Organizing Principle For The Day

Water Balance Equation:

$$Q = P - ET \pm \Delta S$$

Q= Streamflow

P= Precipitation

ET=Evapotranspiration

S=Storage (groundwater, soil, etc.)

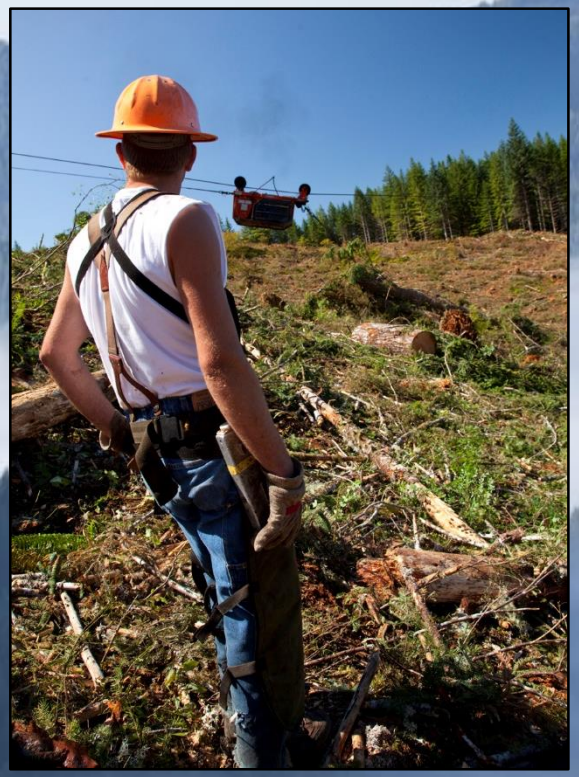
+ Precipitation

- Evapotranspiration

Atmospheric Processes

Interacting with

Single Trees,
Stands and
Landscapes



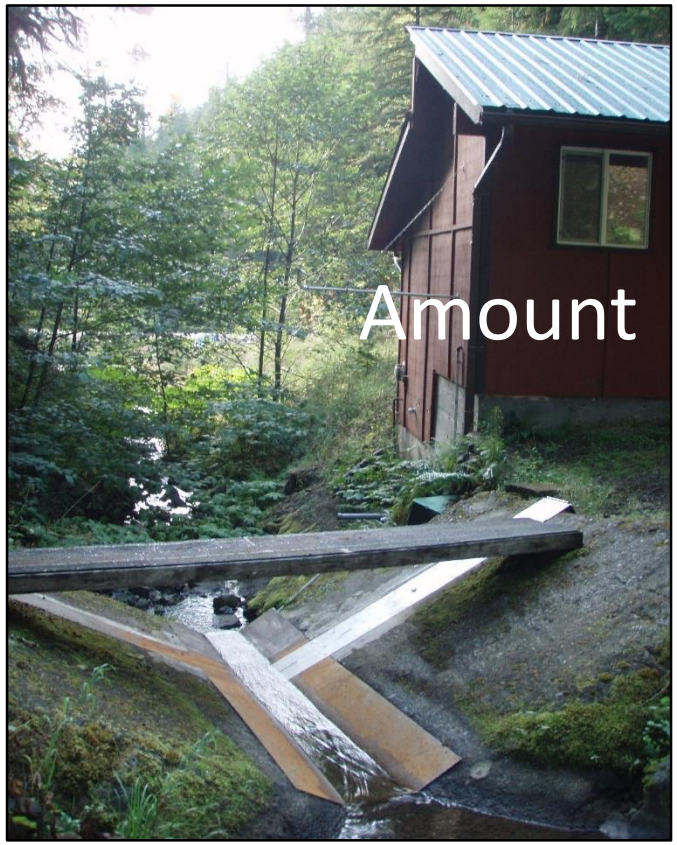
Modified by
Forest
Management

Organizing Principle

± Change in Storage

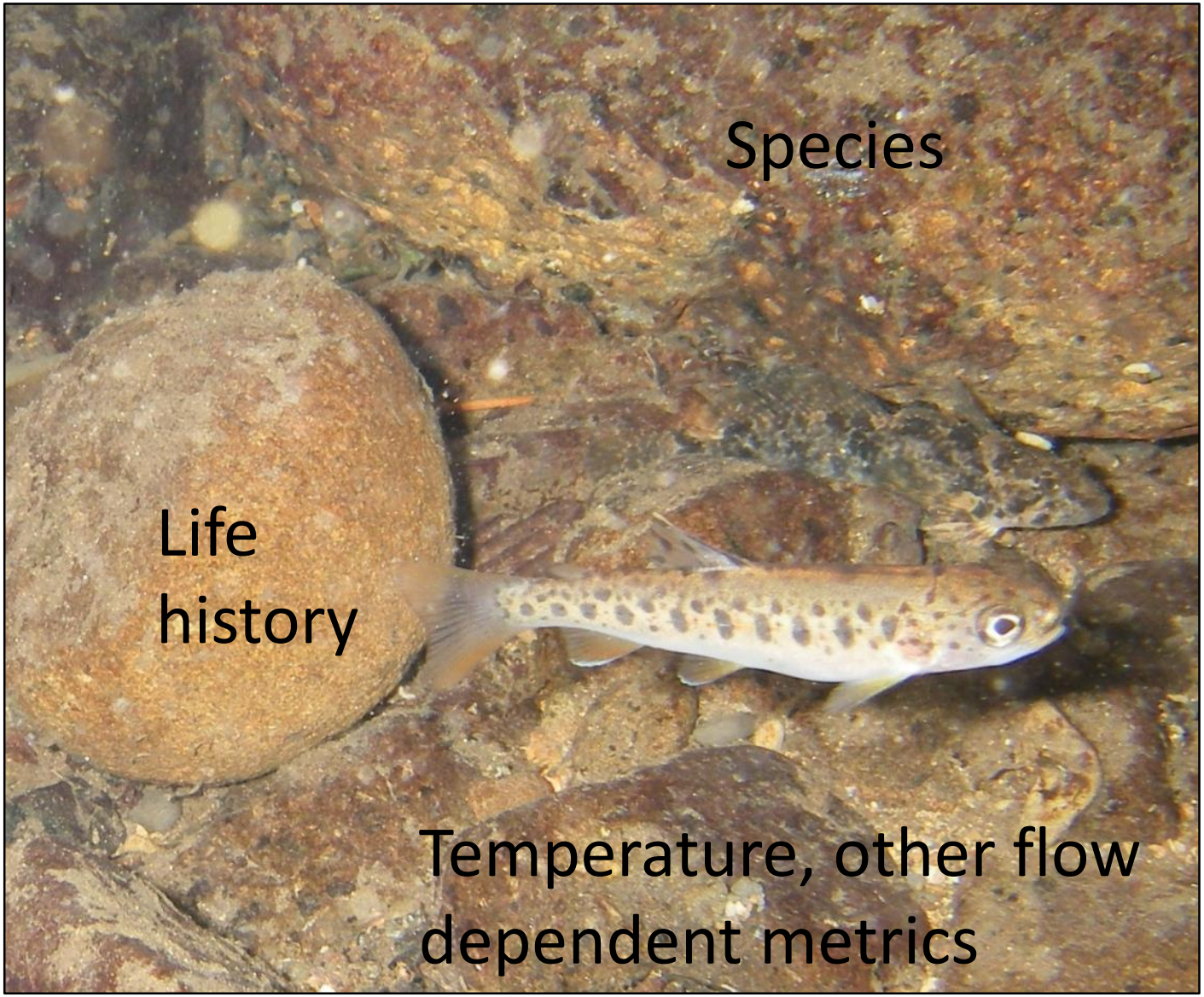
Organizing Principle

= Streamflow (Q)



Scale (process and measurement)

Low Summer Flow and Biota



Low Flow Metrics and Terminology

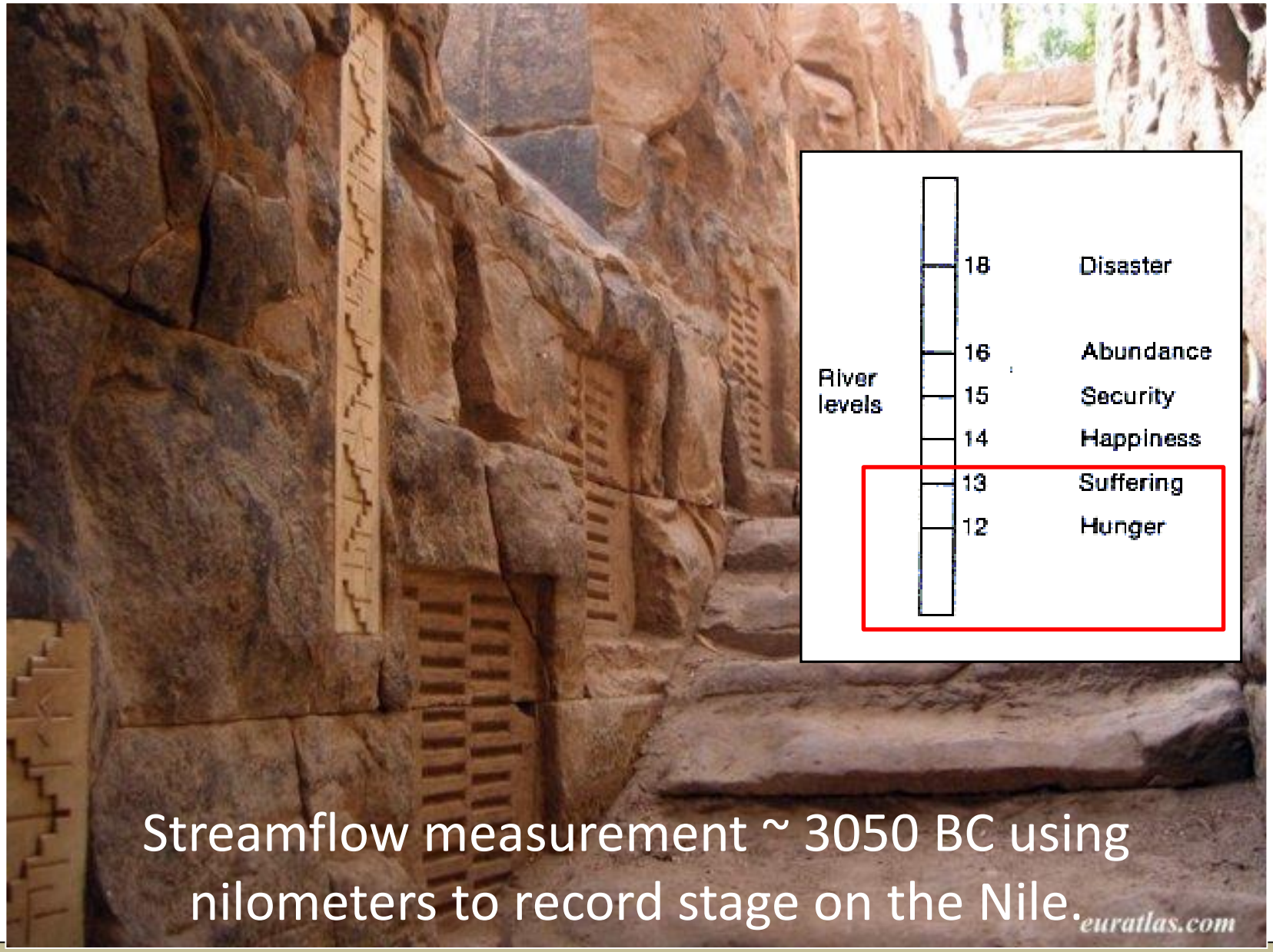
International glossary of hydrology (WMO, 1974) defines low flow as ‘flow of water in a stream during prolonged dry weather’.

Low flow versus drought? Low flow is a seasonal phenomenon while drought results from less than normal precipitation for an extended period of time. Drought could be hydrological, meteorological, or agricultural.

Comparing low flow studies difficult due to myriad of metrics and indices (some examples):

- Flow duration curves (FDC) where an exceedance probability is developed.
- Design flow (extreme value analytical techniques): e.g., 7Q10
- Mean monthly or summer season flows based on average daily flow

Earliest Recorded Low Flow Terminology



Streamflow measurement ~ 3050 BC using nilometers to record stage on the Nile.