13.2 How to add latitude and longitude to a data layer before exporting it so it can be re-plotted in a GIS project at a later date.

15:30 Summary And Closing Remarks (finish by 16:00).