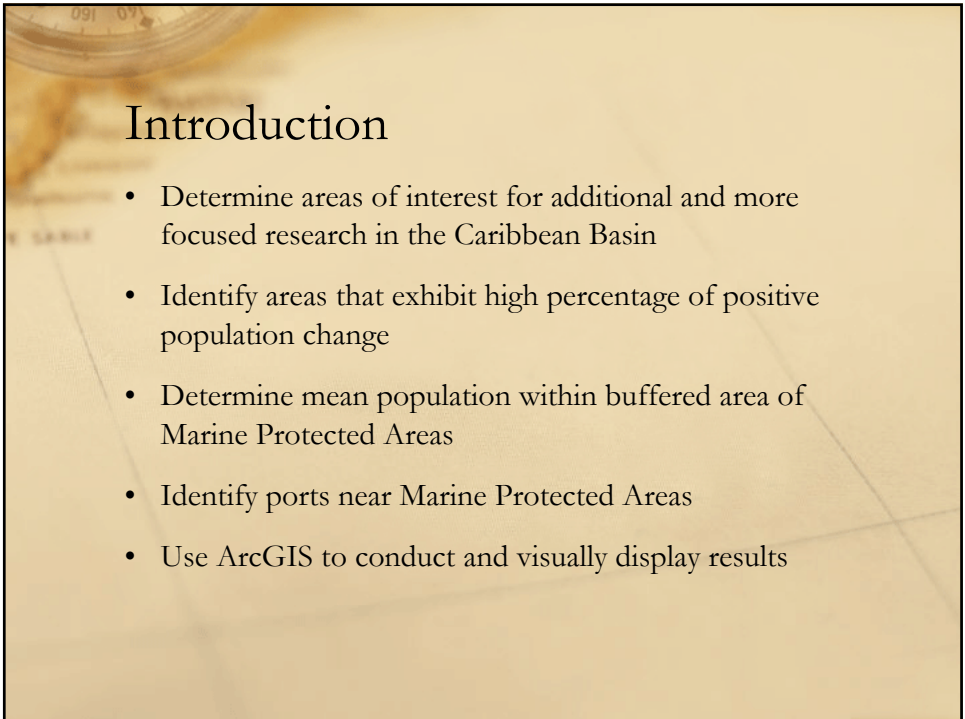


The Caribbean Basin: Ports, Population, and Marine Protected Areas

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GEOG 492 GIS II

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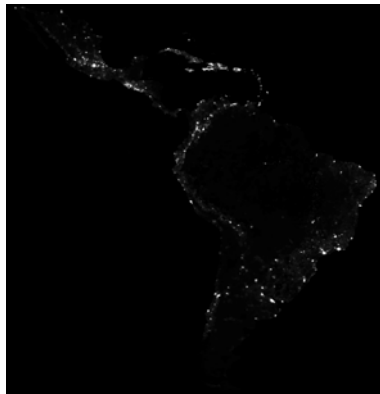
Introduction

- Determine areas of interest for additional and more focused research in the Caribbean Basin
- Identify areas that exhibit high percentage of positive population change
- Determine mean population within buffered area of Marine Protected Areas
- Identify ports near Marine Protected Areas
- Use ArcGIS to conduct and visually display results

Materials and Methods

- Population Data for 1960 and 2000
 - Dataset - Latin American and Caribbean Population Distribution Database - Land Use – CIAT
- Ports and Marine Protected Areas (MPA) in the Caribbean Basin
 - Reefs at Risk indicator dataset
- ArcGIS
 - Raster Calculator
 - Multiple Ring and Buffer Overlay
 - Zonal Statistics
 - Clip

1960 Population



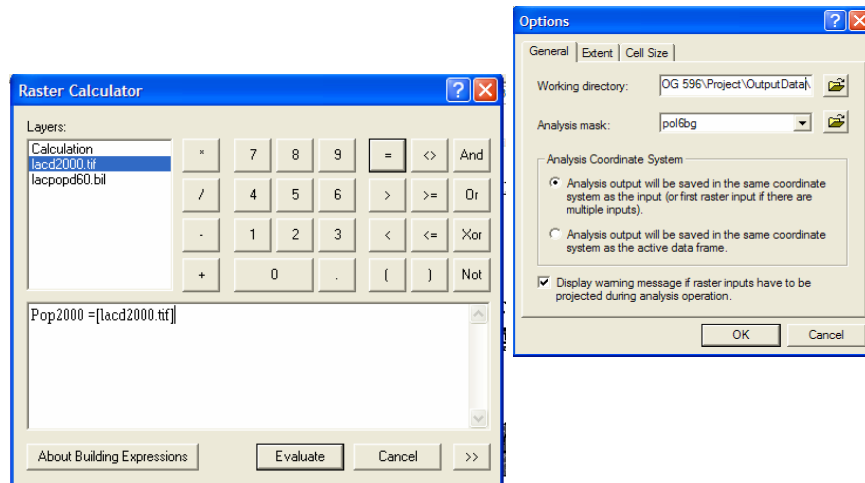
2000 Population



Study Extent



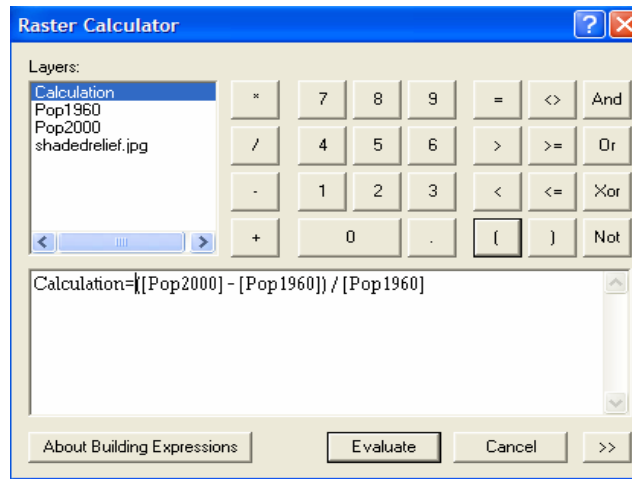
Raster Calculator



Calculation Mask

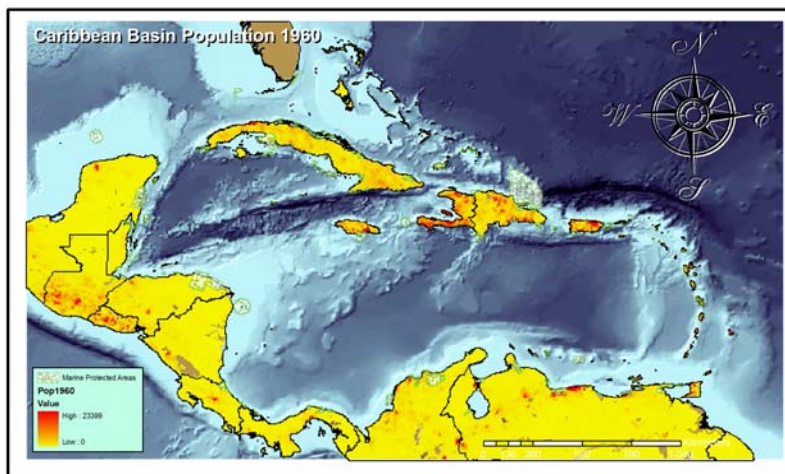
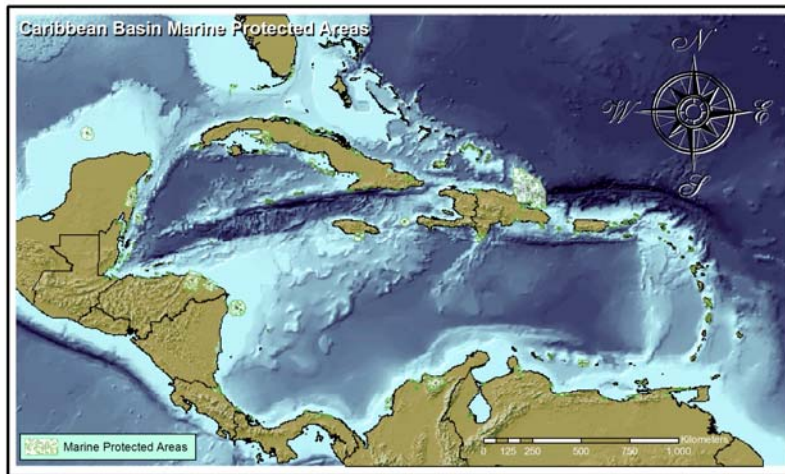


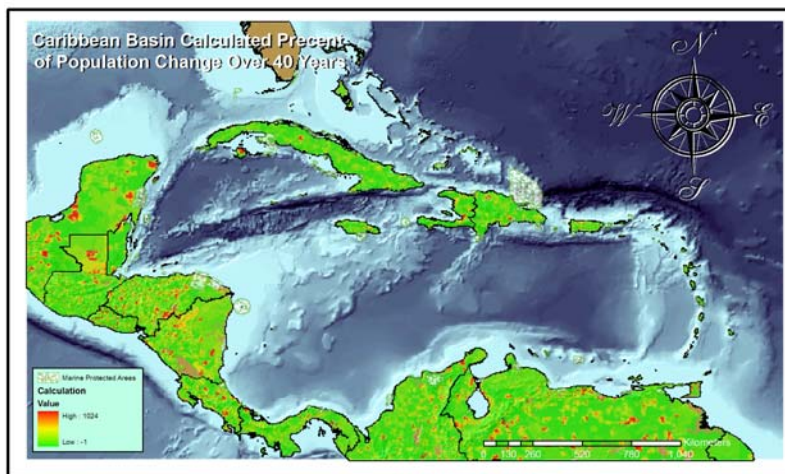
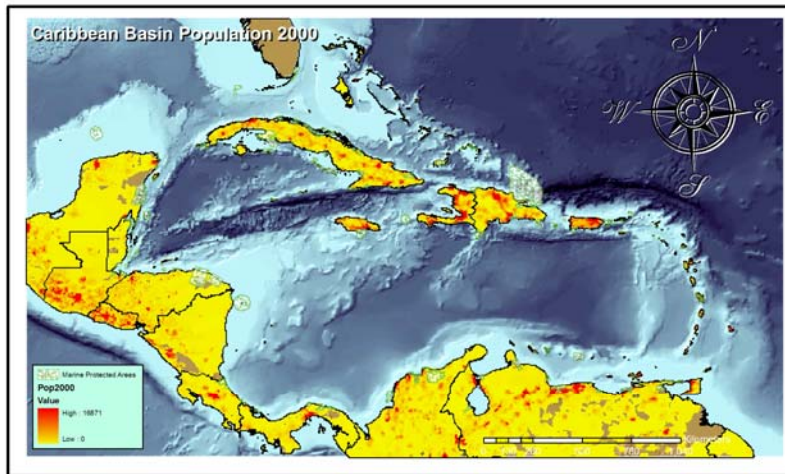
Raster Calculation of Percent Change in Population Over 40 Years



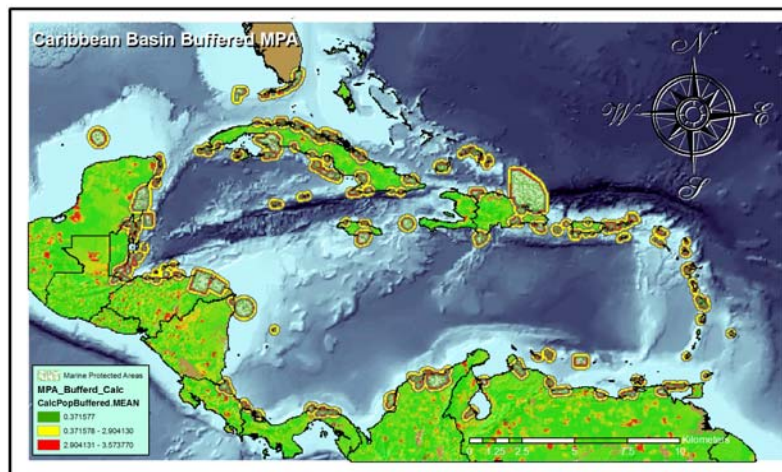
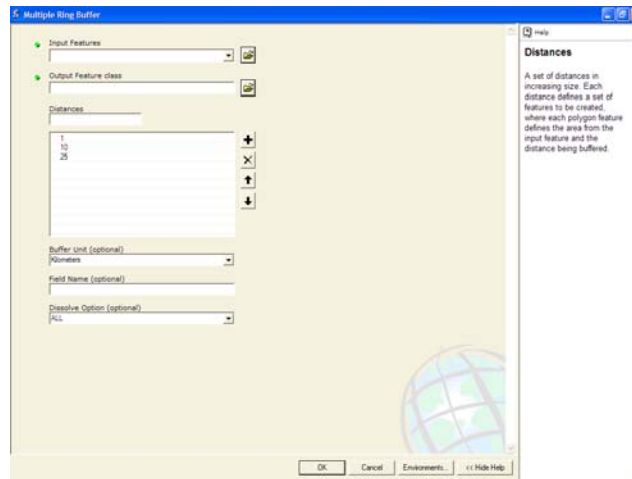
Calculation of Percent Change in Population Over 40 Years



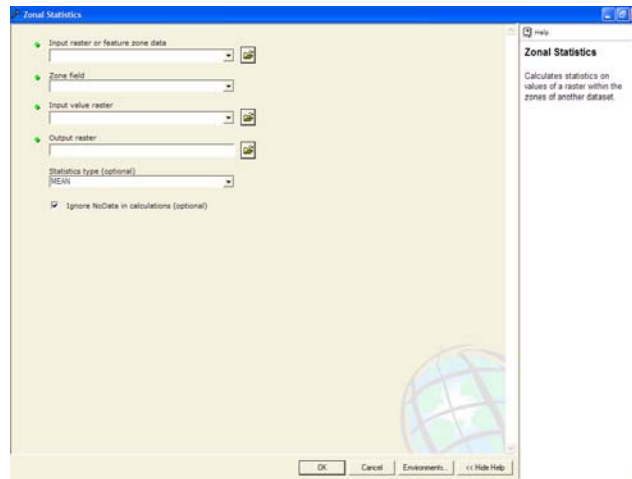




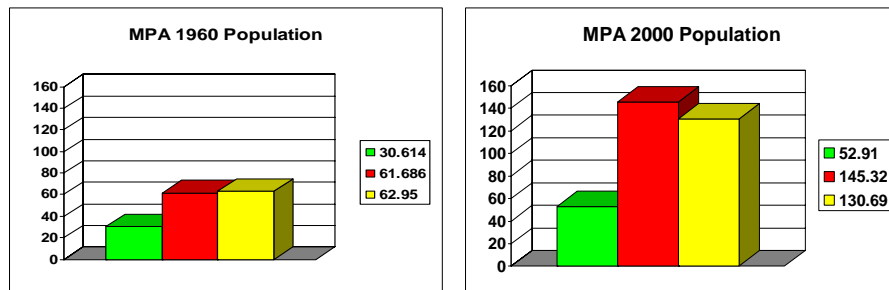
Multiple Ring Buffer of MPA



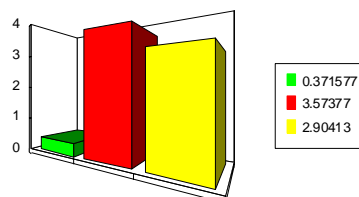
Zonal Statistics

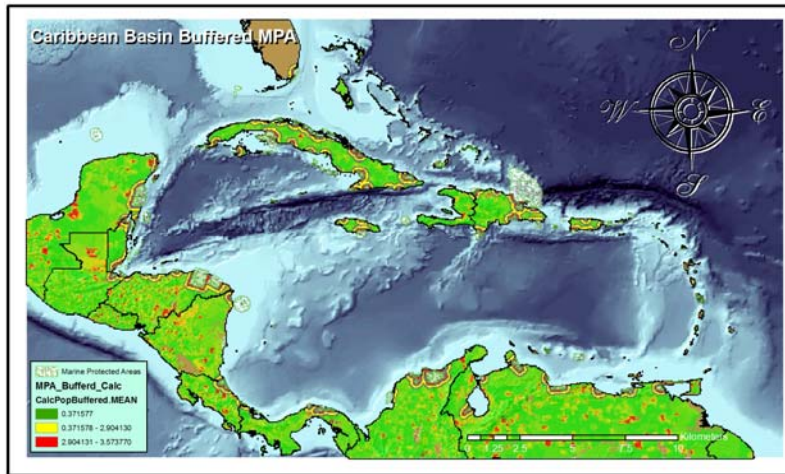


Mean Zonal Statistic of Buffered MPA

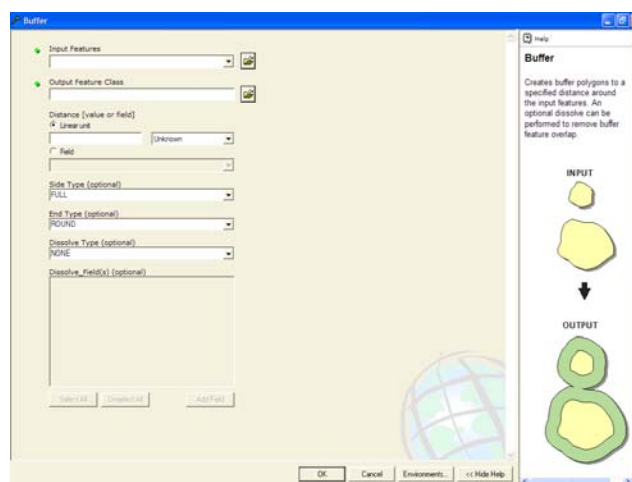


MPA Buffered Calculated 40 Year Percent Change

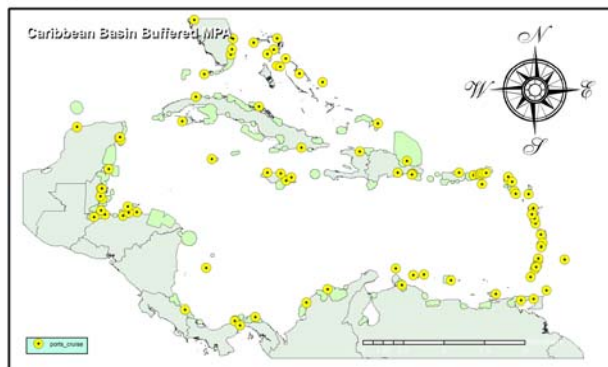




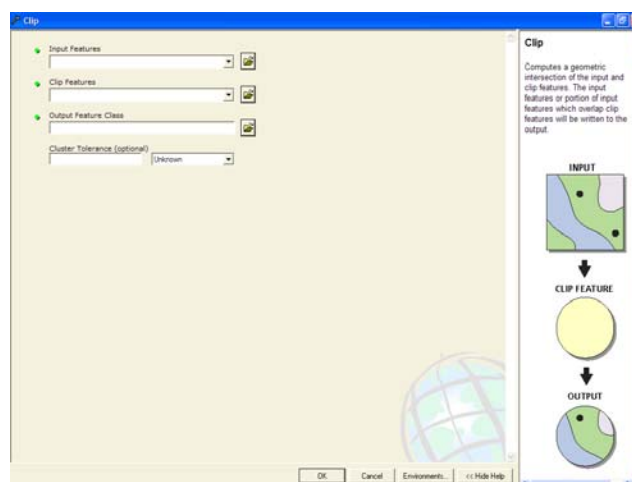
Buffer



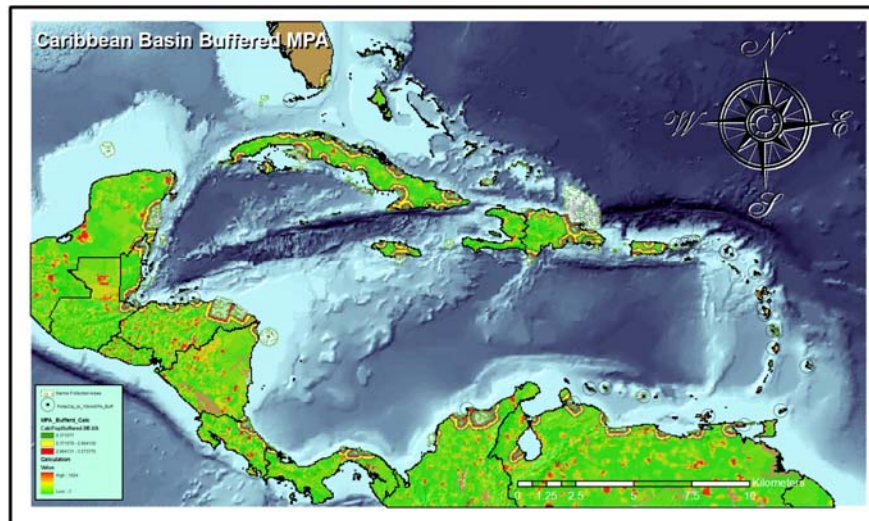
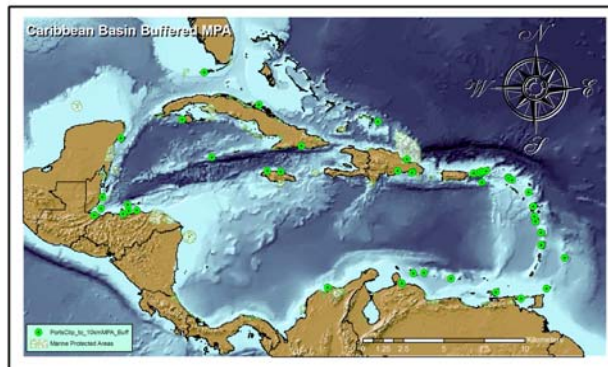
Ports Within 10km of MPA

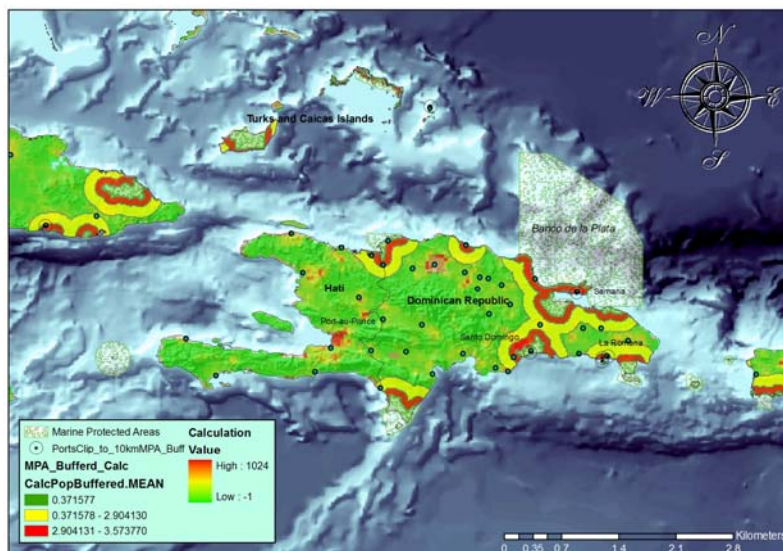
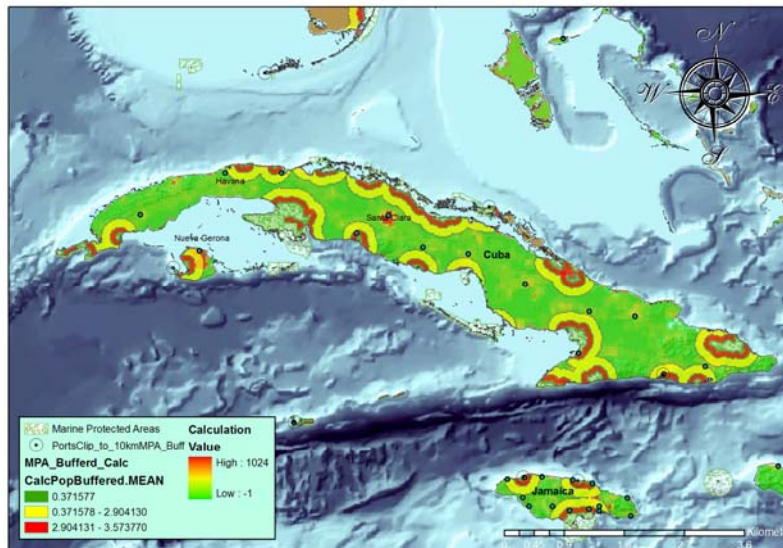


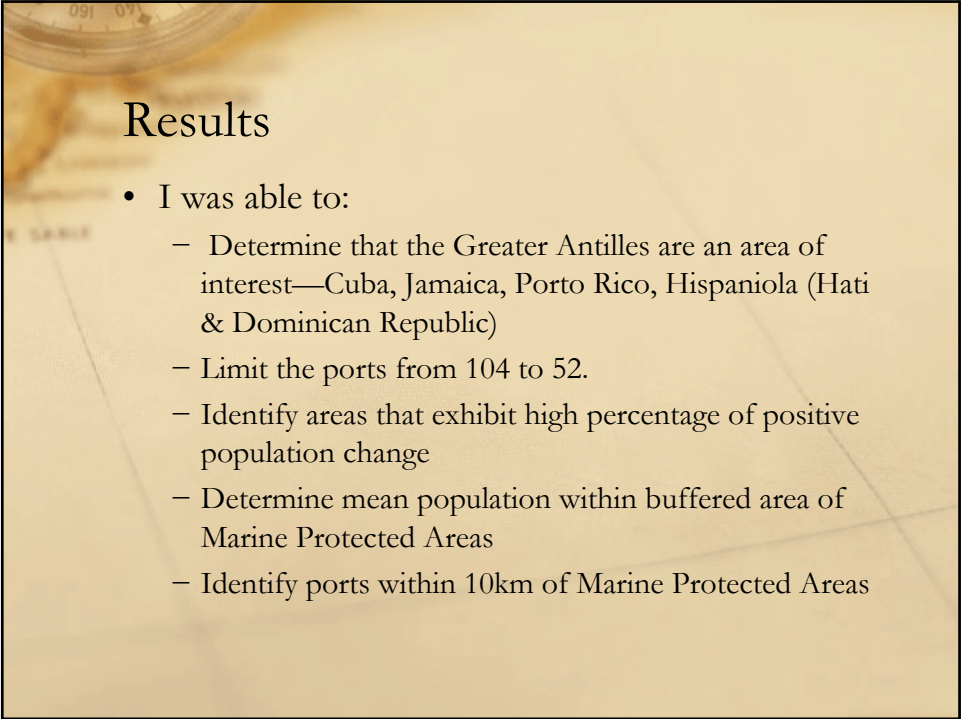
Clip of Ports in 10km Buffer



Ports Within 10km of MPA







Results

- I was able to:
 - Determine that the Greater Antilles are an area of interest—Cuba, Jamaica, Porto Rico, Hispaniola (Haiti & Dominican Republic)
 - Limit the ports from 104 to 52.
 - Identify areas that exhibit high percentage of positive population change
 - Determine mean population within buffered area of Marine Protected Areas
 - Identify ports within 10km of Marine Protected Areas



Discussion & Conclusion

- No causal associations can be attributed to results, however they do lend support to focusing on the Greater Antilles
 - In part due to scale issues and to help acquire and manage data
- Further work would focus on individual MPA's and ports within the Greater Antilles
 - This is aided by the identification of ports near MPA's
 - The buffered MPA's also aid this effort, but more information would be needed in buffered areas

References

- Dataset - Latin American and Caribbean Population Distribution Database - Land Use – CIAT
 - <http://gisweb.ciat.cgiar.org/population/dataset.htm>
- EROS Data Center International Program Archives
 - <http://edcintl.cr.usgs.gov/archives.shtml>
- Reefs at Risk Download indicator dataset
 - http://reefsatrisk.wri.org/rrsea_download.cfm?ProjectID=184&ContentID=0
- CaribbeanT Webdienst
 - <http://www.regomnet.de/CaribbeanT.aspx>