Common Symbols

A = Area normal to flow

b = wave crest width

B = Top width [also T]

c = Wave Celerity

c_G = Group velocity

C_c = Contraction coefficient [0.5 for re-entrant case; 0.61 for flush opening]

d = Depth to the bed (for coastal applications d is the depth below the still water level.)

d_b = depth at which waves break

D = Hydraulic mean depth = A/B or A/T

E = Wave Energy

f = frequency

$n = c_G / c$ = the fraction of wave energy being transmitted

F = Force

g = Acceleration due to gravity [use 32.2 ft/sec^2 or 9.81 m/s^2]

h = height

h_z = Elevation

H = Wave Height

H_s = Significant Wave Height

H_o = Deep Water Wave Height

H_b = wave height at breaking

K_s = Shoaling Coefficient

K_r = Refraction Coefficient
K_d = Diffraction Coefficient

K_f = Reflection Coefficient

L = Wave Length

Lo = Deep Water Wave Length

M = Momentum flux or momentum flow

"o" as subscript indicates deep water.

p = Pressure

p = probability

P = wave power

q = Discharge per unit width

Q = Discharge = VA

S_o = Bed slope

S_s = Specific Gravity of a Material

t = Time

T = Wave period

Ts = Significant Wave period

{u,v,w} = Velocity components in {x,y,z} Cartesian coordinates

W = Width

x = Commonly used as direction of flow [measured along the bed]

α = wave crest angle with respect to the shoreline

γ = Specific weight = g ρ (typical 62.4 lbs/ft^3; 9810 N/m^3)

δ = Boundary layer thickness

ε = Roughness height

κ = von Karman universal constant = 0.4

η = elevation with respect to the still water level.

λ = Wave length (in some references)

θ = Bed slope angle

θ_f = Friction angle

μ = Dynamic viscosity

ν = Kinematic viscosity (typical 10^{-5} ft^2/sec; 10^{-6} m^2/s)

σ = Surface tension (typical $5*10^{-3}$ lbs/ft; $7.3*10^{-2}$ N/m)

φ = Side slope angle

ρ = Density (1.94 $slugs/ft^3$; 1000 kg/m^3)

τ = Shear stress