

Coastal Inlets Research Program FY12 Statements of Need (SoNs)

*Statements of Need Presented by
CIRP at the RARG*



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Overview



Statements of Need

Reducing and Removing Vegetation from Coastal Navigation Structures
Tracking Number 2013-N-9

Statements of Need

Identifying and Addressing Potential Sea Level Change Impacts to Navigation Projects
Tracking Number 2013-N-11

Statements of Need

Automated Feature Extraction for Sediment Budgets
Tracking Number 2013-N-15



2013-N-9

Reducing and Removing Vegetation from Coastal Navigation Structures

POH (T.D. Smith)

Problem:

- Bushes, trees, shrubs grow on navigation structures.
- Walking for inspection is a safety hazard and prevents inspection.
- Removal may cause stone to be displaced and voids occur where roots had grown, destabilization of side-slopes

Need:

- Means to remove vegetation from structure
 - Some removal may require resetting the entire structure cross-section; how to estimate effort/cost?
- Methods to keep vegetation from growing
- Is this a need USACE-wide?

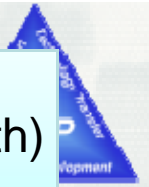
Recommendation:

- Guidance for acceptable herbicides
- Guidance for vegetation removal
- Guidance for impacts to structures once vegetation is removed



Reducing and Removing Vegetation from Coastal Navigation Structures



**Problem:**

- Sea level rise (SLR) and fall (SLF) [also lake level rise/fall] have potential to significantly impact functionality of navigation projects.
 - SLR: navigation structures will experience higher water levels, increased wave energy, increased overtopping, reduced functionality.
 - SLF: channel depths decrease and dredging requirements increase.

Need:

- Physical and numerical modeling for coastal structure damage with SLC
- Guidance for incorporating SLC in planning, design, operation & maintenance of coastal navigation structures
- Guidance for how coastal processes will change with SLC

Recommendation:

- Anticipate implications of SLC on navigation mission by proactive research and guidance; minimize:
 - Under-designed components
 - Decreased project functionality
 - Flooded port/harbor facilities
 - Loss of upland transportation corridors
 - Unanticipated future project costs





2013-N-15

Automated Feature Extraction for Sediment Budgets

NAN
(L.M.Bocamazo)



Problem:

- Districts must manage navigation projects to minimize O&M impacts on adjacent beaches
 - Typically involves defining volumetric change through time and defining sediment transport patterns to formulate a sediment budget
- Need to fully capture 3D spatial variation in and around coastal inlets from lidar
- Present practice is to manually delineate geomorphic features for sediment budgets

Need:

- For all USACE developing sediment budgets
- Tools and methods to automatically extract morphologic features and discern pathways from lidar data
 - Provide input to sediment budgets
- Need standard, reproducible methodology

Recommendation:

- Develop systematic methods and an automated tool to extract morphologic features from lidar data
 - ebb/flood shoal, attachment bars, channel
- Provide input to sediment budgets

