



Review of North Carolina Sediment Criteria

Ken Richardson - NC Division of Coastal Management

February 25, 2026



Why Sediment Criteria Matters

- Early 2000s projects revealed regulatory gaps in the definition of sediment compatibility
- Incompatible materials create ecological, recreational and performance concerns
- Need for objective, enforceable standards

Regulatory Gap Identified (2001-2005)

Rule simply required sediment to be “compatible” with native beach.

- Term was subjective and difficult to enforce
- Projects placed marl cobbles, shell hash, and mudballs on several beaches
- Exposed a need for measurable sediment standards

Science Panel Charge & Technical Approach (2002)

- Define acceptable environmental impacts to borrow areas
- Ensure sediment is clean and free of pollutants
- Develop objective definition of compatibility
- DCM translated technical recommendations into rule language

Scientific Foundation of Compatibility Standards

- Reviewed > 2,000 native beach samples statewide
 - Sand averages ~ 96% of NC beach sediment
 - Fines, granules, gravel typically < 5% of native sediment
 - Established +/- 5% thresholds above native conditions
 - Calcium carbonate limited to recipient beach +/- 10 to 15%



Environmental & Performance Considerations

- Burial can impact benthic organisms; recovery typically 1-2 seasons
 - Recovery strongly influenced by grain size compatibility
 - Excess fines or coarse shell reduce habitat quality
 - Standards protect ecological function & long-term project stability

Rule Adoption & Continued Refinement

- Adopted in 2005 as 07H .0312 – Technical Standards for Beach Fill Projects
 - Aligned with USACE practices while adding NC-specific thresholds.
 - 2013–14: Granular allowance increased to +10%.
 - 2020: Sampling flexibility, cape shoal exemptions & updated definitions for large material (>1”) and shell (>3”).
 - Included DCM beach sampling grants (~\$90K)
 - Represents science-based, collaborative coastal management.

Sediment Criteria:

Goal:

ensure that sand used for beach nourishment is compatible with existing sand on the beach

To Reach the Goal - Define Compatibility:

requires sediment analysis of recipient beach & potential borrow sites (grain size and composition)

Rule Adopted:

Original effective date of February 1, 2007

Sediment Criteria:

15A NCAC 07H .0312(1) Characterize Native Beach Sediment

15A NCAC 07H .0312(2) Characterize Borrow Area Sediment

15A NCAC 07H .0312(3) Determine Sediment Compatibility

15A NCAC 07H .0312(4) Excavation & Placement of Sediment

Goal: ensure that sand used for beach nourishment is compatible with existing sand on the beach.