IMPORTANCE OF SALTMARSHES

• SALT MARSHES ARE BELIEVED TO BE THE MOST PRODUCTIVE HABITAT ON EARTH.

• LOCALLY, THE MARSHES SUPPORT VARIOUS LIFE STAGES OF COMMERICALLY AND RECREATIONALLY VALUABLE FISH AND SHELLFISH, AS WELL AS NUMEROUS WILDLIFE SPECIES.

• KEY COMPONENT OF FLOOD CONTROL AND THE NITROGEN CYCLE
THE VULNERABILITY

• SALT MARSHES ARE IN TROUBLE WITH RESPECT TO CLIMATE CHANGE.
  • RISING SEA LEVELS HAVE THE POTENTIAL TO DROWN THE MARSHES
    • MAINLY BECAUSE ADJACENT DEVELOPMENT HAS LIMITED THE AVAILABILITY OF UPLAND OPEN SPACE FOR LANDWARD MIGRATION.
    • NOT MUCH SEDIMENT INPUT FROM STREAMS, THAT IS HELPFUL ELSEWHERE.
  • OTHER THREATS:
    • ACIDIFICATION
    • LOSS OF FREEZE-REQUISITE SPECIES LIKE CRANBERRIES
    • UNKNOWNS
SEA LEVEL RISE
FARM POND FOR EXAMPLE

Farm Pond, Oak Bluffs
FARM POND ~ 2050

1.5' Sea Level Rise
FARM POND ~ 2100

5' Sea Level Rise
FARM POND
AFTER SLR 5FT

Legend
Wetlands (1:12,000)
IT_VALDESC
- SHALLOW MARSH MEADOW OR FEN
- DEEP MARSH
- SALT MARSH
- TIDAL FLAT

Sea Level Rise
including Mean High High Water Offset
- <= 1.5ft
- >1.5ft to 5.0ft
- Conserved Land

Priority Areas
- Undeveloped Upland Buffer

Main Roads Network
CLASS
- Primary Road
- Secondary Road
WHAT IS THE PROGNOSIS FOR THE MARSH?

Farm Pond, Oak Bluffs

1.5' Sea Level Rise

5' Sea Level Rise
SENGEKONTACKET POND
AFTER SEA LEVEL RISE ~ 2100

- BELOW, AFTER 1.5 FEET OF SEA RISE, SOME WETLANDS WILL BE COVERED WHICH IS INDICATED BY THE LIGHT BLUE

- AFTER 5 FEET OF SEA LEVEL RISE THE PRESENT WETLANDS WILL BE COMPLETELY COVERED WHICH IS REPRESENTED BY DARK BLUE

[Legend]

<table>
<thead>
<tr>
<th>Sea Level Rise</th>
<th>Water Offset</th>
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<tbody>
<tr>
<td>&lt;= 1.5 ft</td>
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WETLANDS ELEVATION MONITORING

• Marshes without capacity for upland migration will likely drown.
• Marshes with room for landward migration need protection from development of those lands.
• The rod-set system measures the minute elevation changes within saltmarshes to compare the effects of deposition and sea level rise on elevation. How is the marsh faring with respect to sea level rise?
THE SYSTEM

- The set provides a constant reference plane from which the distance to the sediment surface can be measured by means of pins lowered to the sediment surface.

- Repeated measurements of elevation can be made with high precision because the orientation of the table in space remains fixed for each sampling.
FIRST INSTALLATION ON MV

THE SITE OF THE FIRST INSTALLATION ON MV IS WITHIN THE FELIX NECK WILDLIFE SANCTUARY AND IS INDICATED BY THE RED CIRCLE.
• FRIENDS OF SENGEKONTACKET: SPONSORED THE CONSTRUCTION MATERIALS.

• MASS AUDUBON/FELIX NECK WILDLIFE SANCTUARY HOSTED THE SITE ON ITS PROPERTY.

• EDEY FOUNDATION FUNDED PURCHASE OF THE R-SET ARMATURE TO BE USED ISLAND-WIDE.

• WAQUOIT BAY NATIONAL ESTUARINE RESEARCH RESERVE (WBNERR) PROVIDED EQUIPMENT LOAN AND PRICELESS ADVICE.
THE SYSTEM

A ROD-SET SYSTEM IS BE USED TO MEASURE THE PRECISE CHANGE IN ELEVATION WITHIN THE SALT MARSHES.
INSTALLATION

A SYSTEM OF TEMPORARY PLATFORMS WAS USED TO MITIGATE THE IMPACTS ON THE MARSH. RODS WERE INSERTED TO A DEPTH OF 40 FEET.
A RECEIVER AND CAP WERE INSTALLED.
AFTER INSTALLATION AT FELIX NECK
MEASUREMENT

PLACE THE ARMATURE INSTRUMENT ON THE RECEIVER AND ATTACH THE PINS.
MEASUREMENT

LOWERING THE PINS TO THE SURFACE OF THE MARSH IS THE NEXT STEP.

NEXT IS MEASUREMENT OF THE HEIGHT OF THE PIN ABOVE THE ARMATURE.
MEASUREMENT AT FELIX NECK IN DECEMBER
THE END

THIS IS NOT OUR END. THIS IS THE MARSH AT WBNERR, DEVOTED TO RESEARCH. PERMANENT WALKWAYS MINIMIZE IMPACTS OF LOTS OF FOOT TRAFFIC.

SENSITIVITY TO VISUAL IMPACTS MEANT DEVISING TEMPORARY WALKWAYS AND PLATFORMS.