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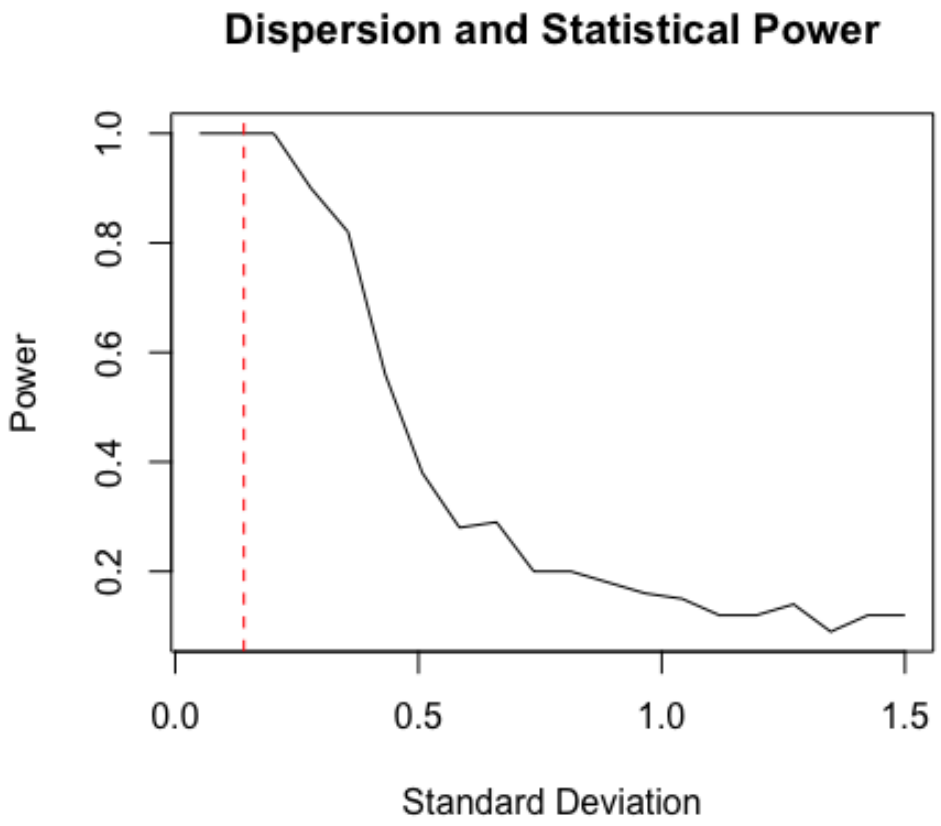
Analysis of Environmental Data
Lab 11 Report
December 16, 2021
Worked with Juliana Berube, Julia Vineyard, and Andrew Gordon

Q1: Include a figure of your line plot in your report.



Q2: Why do you think that statistical power decreases as population dispersion increases?

The more spread you have in a population, the less power, making it harder to draw true conclusions from the population.

Q3: Include a figure of your contour plot in your report.

Q4: Qualitatively describe the patterns you see in the contour plot. Make sure you discuss the effects of sample size and population dispersion on statistical power.

Power is the probability that a test will correctly reject the null. The higher the power, the more likely that a test will correctly reject the null. As population standard deviation increases the statistical power decreases. This is because the higher the variation, the harder it is to draw true conclusions. As sample size increases, so does statistical power. This is because the more samples you have, the more likely the test contains the true conclusion.

The contour plot shows a 3d analysis in a 2d plot. If the lines are close together, the power is changing more rapidly. The large blank spaces show constant values of power. The large blank space in the top left of the plot shows a consistent high statistical power.

Q5: Upload your plot as an interactive html file that you created with writeWebGL().

Done

Q6: Describe how you could use the information shown in your plot when designing an experiment.

You can use this plot to analyze how many samples you need in order to reduce the chance of a type 2 error.