EPA United States Environmental Protection Agency

US Army Corps of Engineers

ERDC

Arid West Streamflow Duration Assessment Method: Algal cover

Video Training

2025

The Arid West SDAM is based on 8 indicators:

All indicators are measured in the **field**

In recommended order of data collection

1. Bankfull channel width
2. Aquatic macroinvertebrate indicators - Abundance of perennial indicator taxa
3. Slope
4. Number of hydrophytic plant species
5. Prevalence of rooted upland plants in the streambed
6. **Algal cover**
7. Differences in vegetation
8. Riffle-pool sequence

Algal cover on the streambed

Are algae found on the streambed?

- This is only an indicator for the AW SDAM
- Pigmented single- or multi-cellular life forms that derive energy through photosynthesis.
- Cyanobacteria, diatoms, and soft-bodied algae all count towards this indicator.
- Live *and* dead mats both count.
  - Live mats tend to be dull brown to bright green.
  - Films made of diatoms are golden-brown.
  - Dead/desiccated mats are brown to powdery-white.

What counts as algae?

Diatom biofilms

Green algae

Red algae

Cyanobacteria ("Blue-green algae")

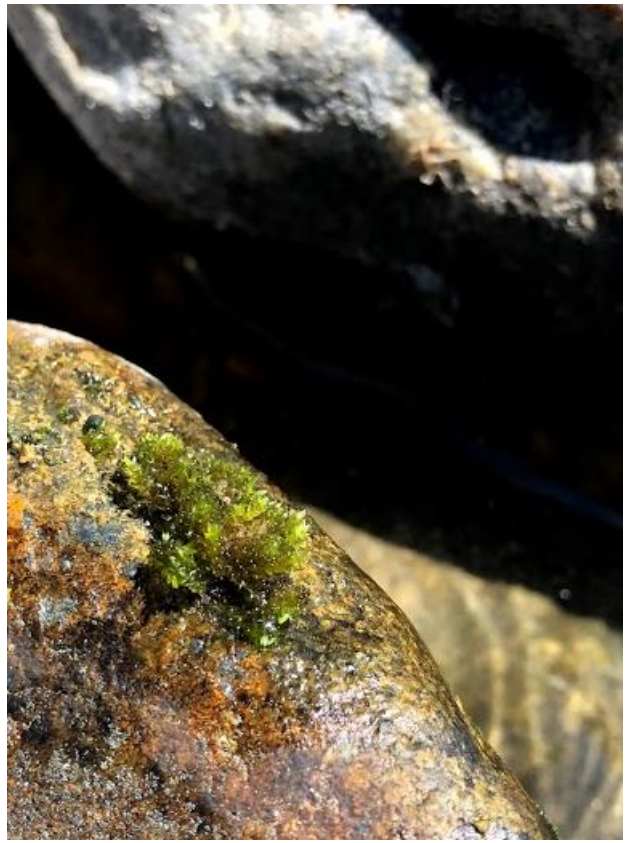
Green algae

What doesn't count as algae?

Lichens on boulder above high water level

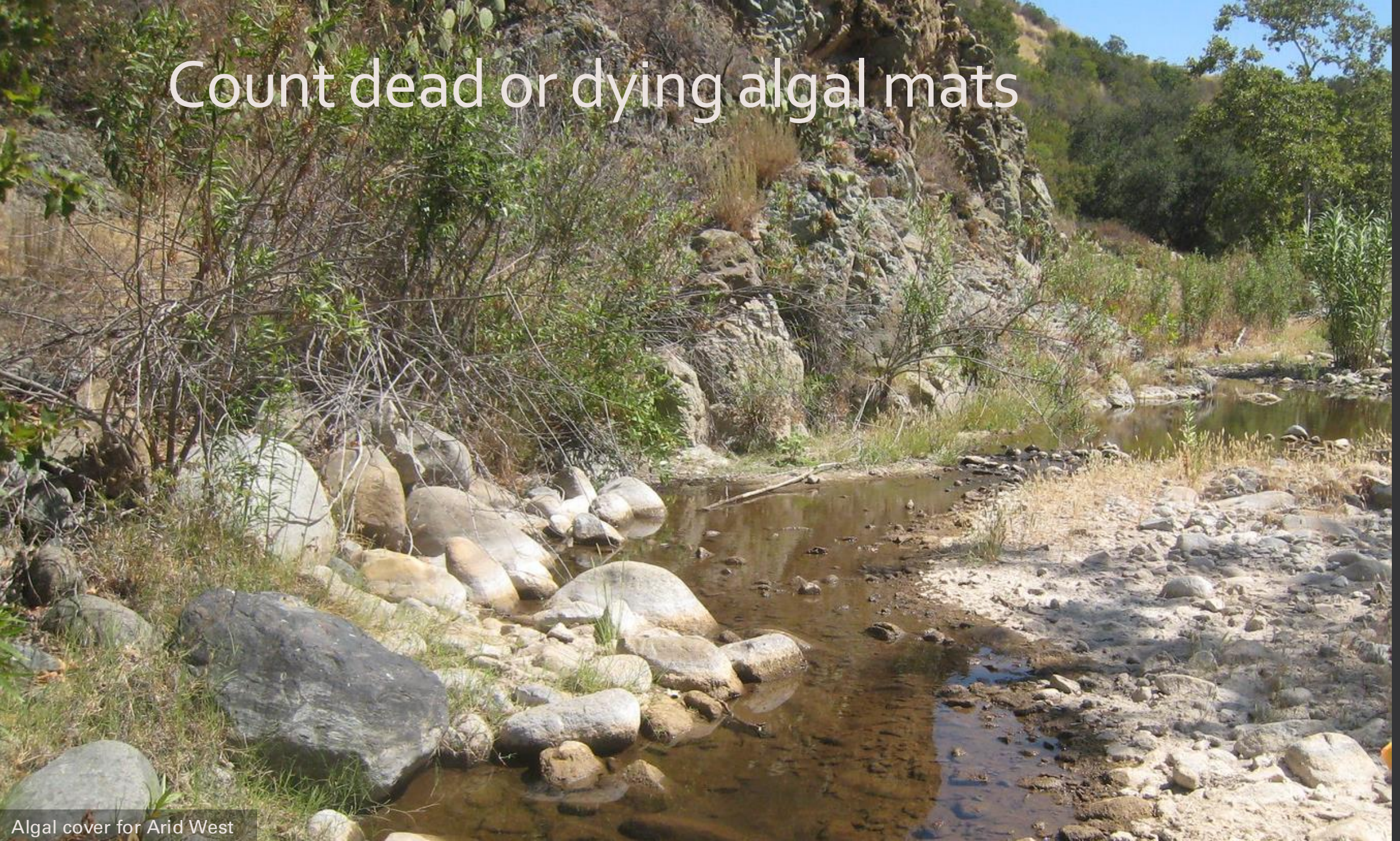
Lichens

Iron oxidizing bacteria/ fungi



Mosses

Count dead or dying algal mats

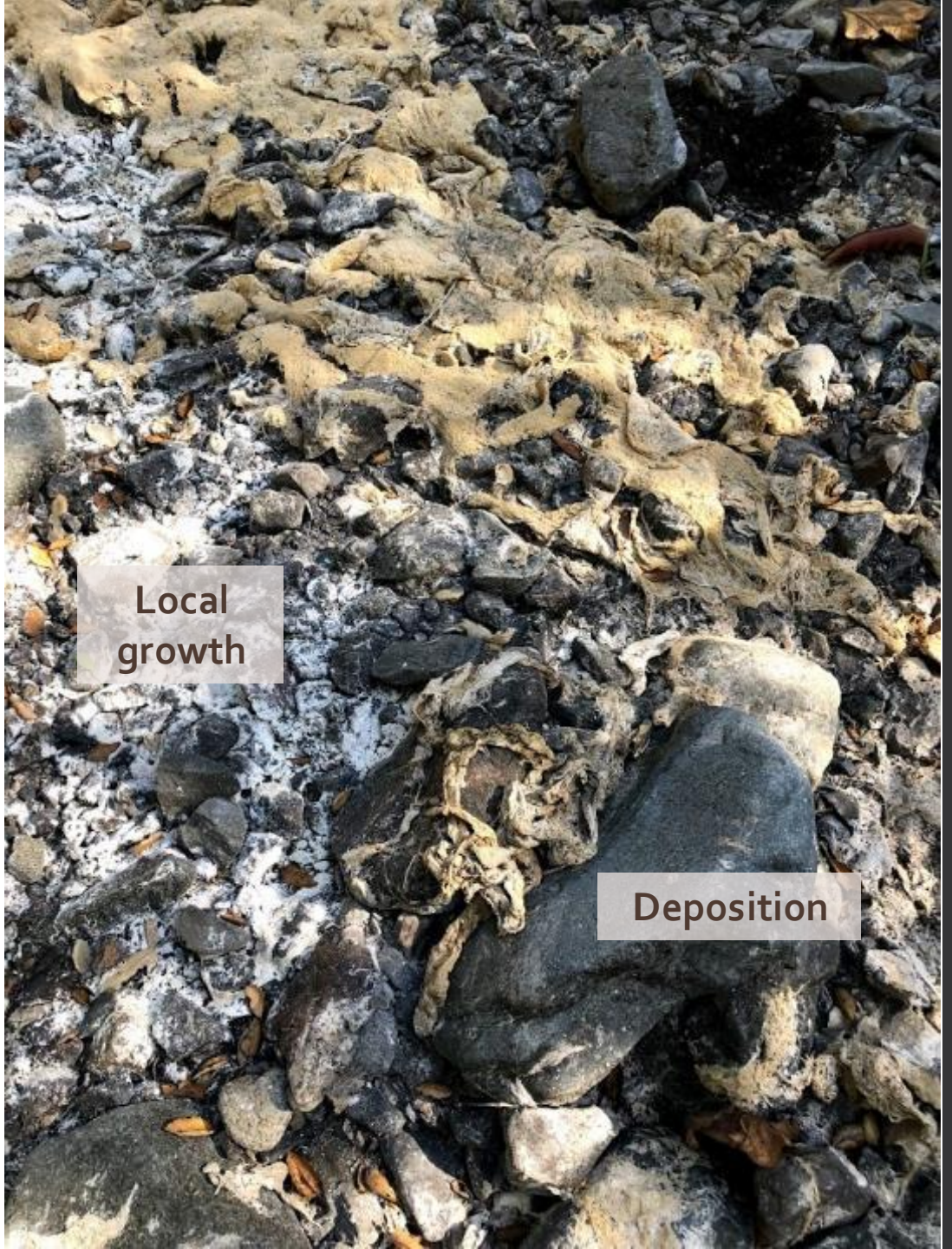


Count dead or dying algal mats

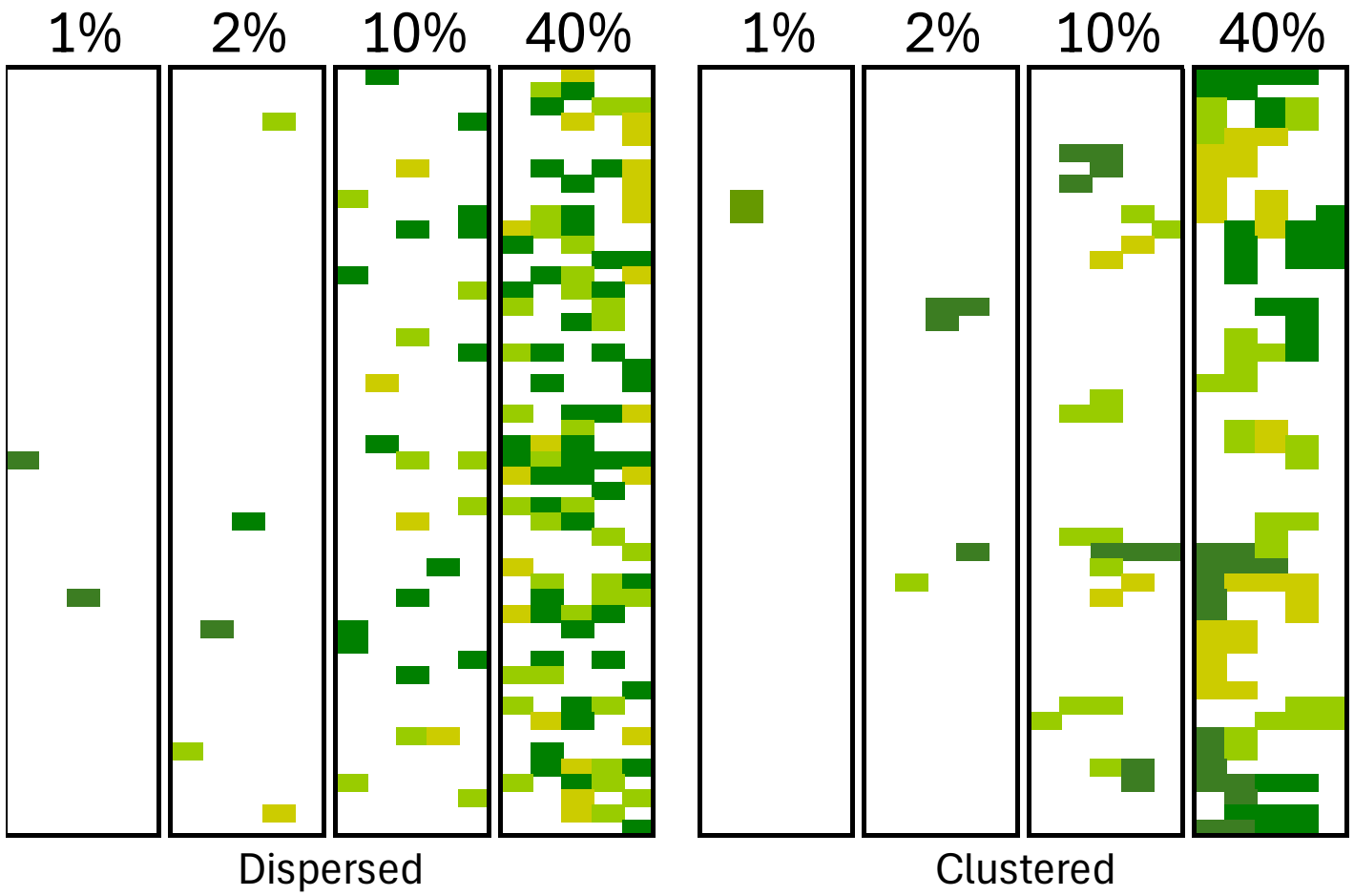
- Often appear as bleached, papery white deposits.
- Dead mats can persist after the cessation of flow (usually until next inundation).
- May cover large extent of assessment reach, or just in a few areas (e.g., former pools).
- Salt deposits may look similar; look under magnification if necessary.

Upstream deposits vs. local growth

- Indicator is based on presumption of local growth. Look for signs that a mat was deposited from upstream sources:
  - Bunched up against boulders
  - Caught in snags
  - Above high-water mark
- Deposition of mats in ephemeral reaches downstream of ponds or intermittent/ perennial reaches may occur, particularly after wet years.
- If *all* algae appear to be deposited, note on field form.
  - These don't count as an indicator towards the SDAM AW, but may be treated as supplemental information
  - If mat looks like it got deposited *but then kept growing*, treat it as local growth.



Estimate algal cover of the assessment reach



- Diagrams in user manual can help estimate cover
- Note that the same level of cover can appear very different if growth is highly clustered vs. dispersed
- Only count local algal growth
- Assign to appropriate category:
  - Not detected
  - <2% cover
  - 2% to 10% cover
  - 10% to 40% cover
  - >40% cover

Estimate cover of entire streambed

Low cover (<2%, not detected)

Flowing

Dry

High cover (≥40%)

Flowing

Dry

Record on the field form

6. Algal cover

Mark the appropriate box for the percent of the streambed covered by live or dead algae on the streambed.

- ☐ Not detected
- ☐ ≤2% cover
- ☐ 2 to 10% cover
- ☐ 10 to 40% cover
- ☐ >40% cover
- ☐ Check here if algae *exclusively* appears to have been deposited from an upstream source, and *no* local growth is evident.

Notes on algal cover on the streambed:

Algal cover for Arid West

Knowledge check!

True or false: Only consider live algae when measuring algal cover

A. True

B. False

Knowledge check!

True or false: Only consider live algae when measuring algal cover

A. True

B. False

Live, dead, and dying algal cover all count as indicators of streamflow duration.

For more information about SDAMs:

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