

FACT SHEET:

Hydraulic Modifications

Description:

Physical alteration of existing water body to help control the movement/release of tainted sediments and/or promote deposition of clean sediments. Typical process options include rechannelization, damming, sedimentation basins, and subsurface structures.

Scale of Implementation:

Full-Scale

Precedence (full-scale):

- ✓ Mississippi River (subsurface structures)
- ✓ Moss American (rechannelization)
- ✓ Triana/Tennessee River (rechannelization)

Documented Effectiveness Toward Risk Reduction:

Damming, Sedimentation Basins, Subsurface Structures

- ✓ containment of constituent-containing sediments within a smaller areal extent
- ✓ controls the migration of contaminated sediments
- ✓ promotes sediment deposition in the aquatic environment

Rechannelization

- ✓ constituent-containing sediment physically separated from new channel
- ✓ reduction of bioavailability
- ✓ reduction of water-column and biota chemical concentrations
- ✓ may enhance navigability



River Dam

Critical Engineering Design Issues Influencing Effectiveness:

- ✓ extent to which water levels would be raised
- ✓ need for resident fish movement within the river
- ✓ areal extent of targeted sediment
- ✓ water velocity, depth, etc.
- ✓ navigational traffic
- ✓ flood capacity
- ✓ erosion potential
- ✓ extent of development in surrounding area (rechannelization)
- ✓ physical configuration of river (rechannelization)
- ✓ available property/space/access constraints

Short-/Long-Term Issues:

- ✓ alteration and/or modification of existing ecological habitat and surrounding area
- ✓ establishment of a habitat type that favors different aquatic species (sedimentation basin)
- ✓ resuspension of sediments during high flow events
- ✓ upstream flooding considerations
- ✓ available property/construction space
- ✓ alteration of river hydraulics
- ✓ sediment accumulation behind dam/sedimentation basin may require periodic removal
- ✓ limits movement of resident fish (damming)
- ✓ future use of old channel (rechannelization)
- ✓ topography (rechannelization)

For More Information:

- ✓ USEPA. Superfund at Work: Success in Brief: EPA and Olin Clean Up Triana Site: "A Major Victory for the Environment." EPA 520-F-93-001.1993