EPA United States Environmental Protection Agency

US Army Corps of Engineers

ERDC

# Arid West and Western Mountains Streamflow Duration Assessment Methods: Slope

*Video Training*

*2025*

# The SDAMs are based on 11 indicators:

All indicators are measured in the **field**

7 are shared by both SDAMs, plus:

- One only used in AW SDAM
- Three only used in WM SDAM

*In recommended order of data collection*

1. Bankfull channel width
2. Aquatic macroinvertebrate indicators
   - Abundance of perennial indicator taxa
   - Abundance of Ephemeroptera, Plecoptera, and Trichoptera (WM only)
4. **Slope**
5. Shading (WM only)
6. Number of hydrophytic plant species
7. Prevalence of rooted upland plants in the streambed
8. Algal cover (AW only)
9. Differences in vegetation
10. Riffle-pool sequence
11. Particle size or stream substrate sorting (WM only)

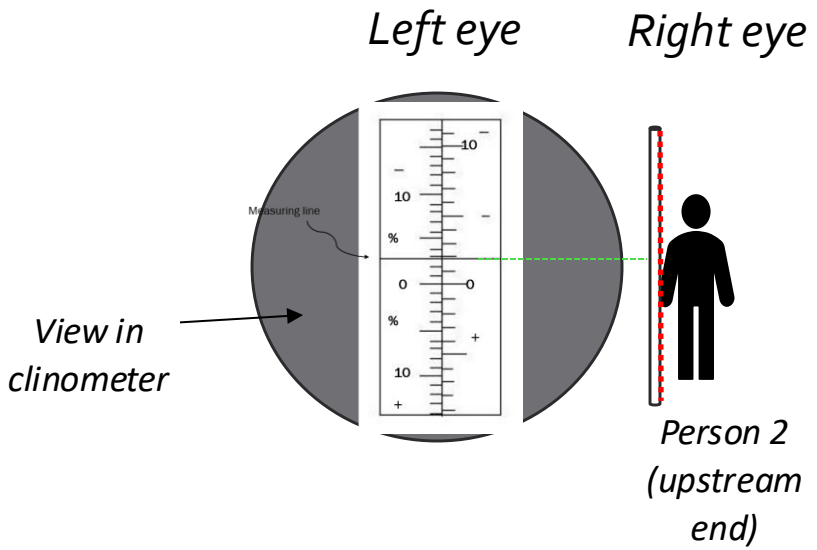
# Slope

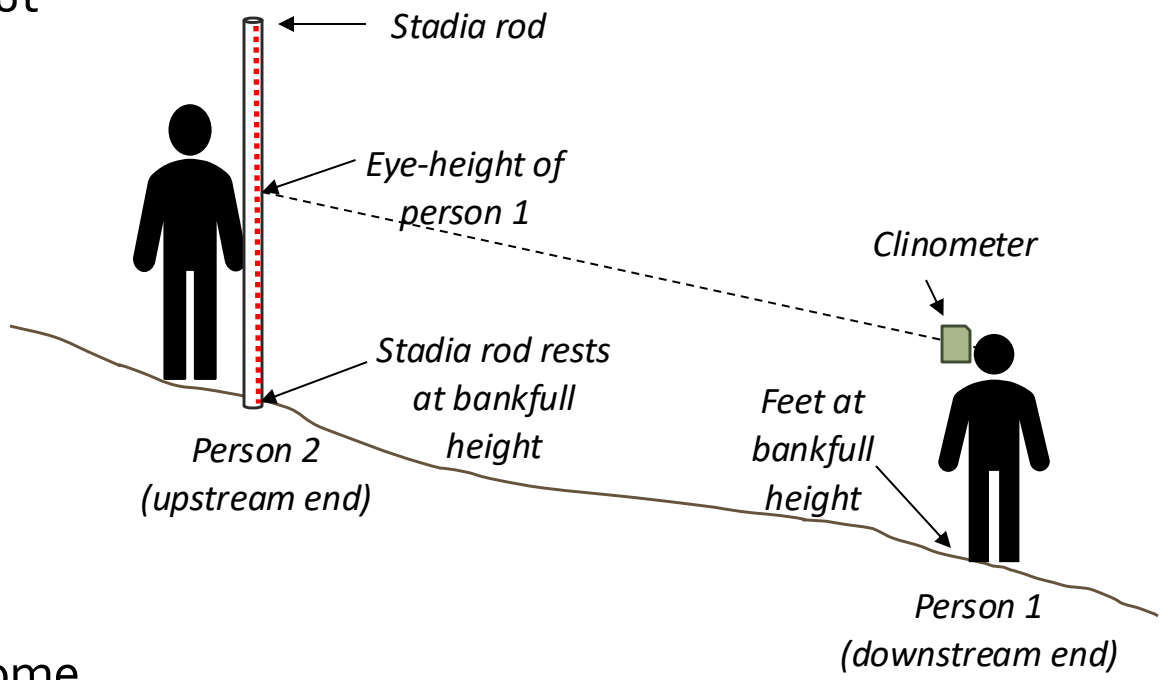
May be measured using a clinometer or an autolevel

- Generally requires two people
- Measurements are always positive (looking upstream from a downstream location), but may be very close to zero

When using a clinometer:

- Keep both eyes open!
- One eye looks through the clinometer
  - Take reading at the horizontal line
  - Make sure you are recording slope in **percent** not **degrees**.
- The other eye looks for your eye-height some distance away




View in clinometer modified from "Field technique tips for measuring % slope" in *Forest Measurement* by Joan DeYong, used under CC 4.0. https://openoregon.pressbooks.pub/forestmeasurements

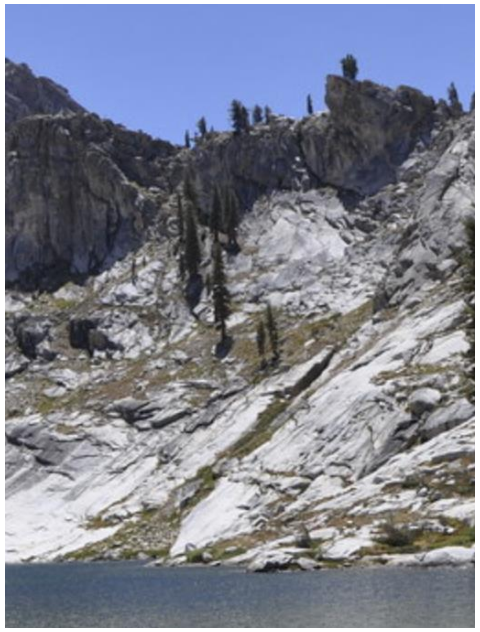
# Slope

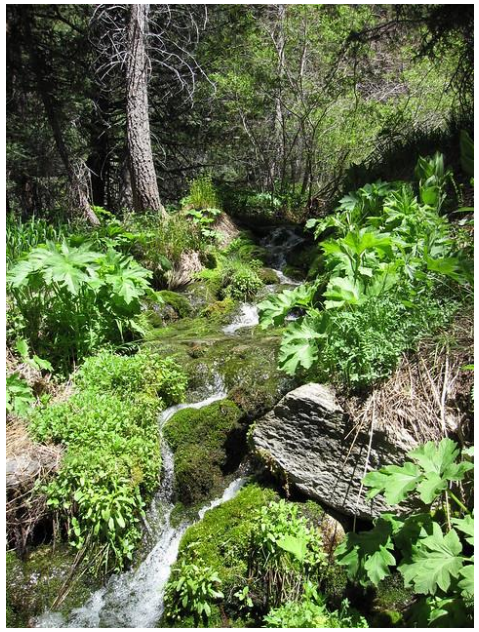
- Keep it upright!
- Place rod at bankfull height

- Both practitioners should stand at bankfull height
- Do not stand in thalweg.

# Slope

- Like bankfull width, slope is neither a **response** to nor a **control** of streamflow duration.
- Generally, steeper slopes are associated with shorter streamflow duration
  - Ephemeral headwaters
  - Perennial mainstems
- This pattern can often be reversed, especially within the Arid West
  - Perennial spring-fed headwaters
  - Large ephemeral washes





# Record on the field form

**4. Slope (AW and WM)**

Using a clinometer or other device, record the slope as a percent, up to the nearest half-percent.

Notes about slope:

# For more information about SDAMs:

https://www.epa.gov/streamflow-duration-assessment