

USACE Sea Level Change Resources

ER 1100-2-8162 Incorporating Sea Level Change in Civil Works Programs

- Details SLC scenarios and general procedures for CW projects
- http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1100-2-8162.pdf

ETL 1100-2-1 Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation

- References SLC ER, detailed discussion of adaptation to SLC for every USACE coastal activity; CSDR, Navigation, Ecosystem and FDR covered in detail in dedicated appendices
- http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1100-2-1.pdf

SLC Scenario Online Tool

- <http://www.corpsclimate.us/ccaceslcurves.cfm>

USACE Climate Change Policies—important context for SLC Guidance

- <http://www.corpsclimate.us/index.cfm>

Summary of New SLC ER and ETL

- SLC scenarios are similar to past guidance; no probability is assigned to SLC
- Does not alter 50-year economic period of analysis
- Recommends a 100-year horizon for SLC adaptation analysis
- Level of effort WRT SLC is proportional to project site
 - Vulnerability
 - Adaptive Capacity of Alternatives
- SLC analysis is very site-specific; no cookbook
 - Use the Tiered approach that is outlined in ETL
- Uncertainty about Climate Change and SLC mean that a scenario-based approach is needed

SLC ER Scenario Approaches

ER and ETL allow for a variety of approaches to incorporate SLC scenarios

1. Work with a single scenario; develop a preferred alternative; test against other scenarios
2. Compare all alternatives against all scenarios; determine 'best' alternative based on performance over ALL scenarios
3. Reformulating after employing approached (1) or (2) to incorporate robust features of evaluated alternatives to improve the overall life-cycle performance

Challenges (Bad News)

- 902 limits on CSDR beach nourishment projects may be an issue with increased SLC if 902 limit is based on Baseline SLC. Increased number/volume of lifecycle renourishments → 902 bust
- Barrier island back-bay shorelines and interior mainland shorelines are generally VERY susceptible to SLC
- In coastal communities, essential/critical infrastructure is often located on or near these vulnerable interior shorelines
- Our CSDR feasibility studies need to consider whether back-bay flooding will reduce benefits of the beach project through reduction of damageable infrastructure.

Opportunities (Good News)

• Beach nourishment alternatives/projects are *generally* highly adaptable to changing sea levels

- Adaptation opportunities at every renourishment (berm height, dune height, volume)
- Renourishment interval easily adapted
- Incorporation of Dunes as part of initial design may enhance adaptability as well as resilience to very severe storms
- Cost of beach nourishment adaptation may be quite low compared with no-action damages for intermediate and high SLC scenarios; BCR may increase with higher scenarios