

# An Introduction to Groundwater Issues at Mine Sites

Produced by:

R.V. Nicholson, Ph.D.



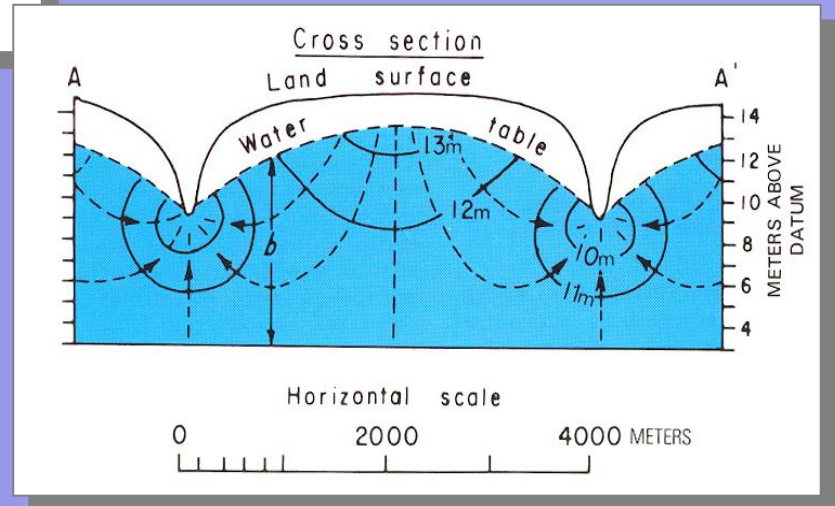
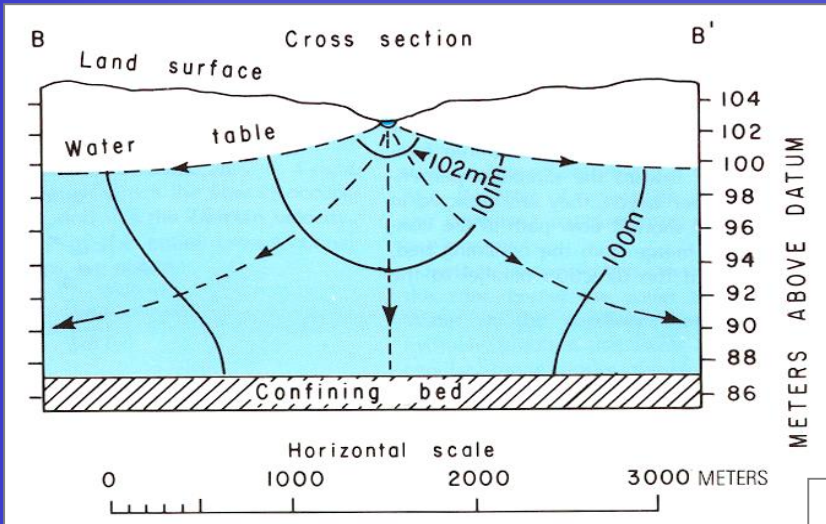
# Topic 7: Groundwater – Surface Water Interaction



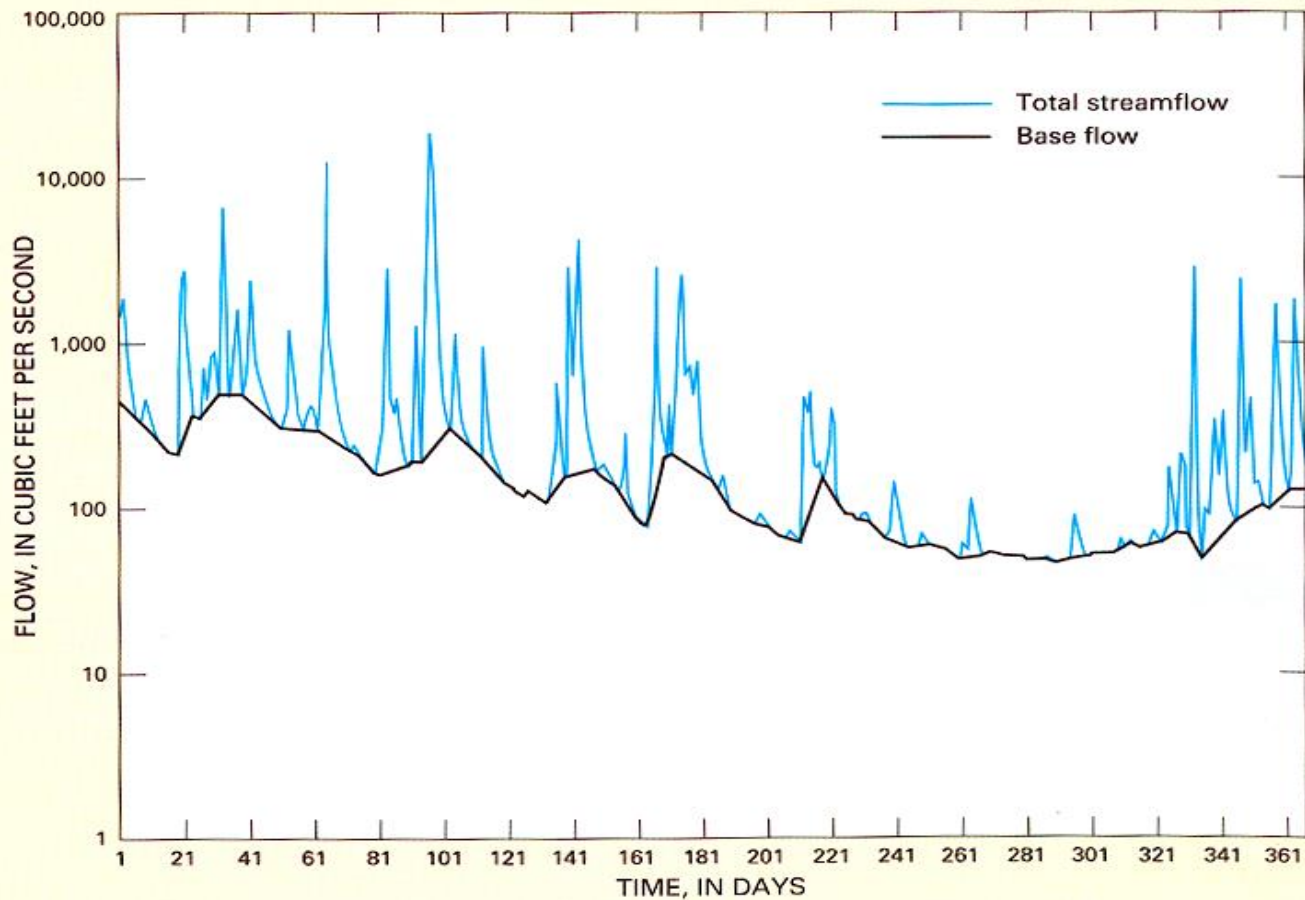
# Groundwater - Surface Water Interaction

- Streams
  - gaining / losing
- Lakes
  - Discharge / recharge / variation
- Marine conditions

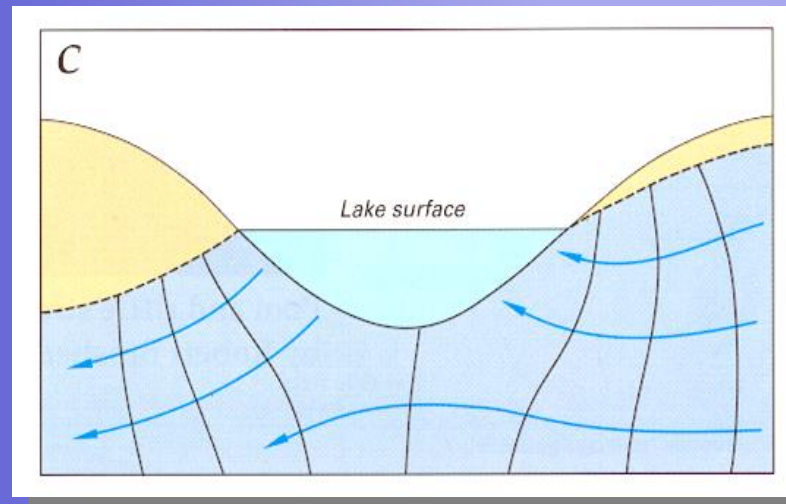
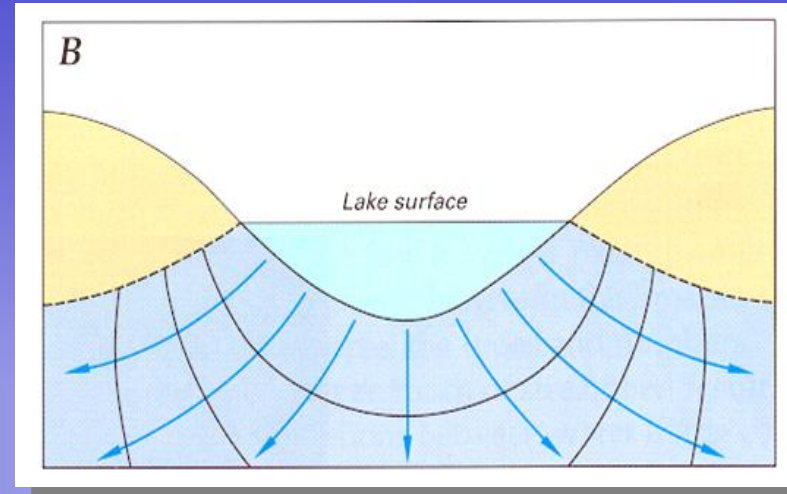
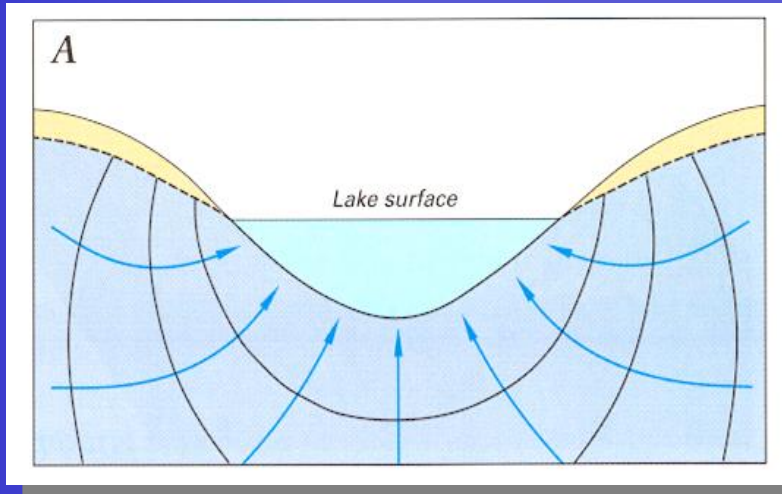
# Gaining and Losing Streams



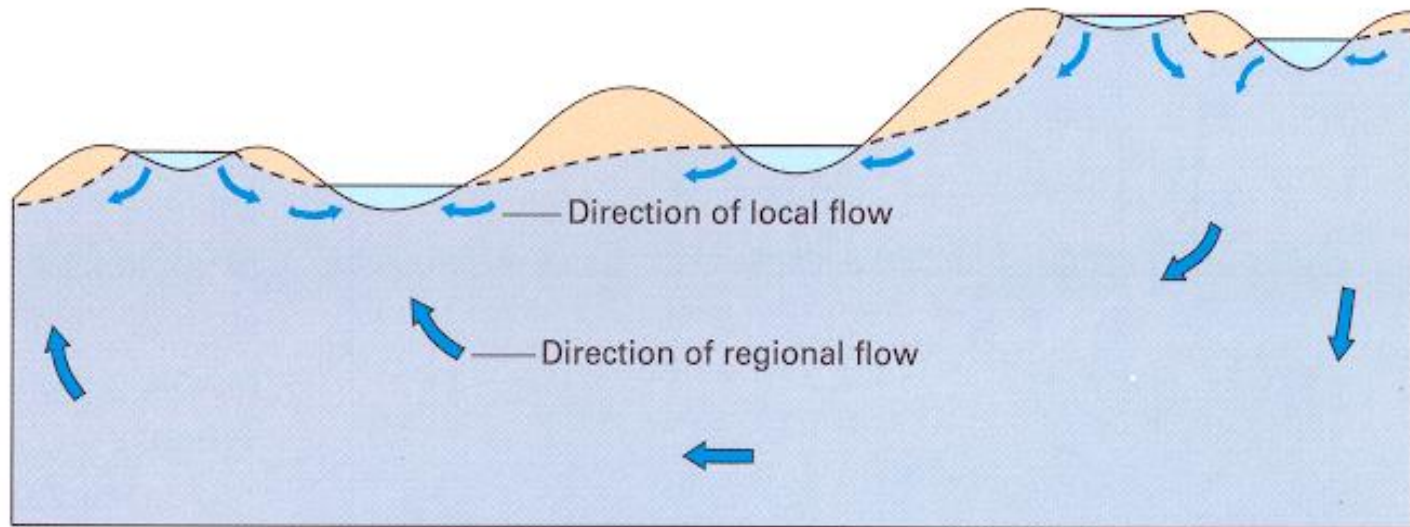
# Streams: Baseflow, Streamflow and Storage



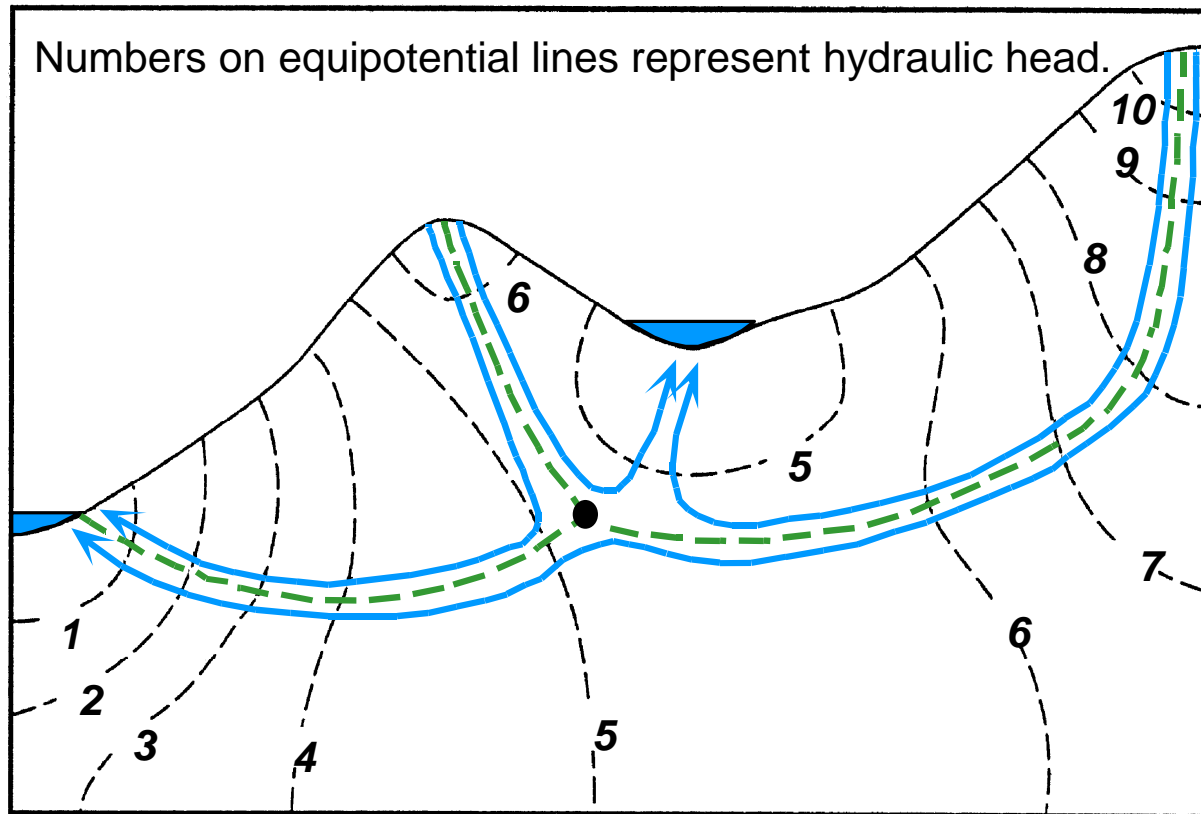
# Lakes – Simple Flow Systems



# Lakes – Complex Flow Systems

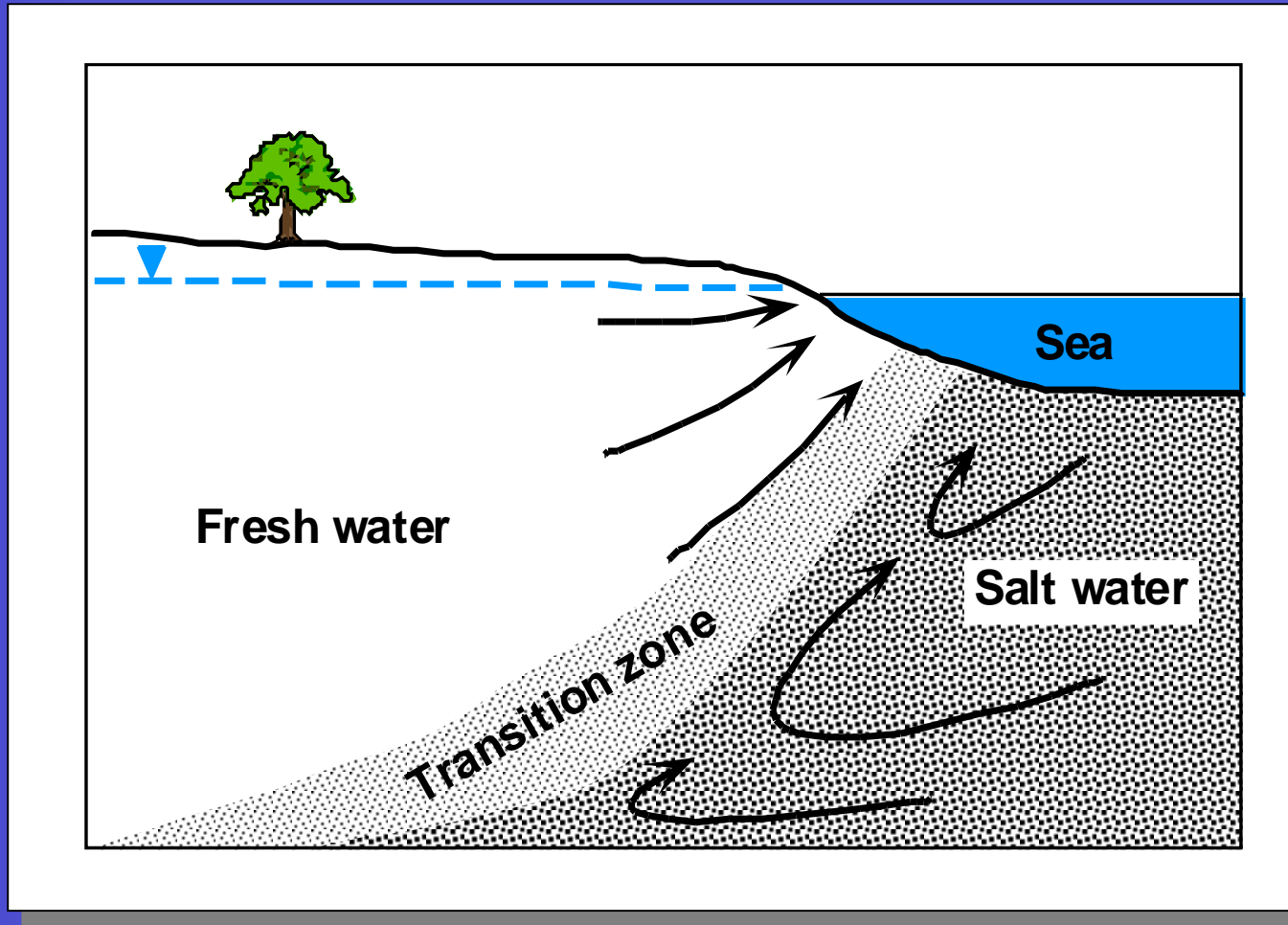


# Lakes – Complex Flow Systems

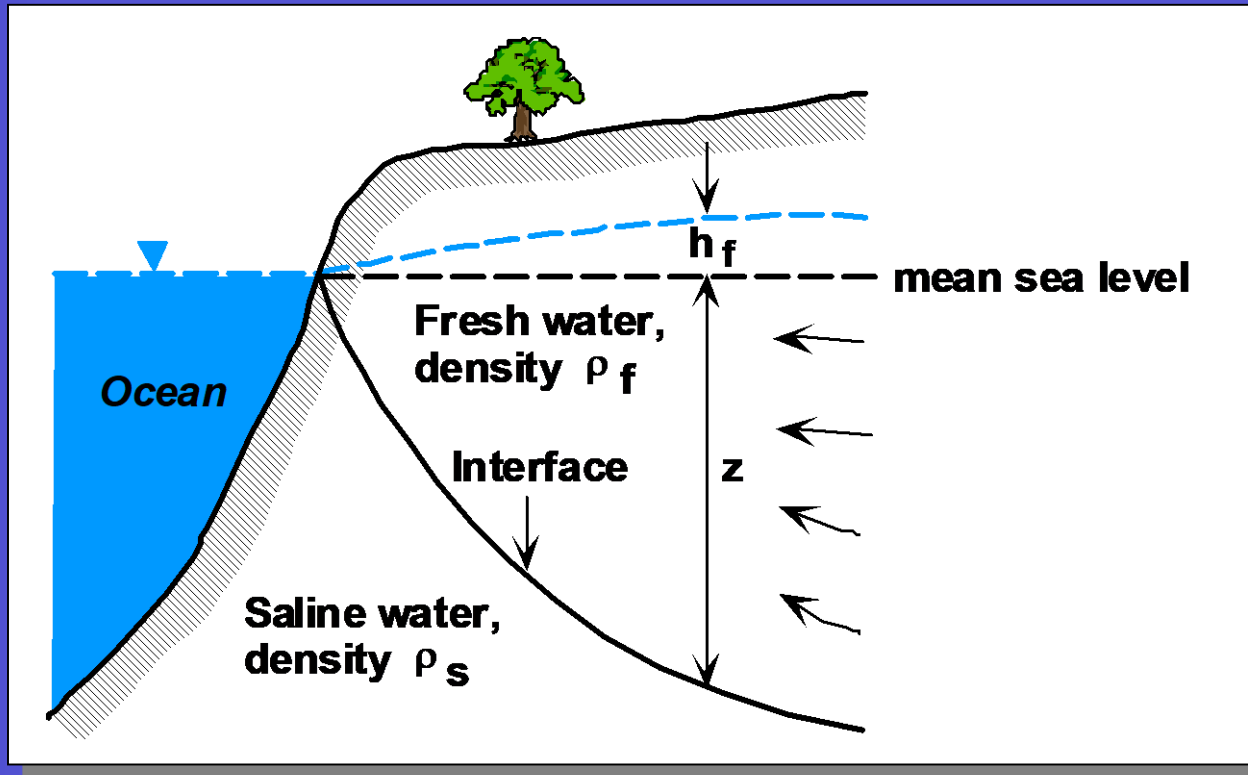




# Costal Zones and Saltwater Intrusion



# Costal Zones and Saltwater Intrusion



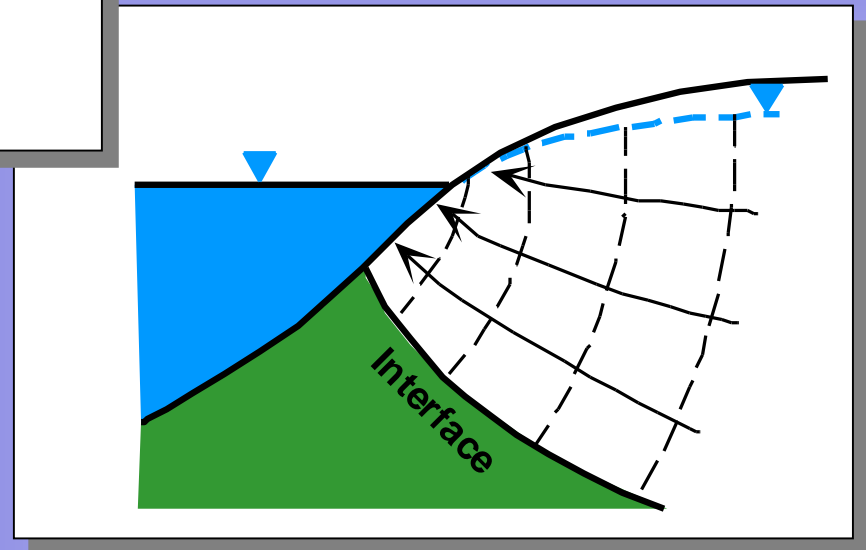
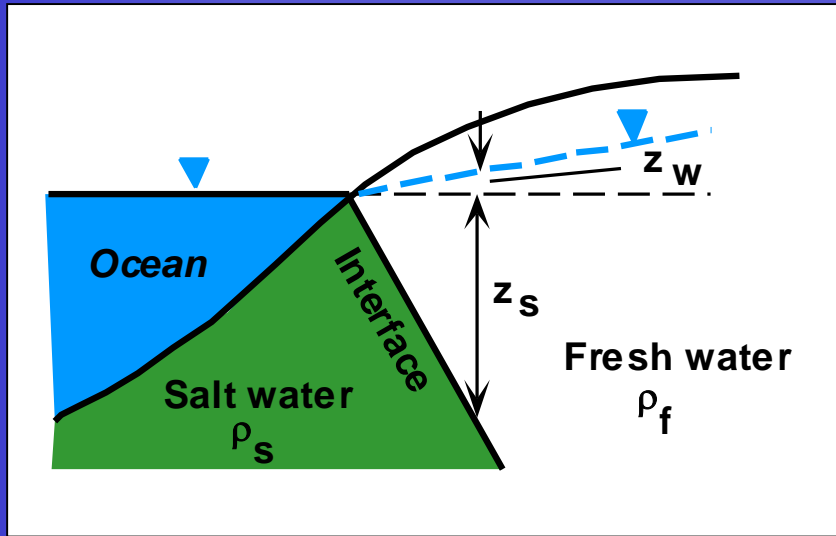
Salt water density is 2.5%  
(or 1.025 times) greater  
than fresh water

$$z = \frac{\rho_f}{\rho_s - \rho_f} h_f$$

$$z = 40h_f$$



# Costal Zones and Saltwater Intrusion



# Saltwater Intrusion and Wells

