



Beach nourishment in the USA, the history, the impacts, and the future

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Currently, the primary tool being used at the local, state, and federal level in the USA to adapt to rising sea level, and to reduce potential storm damage is the addition of sand to the coastal system in the form of engineered beaches and dunes (commonly referred to as beach nourishment or beach replenishment). At the Program for the Study of Developed Shorelines, we have built a comprehensive database of all beach dredge and fill projects in the USA. The database tracks a history of beach projects that date back to 1923 with continual updates as new projects are implemented today. The projects in the database represent the movement of over 950 million cubic meters of sand covering over 3700 km of shoreline.

This massive program of shoreline stabilization is being carried out with little long-term vision or planning, and no consideration for the cumulative environmental impacts of mining and placing so much sand. It is no exaggeration to say that a significant portion of the US East and Gulf Coasts are now completely artificial constructs, with engineering replacing natural processes. Along many shorelines, beach nourishment has become unsustainable as sand sources diminish. In addition, the cost of moving the sand has increased dramatically as communities scramble to build beaches and dunes. This program is not sustainable into the future, but there has been no widespread recognition of this reality, nor any move towards sensible retreat from the coast.