The increase of flood risk due to sea level rise scenarios: a case study of Mass. counties

> By Said Douai Fall 2006 GGR 903 Professor Luna Marcos

Research question

 In the case of sea level resulting in a flood which counties in Massachusetts will be more affected?

Significance of the project

- Understand the relationship between sea level rise and flooding
- Understand the flood risk
- The use of DEM in the analysis

Introduction

- Flooding: linkage with other issues
 - climate change
 - rising sea levels
 - glaciers melting
- Impact of flooding: economic and environmental
- Digital elevation model:
 - determine the effect of flood

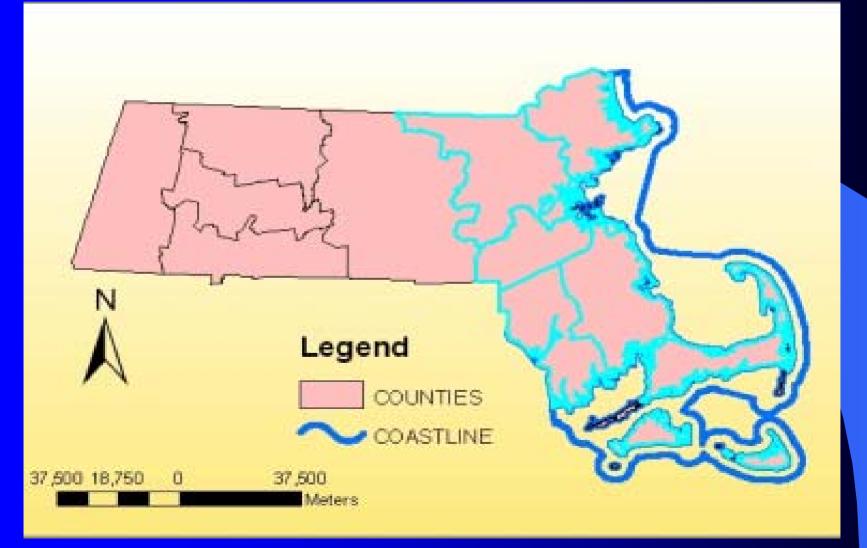
Previous research

Climate change and sea level rise
Sea level rise and coastal flood
Study area

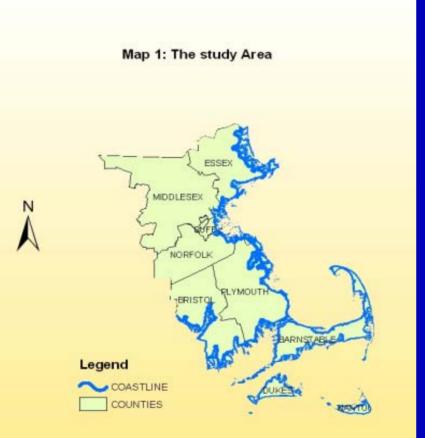
Research design

Data collection and organization
Data visualization and analysis
Data findings

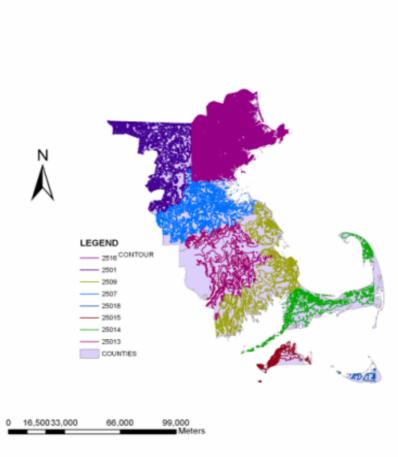
Map 1: location of the study area



Map 2: my area of concentration

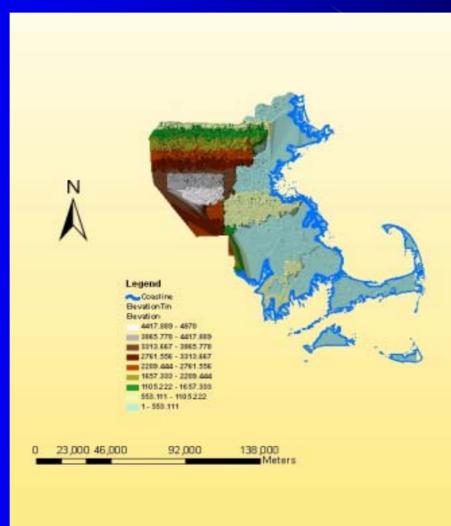


Meters



0 16,50033,000 66,000 99,000

Map 3: study area in tin format



Map 4: study area in raster format

Map 3: Study Area in raster Data (DEM)

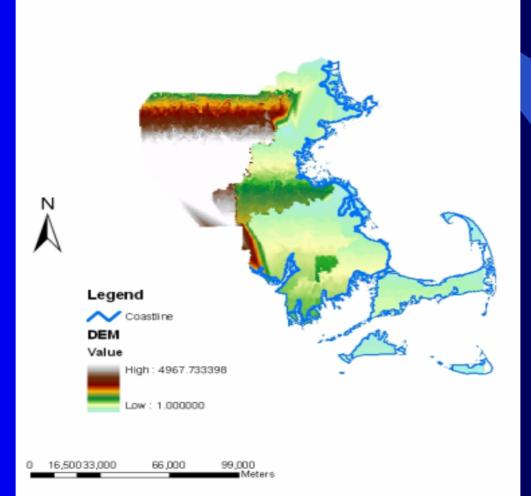
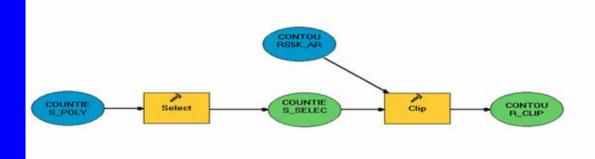


Figure 1: model building all my maps

a s & B a 🔹 📰 🖸 📰 🖸 🕄 🔍 👁 💺 🧨 🕨







Sea level rise scenarios
Flood risk
Coastal flood
System problem

Map 5: sea level scenario 1

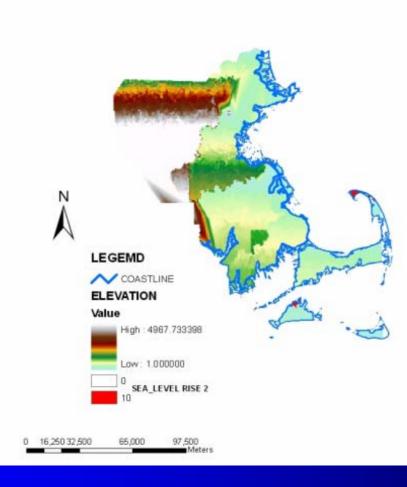


Figure 2: sum of sea level rise within zones

II) 5t	tats of "Sea	level rise"	Within Zone	s of "Sea_level	rise"									ElE	8
	OID	VALUE	COUNT	AREA	MIN	MAX	RANGE	MEAH	STD	SUM	VARIETY	MAJORITY	MINORITY	MEDIAH	Г
-	0	0	43483 276	1.91386E+10 1.21478E+08	0	0	0	0	0	276	1	0	0	(
		2 5	um of "Sea_1 300- 250- 200- 150- 100- 50-	^{evel rise" Withi Sum of}				thin Zone	s of "Sea	a level ri	se"				
\$3.11	Nd: 14 4		0				Zones	-			-1			8	

Map 6: sea level scenario 2

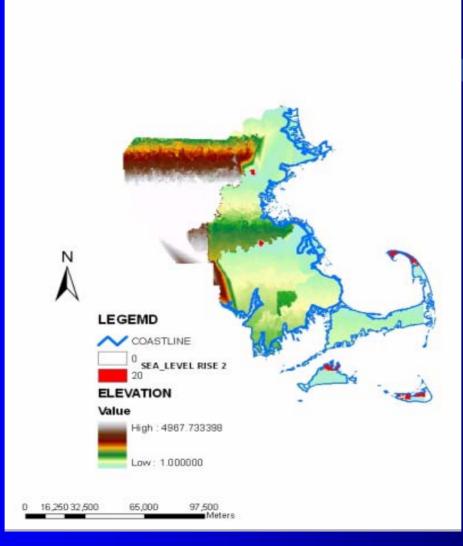


Figure 3: sum of sea level rise within zones

	Stats of "Sea	level rise	2" Within Zon	es of "Sea_leve	l rise 2"											X
П	OID	VALUE	COUNT	AREA	MIN	MAX	RANGE	MEAN	STD		SUM	VARIETY	MAJORITY	MINORITY	MEDIAN]
Δ.	0	0		1.87517E+10	0	0	0	(0	0	1	-		(2
μ	1	1	1155	5.08361E+08	1	1	0	1		0	1155	1	1	1	1	
			Sum of "Sea	_level rise 2" \	Within Zone	s of "Sea_l	evel rise 2"									
				Sum o	f "Sea	level	rise 2"	Within	Zones o	of "S	iea leve	el rise				
								2"								
			1500-													
			1000													
			1000-													
													• 0			
			500-										1			
Re	ord H I	1.														
· 553	.111														-	_
	POLY select		0 -										-			
							Zone	\$								
										-		-				

Recommendations

Policy responsePlanning strategies