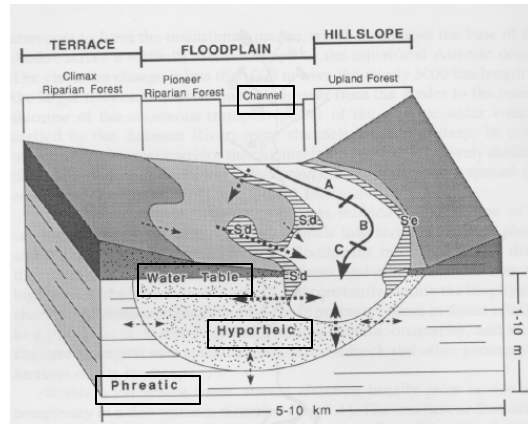


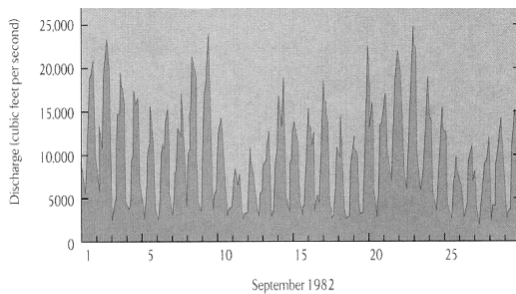
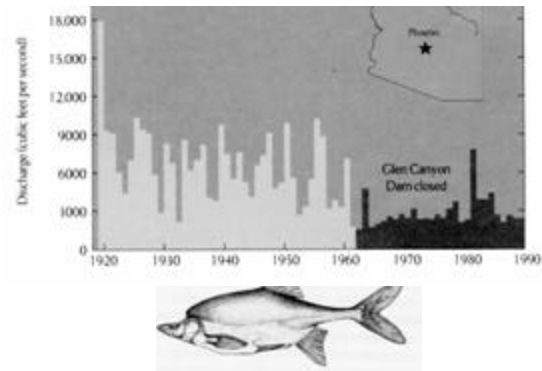
Physiography of Flowing Water

- Characterization of streams
- Stream flow and geology
- Movements of materials by rivers and streams

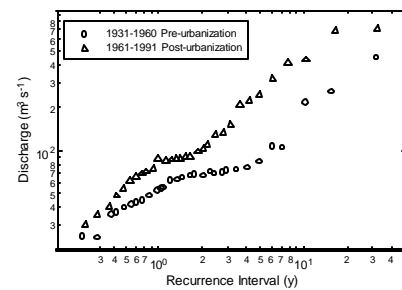


Discharge is not Velocity

- Discharge is flow per unit time (velocity x cross-sectional area)
- Velocity is how fast water is going
- Flow can mean discharge or velocity
- Hydrographs are a plot of discharge over time
- Discharge spreadsheet
- Hydrograph spreadsheet



Watershed Alteration changes Flood Characteristics



Materials Dissolved in River Water

Attribute	Current concentration	Natural concentration	Pollution	% increase
Ca ²⁺	14.7	13.4	1.3	9%
Mg ²⁺	3.7	3.4	0.3	8%
Na ⁺	7.2	5.2	1.3	28%
K ⁺	1.4	1.3	0.1	7%
Cl ⁻	8.3	5.8	2.5	30%
SO ₄ ²⁻	11.5	6.6	4.9	43%
HCO ₃ ⁻	53.0	52.0	1.0	2%
SiO ₂	10.4	10.4	0.0	0%
Total dissolved solids	110.1	99.6	10.5	11%
Dissolved nitrogen	21.5	14.5	7.0	32%
Dissolved phosphorus	2.0	1.0	1.0	50%

Movement of Dissolved Materials in Streams

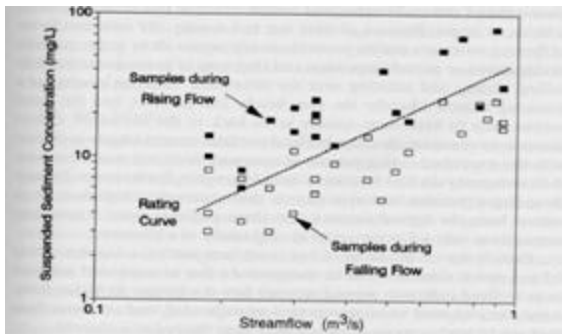
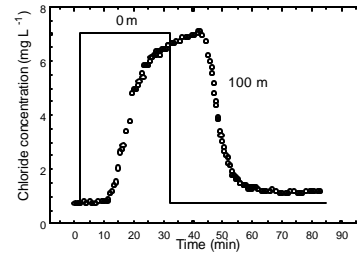
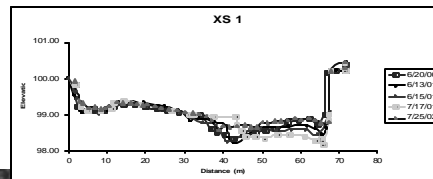


FIGURE 7.1 Relationship between suspended sediment concentration and streamflow (i.e., a sediment rating curve).



June 21, 2001



August 15, 2002

Hierarchical subdivision of watersheds

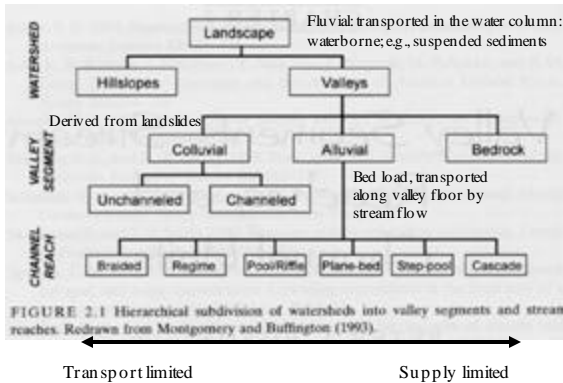


FIGURE 2.1 Hierarchical subdivision of watersheds into valley segments and stream reaches. Redrawn from Montgomery and Buffington (1993).

Transport limited

Supply limited