

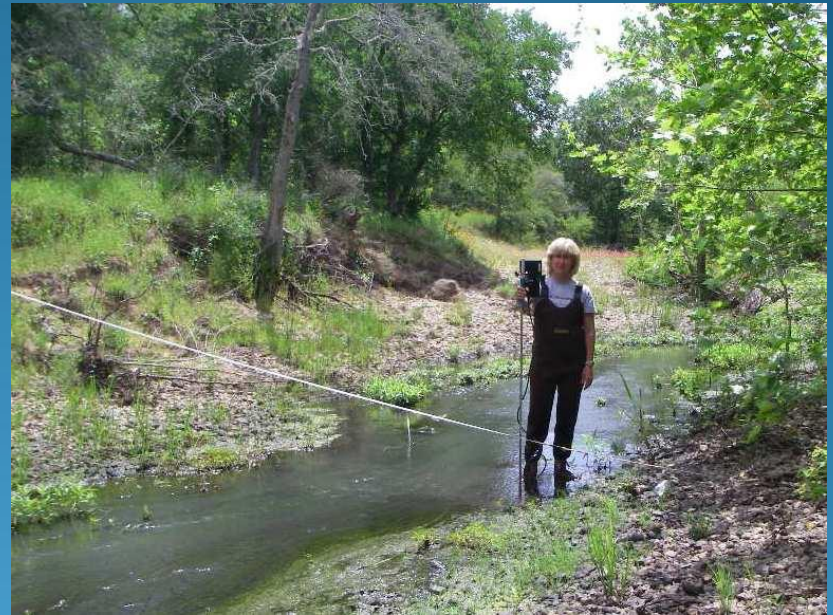
# Flow Measurement

SWQM Procedures, Volume 1

Chapter 3

# What to Do?

Estimate?



Or Measure?

# Why Must I Measure Flow?

**Required for All Freshwater Routine Sites**

**Needed for Assessment Purposes**

**Used in TMDL, 7Q2, and other Agency Purposes**

# What Do I Need to Report?

**Flow Severity**

**Flow Measurement Method**

**Flow (cfs)**

# Flow Severity

**01351**

- **1 = No Flow**
- **2 = Low**
- **3 = Normal**
- **4 = Flood**
- **5 = High**
- **6 = Dry**



# No Flow – Flow Severity 1





## Low Flow– Flow Severity 2





## Normal Flow – Flow Severity 3





# Flood– Flow Severity 4



## High Flow – Flow Severity 5





## Dry- Flow Severity 6





# Flow Measurement Method

**89835**

- **1 = Gauge**
- **2 = Electronic**
- **3 = Mechanical**
- **4 = Weir/Flume**
- **5 = Doppler**

Flow (cfs)

00061

- **Instantaneous flow value, either measured in field or reported from gauging station**

# When Do I Measure Flow?

**Freshwater Routine Sampling**

**24- hour DO deployments**

**ALM, RWA, UAA, ALA**

**When it is SAFE to do so**



# Where Do I Measure Flow?

**Straight Reach**

**Laminar Flow**

**Even streambed free of obstructions**

**Avoid areas with back eddies if possible**

# How Do I Measure Flow?



# Getting Ready to Measure Flow

**Set up the tagline perpendicular to the main flow**

**Make any modifications to the stream  
BEFORE any measurement begins**

**Determine the number of cross sections  
needed**

**Determine the midpoint of the cross section**

**Stand downstream of the sensor and to the  
side**



# Measuring Flow

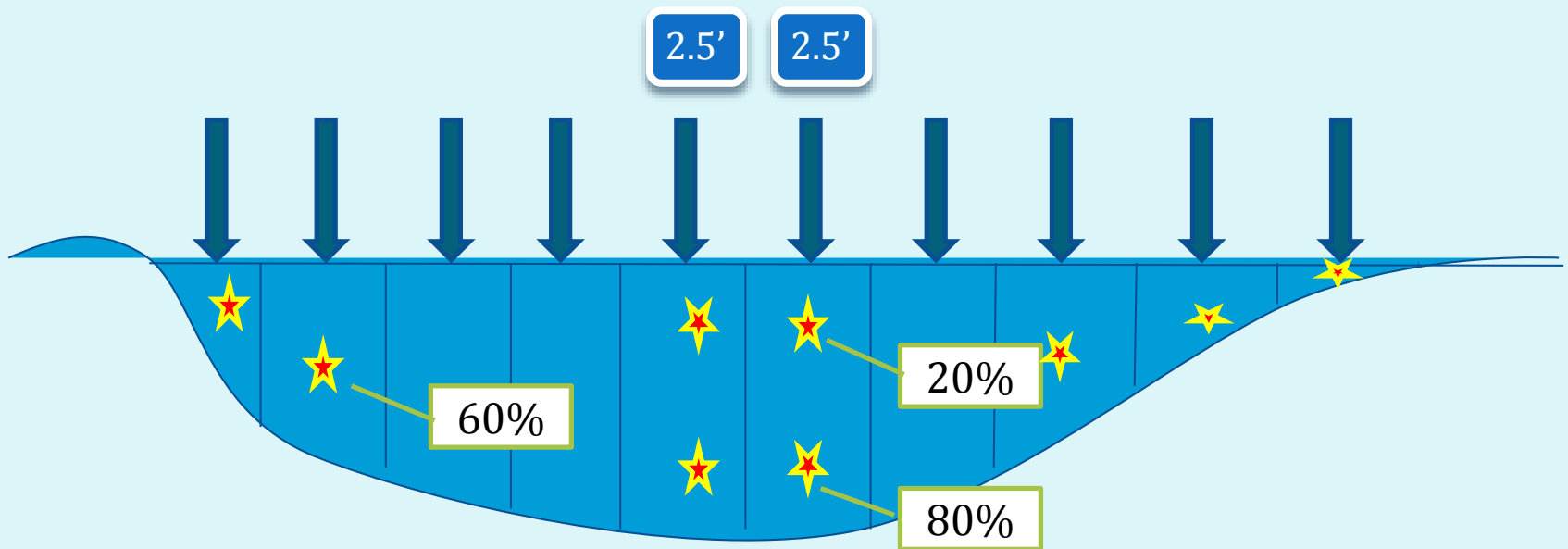
**Measure Cross Section Depth and velocity at each midpoint**

**$\leq 2.5$  ft, one velocity measurement at 60% of the depth**

**$> 2.5$  ft, two velocity measurements at 20% and 80% of the depth are averaged**

**Measure velocity for 20-40 seconds at each cross section midpoint.**

# Measuring flow at the midpoint



# How Many Cross Sections?

**Width < 5 ft**

- **Cross section every 0.5 ft**

**Width is between  
5 and 10 ft**

- **10 cross sections**

**Width is greater  
than 10 ft**

- **Prefer 20-30 cross sections**

**No more than 10% of the flow in  
any one cross section**



# Reporting Flow Results

**Flow is  $< 0.01$**

- **Report as  $< 0.01$**

**Flow is between  
0.01 and 10**

- **Report to nearest tenth**

**Flow is  $> 10$**

- **Report to nearest whole number**

**No Flow**

- **Report as 0**

**No Water**

- **Do not report**



Kiss My Grits!!!

