

## **COASTAL STRUCTURES**

Shore protection projects are projects which reduce the damaging effects of coastal flooding, wave impacts, or erosion due to tides, surges, waves, or shore material deficits resulting from natural or human causes. Designs of repairs, modifications, and periodic nourishments for existing shore protection projects shall meet the requirements for new designs, as discussed in ER 1110-2-1407.

### **References:**

#### *Engineering Regulations*

- ER 1105-2-101 Planning - Risk Analysis for Flood Damage Reduction Studies
- ER 1110-2-1150 Engineering and Design for Civil Works Projects
- ER 1110-2-1806 Earthquake Design and Evaluation for Civil Works Projects
- ER 1110-2-2902 Prescribed Procedures for the Maintenance and Operation of Shore Protection Works

#### *Engineering Manuals*

- EM 1110-2-1100 Coastal Engineering Manual
- EM 1110-2-1202 Environmental Engineering for Deep-Draft Navigation Projects
- EM 1110-2-1204 Environmental Engineering for Coastal Shore Protection
- EM 1110-2-1607 Tidal Hydraulics
- EM 1110-2-1614 Design of Coastal Revetments, Seawalls and Bulkheads
- EM 1110-2-1619 Risk-Based Analysis for Flood Damage Reduction Studies
- EM 1110-2-1810 Coastal Geology
- EM 1110-2-2000 Standard Practice for Concrete for Civil Works Structures
- EM 1110-2-2002 Evaluation and Repair of Concrete Structures
- EM 1110-2-2302 Construction With Large Stone
- EM 1110-2-2504 Design of Sheet Pile Walls
- EM 1110-2-2611 Engineering for Prefabricated Construction of Navigation Projects
- EM 1110-2-2906 Design of Pile Foundations
- EM 1110-2-3400 Painting: New Construction and Maintenance
- EM 1110-2-5025 Dredging & Dredged Material Disposal

Please note that some Engineering Manuals supersede each other, hence care must be used applying requirements of the Engineering Manuals. In addition, engineering judgment is required in the application of these manuals to certain structures. The manuals listed above can be obtained at <http://publications.usace.army.mil/publications/eng-manuals/>