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PART 5: RUNUP2

for transect: CM-123-1

Station locations shifted by: -0.59 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

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RUNUP2 INPUT CONVERSIONS

for transect: CM-123-1

Incident significant wave height: 3.52 feet

Peak wave period: 5.02 seconds

Mean wave height: 2.20 feet

Local Depth below SWEL: 27.63 feet

Mean wave height deshoaled using Hunt approximation for  
celerity assuming constant wave energy flux.

References: R.G. Dean and R.A. Dalrymple. 2000. Water

Wave Mechanics for Engineers and Scientists. World  
Scientific Publishing Company, River Edge New Jersey

USACE (1985), Direct Methods for Calculating Wavelength, CETN-1-17  
US Army Engineer Waterways Experiment Station Coastal Engineering  
Research Center, Vicksburg, MS

also see Coastal Engineering Manual Part II-3  
for discussion of shoaling coefficient

Depth,  $D = 27.63$

Period,  $T = 4.27$

Waveheight,  $H = 2.20$

Deep water wavelength,  $L_0$  (ft)

$L_0 = g \cdot T^2 / 2\pi$

$L_0 = 32.17 \cdot 4.27^2 / 6.28 = 93.26$

Deep water wave celerity,  $C_0$  (ft/s)

$C_0 = L_0 / T$

$C_0 = 93.26 / 4.27 = 21.85$

Angular frequency,  $\sigma$  (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 4.27 = 1.47$

Hunts (1979) approximation for Celerity  $C_{1H}$  (ft/s) at Depth  $D$  (ft)

$y = \sigma \cdot \sigma \cdot D / g$

$y = 1.47 \cdot 1.47 \cdot 27.63 / 32.17 = 1.86$

$C_{1H} = \sqrt{g \cdot D / (y + 1 / (1 + 0.6522 \cdot y + 0.4622 \cdot y^2 + 0.0864 \cdot y^4 + 0.0675 \cdot y^5))}$

$C_{1H} = 20.98$

Shoaling Coefficient  $K_{sH}$

$K_{sH} = \sqrt{C_0 / C_{1H}}$

$K_{sH} = \sqrt{21.85 / 20.98} = 1.02$

Deepwater Wave Height  $H_{0_H}$  (ft)

$H_{0_H} = H / K_{sH}$

$H_{0_H} = 2.20 / 1.02 = 2.16$

Deepwater mean wave height: 2.16 feet

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END RUNUP2 CONVERSIONS

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RUNUP2 RESULTS

for transect: CM-123-1

RUNUP2 SWEL:

9.00

9.00

9.00

9.00

9.00  
9.00  
9.00  
9.00  
9.00

RUNUP2 deepwater mean wave heights:

2.05  
2.05  
2.05  
2.16  
2.16  
2.16  
2.27  
2.27  
2.27

RUNUP2 mean wave periods:

4.05  
4.27  
4.48  
4.05  
4.27  
4.48  
4.05  
4.27  
4.48

RUNUP2 runup above SWEL:

0.19  
0.22  
0.22  
0.19  
0.23  
0.25  
0.20  
0.24  
0.25

RUNUP2 Mean runup height above SWEL: 0.22 feet

RUNUP2 2-percent runup height above SWEL: 0.49 feet

RUNUP2 2-percent runup elevation: 9.49 feet-NAVD88

RUNUP2 Messages:

No Messages

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END RUNUP2 RESULTS

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ACES BEACH RUNUP

Incident significant wave height: 3.52 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 3.02 feet

Peak wave period: 5.02 seconds

Average beach Slope: 1:18.39 (H:V)

ACES RUNUP CALCULATED USING 'Aces\_Beach\_Runup.m'

ACES Beach 2-percent runup height above SWEL: 2.70 feet

ACES Beach 2-percent runup elevation: 11.70 feet-NAVD88

ACES BEACH RUNUP is valid

\_\_\_\_\_END ACES BEACH RESULTS\_\_\_\_\_

PART 5 COMPLETE\_\_\_\_\_