**Cenozoic latitudinal response curves: individualistic changes in the latitudinal distributions of marine bivalves and gastropods** By: Andrew A. Zaffos and Arnold I. Miller

This paper intended to show how ecological gradients can cause the distribution of genera to change away from the equator. All of the statistics, however, showed that there was no preferential direction for shifts in geographic distribution of the marine bivalves and gastropods in question. They offered several explanations for these results that are quite different from those of similar studies. These included sampling issues, genuine equatorward migration, time averaging effect due to coarse temporal scales, and bridge species expanding both equatorward and poleward. It then went on to explain the significance of ubiquitous hollow curves for the preferred latitude and latitudinal tolerance of genera in different epochs which I had a difficult time following.

To be honest, there was not much I liked about this paper. The fact that they were able to quantify this data so well is one thing that I do like about the paper. I also like that they had such a large sampling size. This makes the results more reliable for me. I would like to learn a little bit about the statistical methods used, but I feel that would be better reserved for an actual statistics course. It was also interesting to see the different explanations for why the results were not was expected.

Overall, I did not like this paper. I found it completely uninteresting and difficult to get through. I really have no interest in geographic distributions of species or genera or any other taxonomic value. Maybe I do not have the background to make sense of what is trying to be communicated in the paper. I do not see the importance of this research, and I do not think it was stated anywhere in the paper what value this kind of research can impart. I also found it very difficult to follow. There were so many things I have never been exposed to in any class or real world situation. I was in my seminar class less than a week ago, and we were talking to a population geneticist about quantitative methods used in studying evolution. One of the most striking things for me is that, as undergraduates, we are not exposed to any of the rigorous statistical methods used in most research. Most of us are lucky to understand what T-test is or a Poisson distribution. I had never heard of Bayesian methods until about a year ago, and I still have no idea what is going on there. The methods used here seem simple enough, but I could never tell you why they are used. Given enough time I might be able to make some more sense of it, but I feel like my college education has not prepared me for an actual career in any kind of science. Now that my rant is over let’s talk about the figures.

Overall, the figures were foreign to me. I recall talking about hollow curves in lecture, and I read over their significance in the paper, but I am still very confused. Figure 1 was definitely the most straightforward and easy to understand. I can very clearly see the latitudinal gradient proposed by the hypothesis. Figure 2 is terribly confusing. I understand Pearson’s r value and degrees of freedom and p-values and linear regression, but the layout is bizarre. I could not tell you which graph goes with which set of data. Maybe it does not matter because they all look the same, but I prefer clarity. From Figure 3 it looks like almost no taxa shifted in preferred latitude or latitudinal tolerance if I am reading it correctly. Table 1 seems straightforward, but I still do not know what bootstrapping is. I even have to deal with it for my research project, and I have read about it. Figure 4 is basically the same to me as 3. Then Figure 5 helps me to understand the disproportionate sampling mentioned in the discussion about why the results do not show any poleward expansion.