



# THE WAVE CRITERIA FOR COASTAL ZONING

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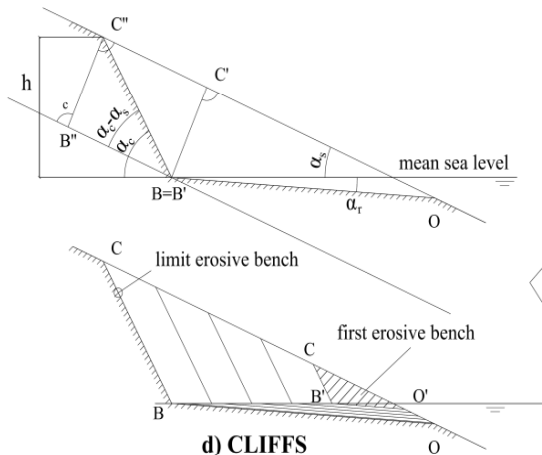


# THE WAVE CRITERIA FOR COASTAL ZONING

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## 1. GENERAL PROBLEM

- real rights permanence vs coastal dynamics:
  - coastal substratum's natural defects
- general legal principles:
  - maximum personal liberty
  - minimum administrative intervention
  - legal certainty: zoning robustness
  - coastal law instruments vs coastal law objects
- **How to interpret the wave criteria in coastal zoning ?**



## 2.1. COASTAL PROTECTIVES FEATURES:

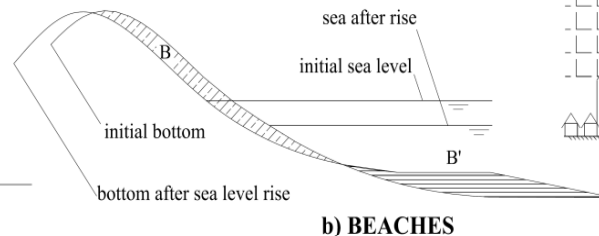
According to the Coastal Engineering Manual (CEM):

"Alternatives for shore protection :

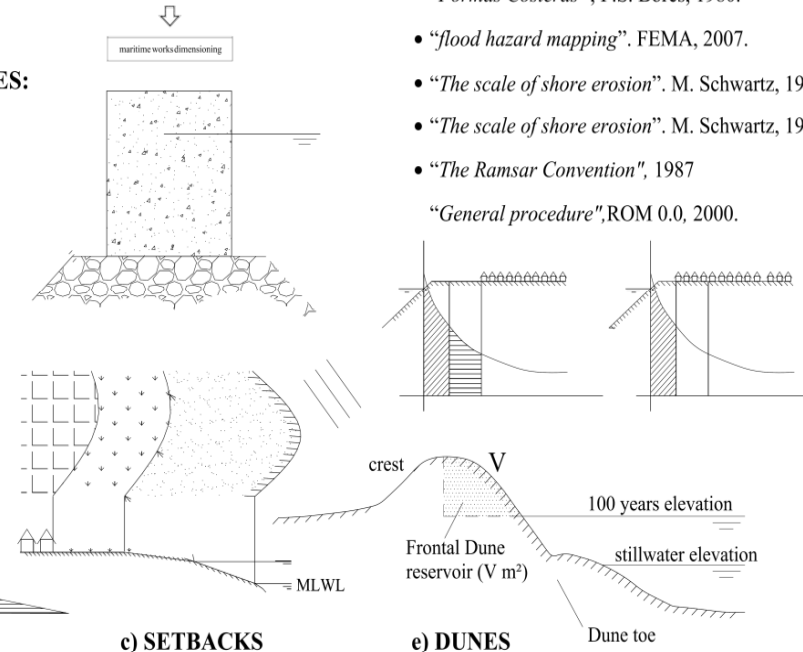
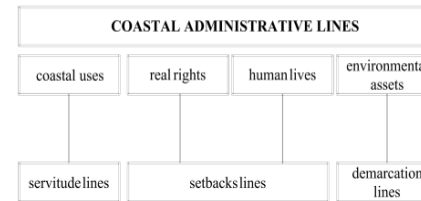
- **a) armoring** (seawalls, dikes, bulkheads)
- **b) beach stabilization** (; breakwaters groins )
- **c) non-structural alternatives: setbacks** [...]"

## 2.2. COASTAL NATURAL PROTECTIVES FEATURES:

- **e) dunes**
- **f) wetlands**



## 3. CONCLUSIONS



## 4. RESEARCH BACKGROUND

- "Coastal Zone Management Act", 1972
- "N.Carolina A.C. for Ocean Hazard Areas"
- "Ley 22/1988". BOE nº 181. July, 29 Friday
- "Beaches and coasts". C. A.M. King., 1972
- "Formas Costeras"; P.S. Bores, 1980.
- "flood hazard mapping". FEMA, 2007.
- "The scale of shore erosion". M. Schwartz, 1968
- "The scale of shore erosion". M. Schwartz, 1968
- "The Ramsar Convention", 1987
- "General procedure", ROM 0.0, 2000.



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# COASTAL ZONING AND COASTAL OBJECTS



## COASTAL ADMINISTRATIVE LINES

**basis for the administrative coastal intervention**

Coastal uses

Real rights

Human lives

Environmental  
assets

Climate change

Servitude lines

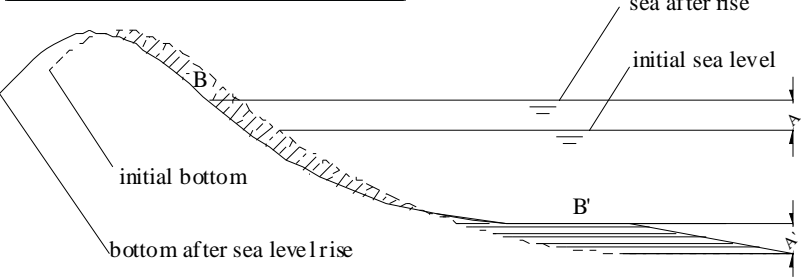
Setbacks lines

Demarcation  
lines

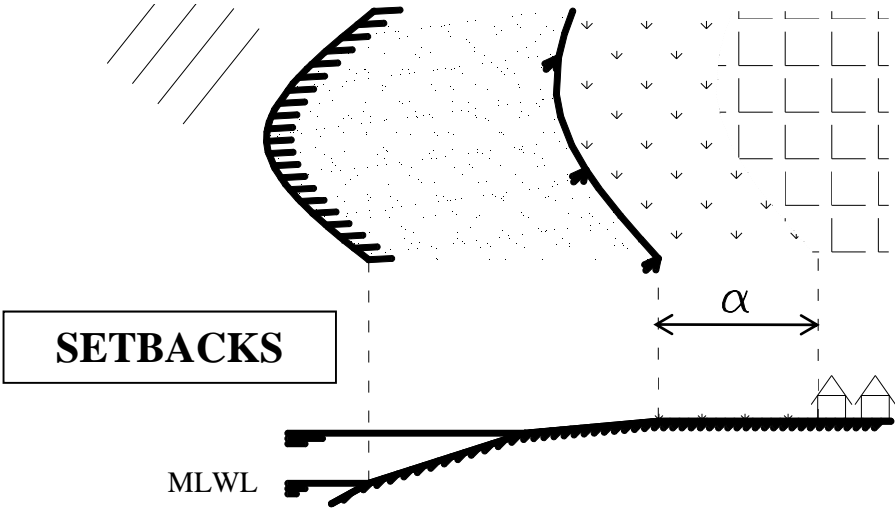
Withdrawal  
lines



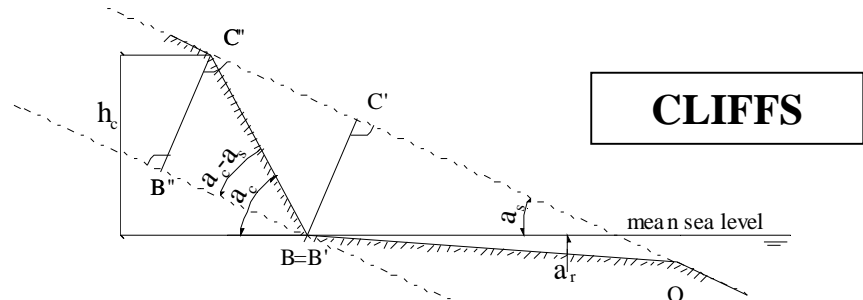
# COASTAL PROTECTIVE FEATURES



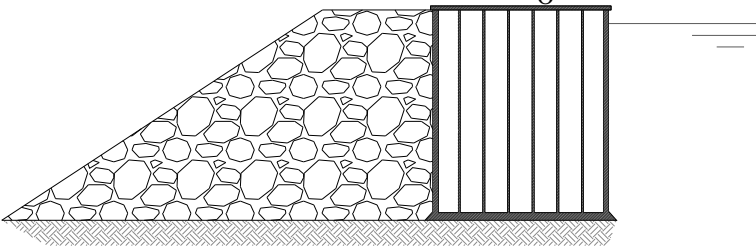
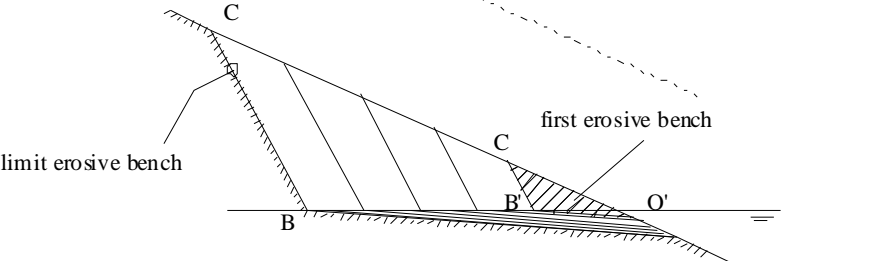
## BEACHES



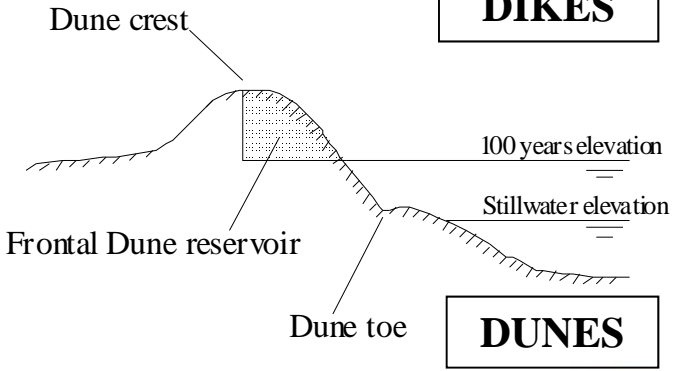
## SETBACKS



## CLIFFS



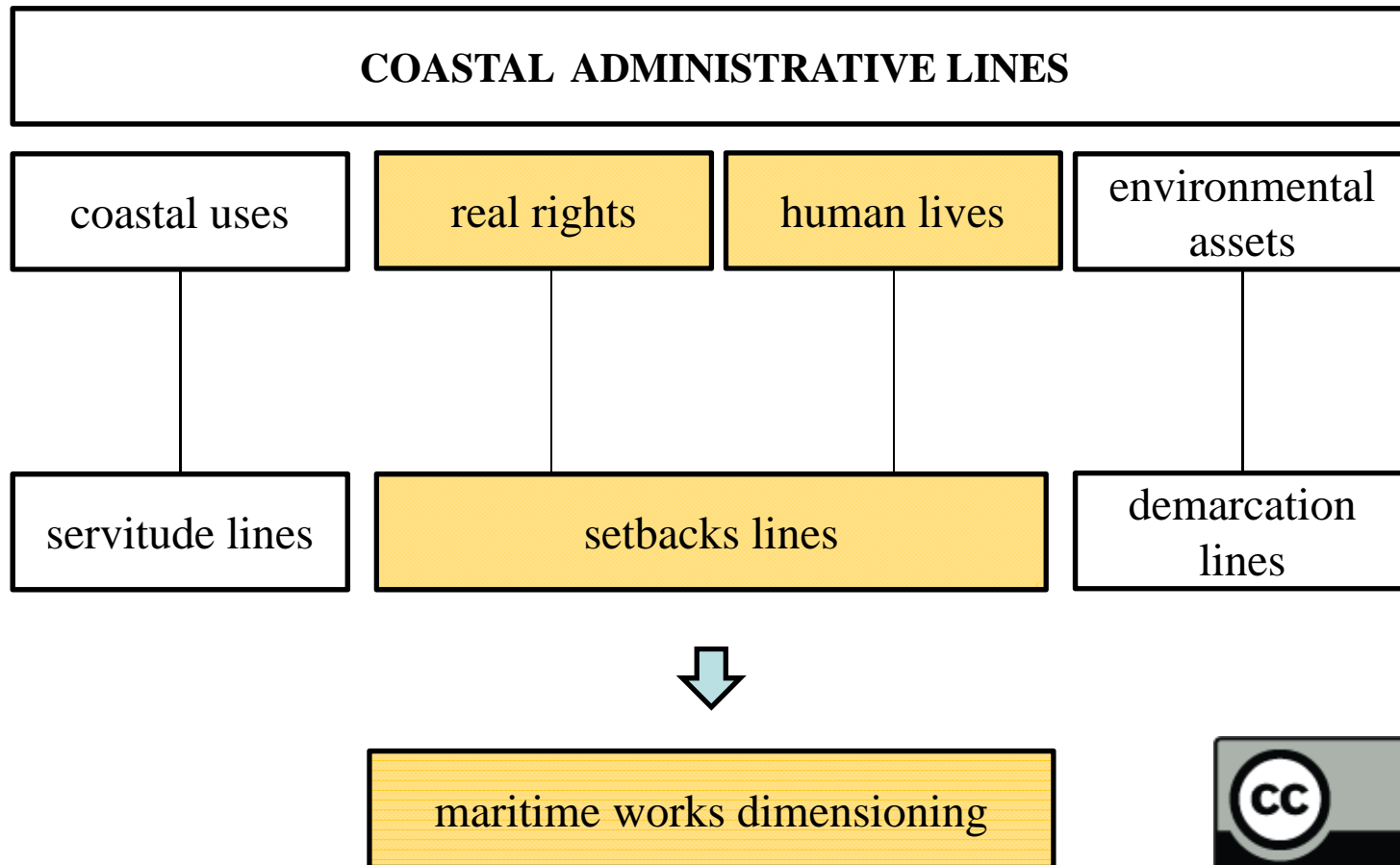
## DIKES



## DUNES



# INTERPRETATION OF THE WAVE CRITERIA FOR COASTAL ZONING



## REFERENCES



- “*Coastal Zone Management Act*”, 1972
- “*North Carolina Administrative Code for ocean hazard areas*”
- “*Ley 22/1988*”. BOE nº 181. July, 29 Friday, pages 23386-23401.
- “*Beaches and coasts*”. Cuchlaine A.M. King. Second Edition. Ed. Edwar Arnold. 1972.
- “*Formas Costeras*”; P.S. Bores. I.S.B.N.: 84-7493-023-5. 1980.
- “*Guidelines and specification for flood hazard mapping partners*”. Federal Emergency Management Agency (FEMA). D. 2. 9.3.1. Sandy Dunes. February 2007.
- “*The scale of shore erosion*”. M. Schwartz. Journal of Geology Vol 76. 1968
- “*The Convention on Wetlands text*”, as amended in 1982 and 1987. Article 1.1.
- “*Tsunami defense combining coastal vegetation and the banking of coastal roads*”. Kosuke Limura, Norio Tanaka and Kenji Harada.
- ROM 0.0. “*General procedure and requirements in the design of harbor and maritime structures*”. Part 1. Puertos del Estado. 2000.

