Chapoquoit Beach Project

Key Project Components
• beach nourishment
• Cape Cod Canal sand source
• nearshore rehandling site
• cooperation with USACE
• public and private interests

Feasibility Assessment
• engineering
• environmental
• financial
• public/private partnership

Funded By CZM Coastal Resilience Grant
Project History

Permitted Nourishment Project in 2002
- CA, Town of Falmouth, Bowerman’s
- Cape Cod Canal sand source
- Direct pump to the beach
- ~100,000 cy over 3,200 ft
- Project not constructed

Current Beach Conditions
- still eroding (1.5 to 2.0 ft/yr)
- loss of recreational resource
- loss of storm damage protection
- damage to seawall/causeway
Meeting Agenda

Describe Feasibility Study

- purpose
- scope
- preliminary findings

Address Key Questions

- nourishment design
- sand quality
- sediment transport/impacts
- project lifetime
- access easements
- cost
Scope of Study

Purpose
• evaluate feasibility of restoring Chapoquoit Beach through beneficial reuse of sand dredged from the Cape Cod Canal

Scope & Project Tasks
• coordinate with USACE
• beach investigations
• engineering design
• nearshore investigations
• public education
Beach Investigations

Existing Conditions

- rates of shoreline change
- topographic survey
- resource area mapping
- sediment sampling
- shellfish survey
- wave modeling
- sediment transport modeling
Engineering Design

Beach Nourishment

- footprint ~13 acres
- ~3,000 linear ft
- ~100,000 cy
- 9 parcels (public & private)
  2 Chapoquoit Assoc.
  2 Town of Falmouth
  1 Bowerman’s Beach Club
  4 private
Engineering Design

Cross Section

- increase beach elevation by ~ 7 ft
- move MHW seaward 75 to 120 ft
Nearshore Investigations

Existing Conditions
- bathymetric survey
- benthic/seafloor habitat
- sediment sampling
- avoid hard bottom

Constraints
- 30 to 40 ft depth
- 4,000 ft from shore
- designate area
Key Questions

Nourishment Design
Sand Quality
Sediment Transport/Impacts to W Falmouth Harbor
Project Lifetime
- cross shore and longshore spreading
- updates to previous models
- ~16 to 30% fill remaining after 10 years

Public Access Easements
- required if public funds spent to nourish private beaches
- private interests must pay for their share of sand
- USACE direct pump to beach would trigger need for easements
Construction Costs

Canal to Nearshore Rehandling Site - Phase 1
- USACE split hull hopper dredge
- 100% of cost above and beyond disposal at Cleveland Ledge

Nearshore Rehandling Site to Beach - Phase 2
- Barnstable County dredge
- $9/cy without booster; $13/cy with booster pump

Construction Cost Estimate
- $1.7 to $2.0 million
- ~$.8 to 1.1 mil for Phase I plus $900,000 for Phase 2
- $560 to $660/linear ft of beach
- Environmental permitting costs
Next Steps

**Ongoing Studies**

- shellfish survey along beach
- nearshore benthic habitat and sediment sampling
- wave and sediment transport modeling
- impact assessment on W. Falmouth Harbor
- fine tune costs (construction and permitting)
- MOU with USACE
- Public meeting (end of June)