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Summary #3

Paper 1- Greene et al. (2005) The benefits and pitfalls of geographic information systems in marine benthic habitat mapping. In: Wright, D.J. and A.J. Scholz (eds.) Place matters: Geospatial tools for marine science, conservation, and management in the Pacific northwest, pp. 34–46. Corvallis: Oregon State University Press.

5) Explain the key implications of the results -For review papers, only provide a short summary (about 300 words) of the review. Then answer those questions:

The paper is a review on the application of GIS technology used to characterize marine benthic habitats. The paper starts by explaining that GIS is a growing and important technology but it’s important to document and understand the technology, and it seems that the paper mentions that there is a lack of this. A side note, I can attest to this because I project I work is having difficulty reproducing some maps creating by a previous staff member. The paper continues to define what a habitat is, and how different organizations use this term. They continue to discuss the characterization of habitats such as bottom up and top down dynamics. In this paper they continue discussing how they created a GIS compatible scheme to characterize marine benthic habitats based on their previous definitions. Some of the advantages they described is that GIS is an excellent tool for layering, it is also a convenient tool, and that GIS has many spatial packages that are available. Some of the disadvantages described are the lack of attention to the type and quality of the data used to make a marine habitat map and an incomplete documentation of the process of making the map. Some ways to solve this pitfall is to create metadata for technical information and to have all mapping as a GIS product. The researchers concluded that GIS provides a good resource for mapping, and that researchers need to record and document their benthic mapping process.

1) How does the material presented in this paper relate to you (your interests/research/field of study/future career): could it be transferred into a context relevant to you?

-This really doesn’t pertain to my research, but it is important to properly define characteristics of a habitat for any research.

2) Which figure do you think is the most important? Why?

- I think the Figure 3.1 (a) is important because it shows the researchers were able to use the imagery from a color-shaded multibeam and multibeam artificial sun illuminated to compare and determine the seafloor texture and mounds (light colored).

3) List the concepts or terms that you did not understand based on the initial reading of the article, do a quick research on those, and describe the results of your research (e.g. definitions, examples, context)

- I believe I understood the GIS terms described in the paper. No questions.

Paper 2- Wilson et al. (2007) Multiscale terrain analysis of multibeam bathymetry data for habitat mapping on the continental slope. Marine Geodesy, 30, 3-35.

5) Explain the key implications of the results -For review papers, only provide a short summary (about 300 words) of the review. Then answer those questions:

This paper describes that quantitative descriptors of the seabed terrain have many advantages in multiscale analysis. The researches examine how to use these descriptors as predictor variables for species distribution models. They describe in their abstract that their results seemed promising. The paper first describes the history of Digital Terrain Models (DTM) and how benthic mapping was historically collected for navigation purposes. They continue to describe how multibeam technology changed the game it made it so that benthic floor mapping. Remotely Operated Vehicles (ROV) also provided visual representation of mapping. The researchers uses the slope, orientation, curvature, and terrain variability in their terrain analysis. The next paper of the base described the calculations using Evan’s (1980) method to analyze the DTM’s surface which is approximated by a bivariate quadratic equation. The paper then describes in detail the aspects of the model. The slope is an important factor in determining benthic habitat at a variety of scales. The orientation analysis is important because it reflects the orientation of the seabed at any given point. The curvature describes the relative position of terrain features in terms of exposure to currents and also be linked to the nature of the seabed. The terrain variability has been linked to the distribution of fauna and it may be a key parameter in distinguishing suitable habitat for specific fauna. The researchers used these parameters in their model on a case study area in Seabight, SW Ireland. The researchers ultimately concluded that the habitat suitability models performed better in cross validation when assessed visually for their biological significance rather than those based on a single parameter.

1) How does the material presented in this paper relate to you (your interests/research/field of study/future career): could it be transferred into a context relevant to you?

-This paper is not necessarily important for my research.

2) Which figure do you think is the most important? Why?

- The most important figure is Figure 1 because it shows how the researchers used the main variables to do a terrain analysis. This figure is a good visual representation of the model they created.

3) List the concepts or terms that you did not understand based on the initial reading of the article, do a quick research on those, and describe the results of your research (e.g. definitions, examples, context)

- I didn’t originally understand the Evan’s model, but the paper describes. I also wasn’t sure about DTM were also considered Digital Elevation Models (DEM0, and they are very similar. Google says that the data files could elevation and terrain data relating to a rectangular grid.