Examples of Depth Reduction Using Dredged Spoil

Why This is Done

While dredging usually deepens water, these "beneficial use" projects decrease depth for specific reasons:

Eliminating Hypoxia: Deep, stagnant holes often have low or no oxygen (hypoxia) that can kill fish and other marine life. Filling them improves water circulation.

Capping Contaminants: Dredged material can be used to "cap" or bury contaminated sediments at the bottom of a deep pit.
Habitat Creation: Reducing depth allows sunlight to reach the bottom, which can support the growth of underwater grasses and mangroves. This results in a thriving self-sustaining ecosystem.

Florida:

- **Tampa Bay Dredged Hole Habitat Assessment:** A major project in Tampa Bay evaluated 11 deep areas to determine if they should be filled.
  - **Complete Filling:** Recommendations were made to completely fill holes like **McKay Bay** and **Northshore Beach** to surrounding depths to restore natural conditions and potentially facilitate seagrass, mangrove, or saltmarsh planting.
  - **Partial Filling:** Some holes, such as the **Cypress Point**, were recommended for partial filling to stabilize shorelines or decrease hypoxic (low oxygen) conditions often found in deep, stagnant water.
- **Apalachicola Bay (Eastpoint Channel):** The U.S. Army Corps of Engineers partnered with Franklin County to create a 20-acre beneficial use site. Sandy material was used to build a containment berm, which was then backfilled with dredged material to create marsh habitat, effectively turning deeper water into intertidal wetlands.

Coastal Habitat and Water Quality (C-HAWQ) Initiative suggested using dredged material from inland canals to build "island habitats". This would involve placing spoil in existing water areas to create habitats like mangrove communities, seagrasses, and oyster reefs to improve water quality. The raised island concept in developed canals, and technical issues doomed it, but the fundamental thought of using dredged material in a beneficial manner is sound.

Examples Outside Florida:

- **Barnegat Bay, New Jersey:**
  - **Project:** A deep borrow pit was partially filled with approximately 125,000 cubic yards of dredged material.

    - **Result:** The water depth was decreased from **11 meters (36 feet) to 5.5 meters (18 feet)**. This eliminated water column stratification and hypoxia, allowing fish to utilize the entire water column again.
    - **Technique:** Material was used to cap fine-grained sediment and create "mounds" on the bottom to add bathymetric complexity for healthy benthic invertebrate communities.
- **Mobile Bay, Alabama (Brookley Hole):**
    - **Project:** This project involved placing dredged sediment into the **Brookley Hole**, an estuarine pit.
    - **Goal:** The primary objective was to "reclaim" the pit to improve ecological productivity and restore the estuarine habitat.
- **Chesapeake Bay, Maryland (Poplar Island):**
    - **Project:** A massive restoration effort where dredged material from Baltimore Harbor channels is used to rebuild an island that had nearly disappeared due to erosion.
    - **Depth Reduction:** Approximately 68 million cubic yards of material are being used to fill in open-water areas to create hundreds of acres of **wetlands and uplands**. This effectively turns deep shipping-channel-adjacent water into shallow-water habitats for ospreys, eagles, and terrapins.
- **Jekyll Creek, Georgia:**
    - **Project:** A pilot project used "thin layer placement" (TLP) to address deep holes and marsh restoration.
    - **Strategy:** By placing dredged sediments into deep-water areas and marshes, the project aimed to restore lost elevation and improve wetland habitat.