

Mark West Creek Instream Flow Study: UPDATE



CDFW Instream Flow Program
California Sea Grant Meeting
March 21, 2019



Outline



- CA Water Action Plan
- Study Objectives
- Habitat Mapping
- Data Collection
- Next Steps



California Water Action Plan: Overview

- Developed at the direction of Governor Brown



- Ten Actions to address California's water issues
- Areas of focus:
 - Water Supply
 - Species and Habitat Restoration
 - Water Infrastructure



WAP Action 4: Protect and Restore Important Ecosystems

Enhance Water Flows in Stream Systems Statewide

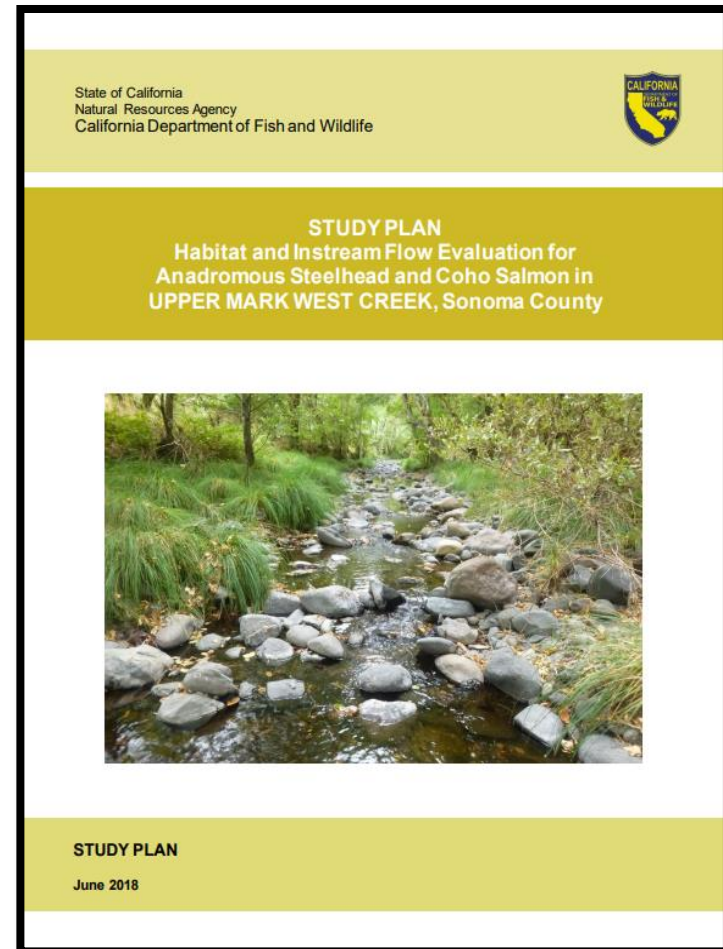
- Enhance flows for anadromous fish
- Target at least five stream systems that support critical habitat for anadromous fish
- Develop defensible, cost-effective, and time-sensitive approaches to establish instream flows using sound science
- Consider public trust responsibility and maintain fish in good condition
- Maintain transparent public process



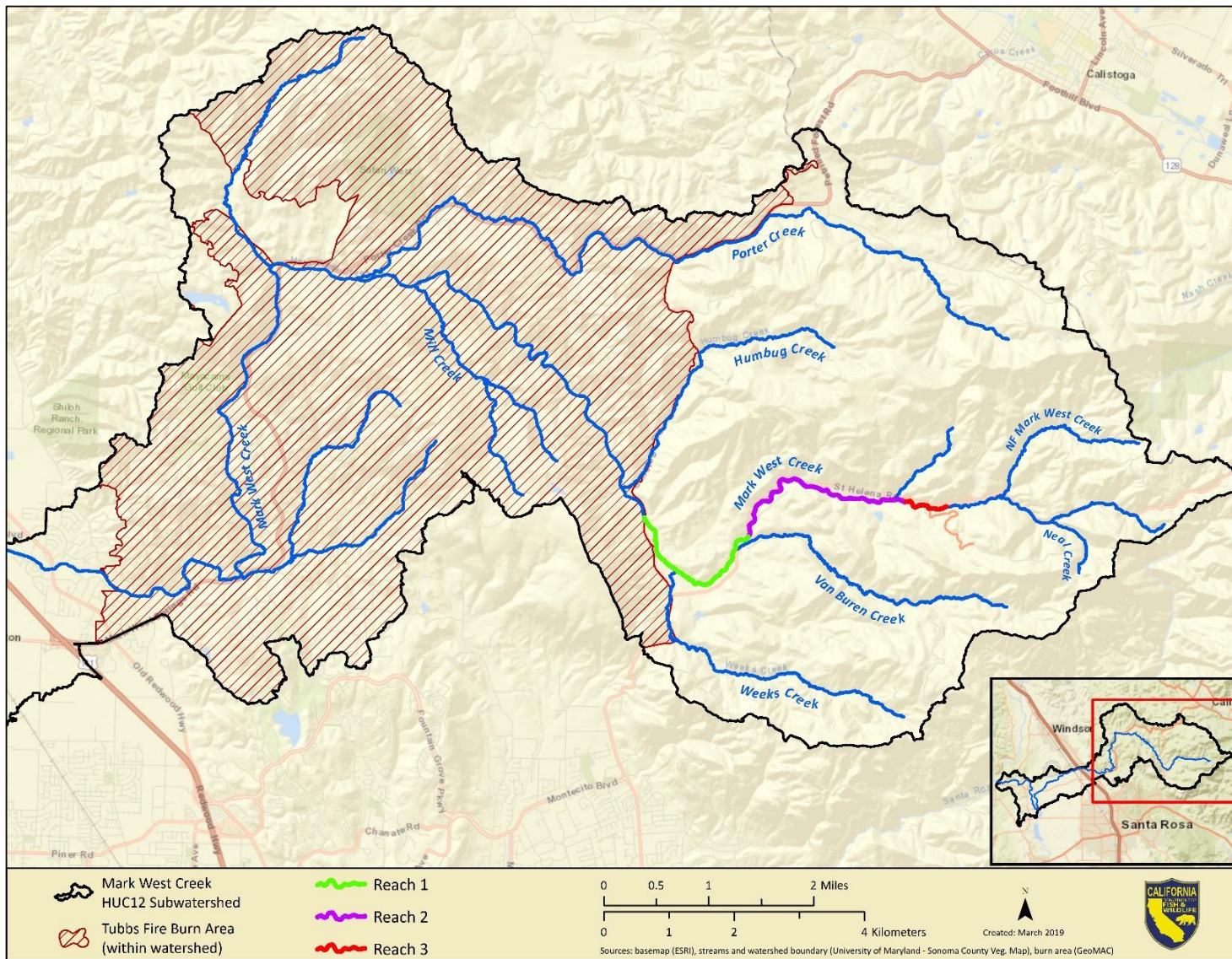
Study Plan: Upper Mark West Creek

Study Objectives:

- Develop relationships between streamflow and available salmonid habitat using hydraulic habitat modeling.
- Identify flows needed to maintain rearing habitat and connectivity for juvenile salmonids.
- Evaluate flow thresholds that support ecological functions.

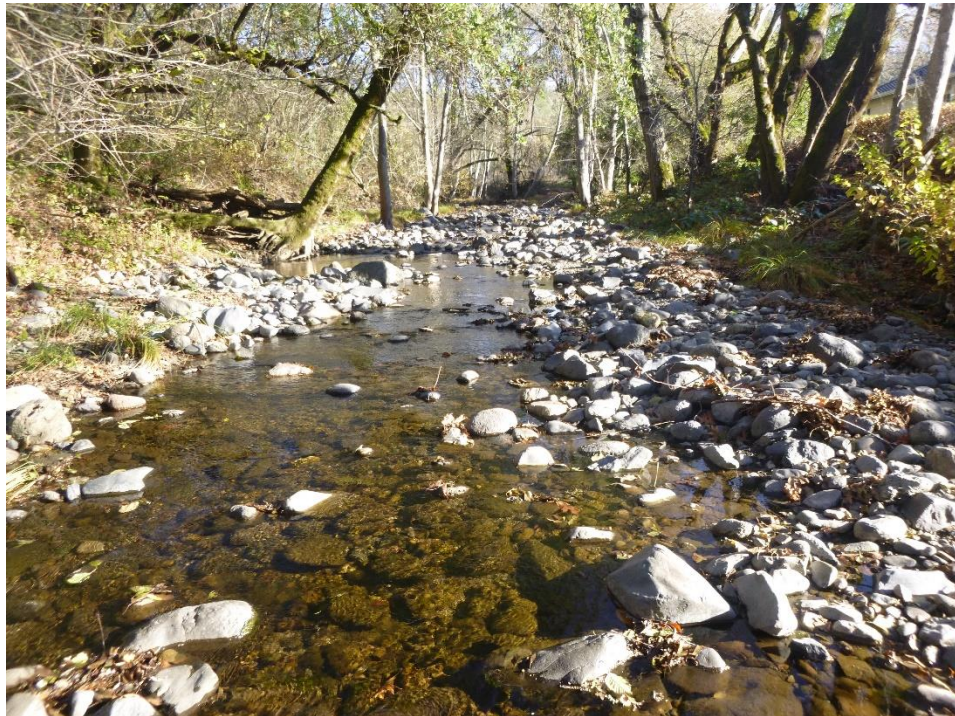


Habitat Mapping: Upper Mark West Creek



Site 1: Lower

- ~ 925 feet long
- ~ 1% slope
- ~ 30' average width



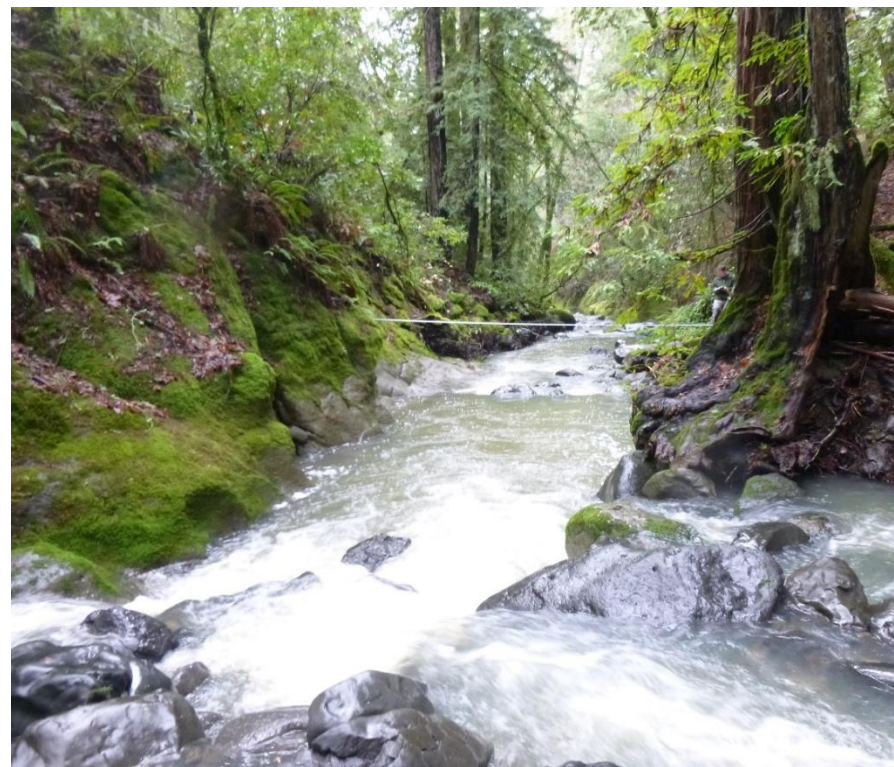
Site 2: Middle

- ~ 900 feet long
- ~ 2% slope
- ~ 35' average width



Site 3: Upper

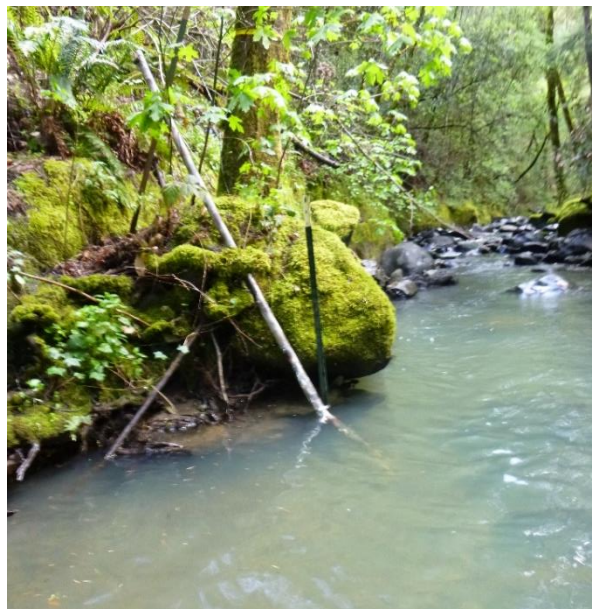
- ~ 500 feet long
- ~ 2.5% slope
- ~ 15' average width



Data Collection



Pressure Transducers (PTs)/Water Level Loggers



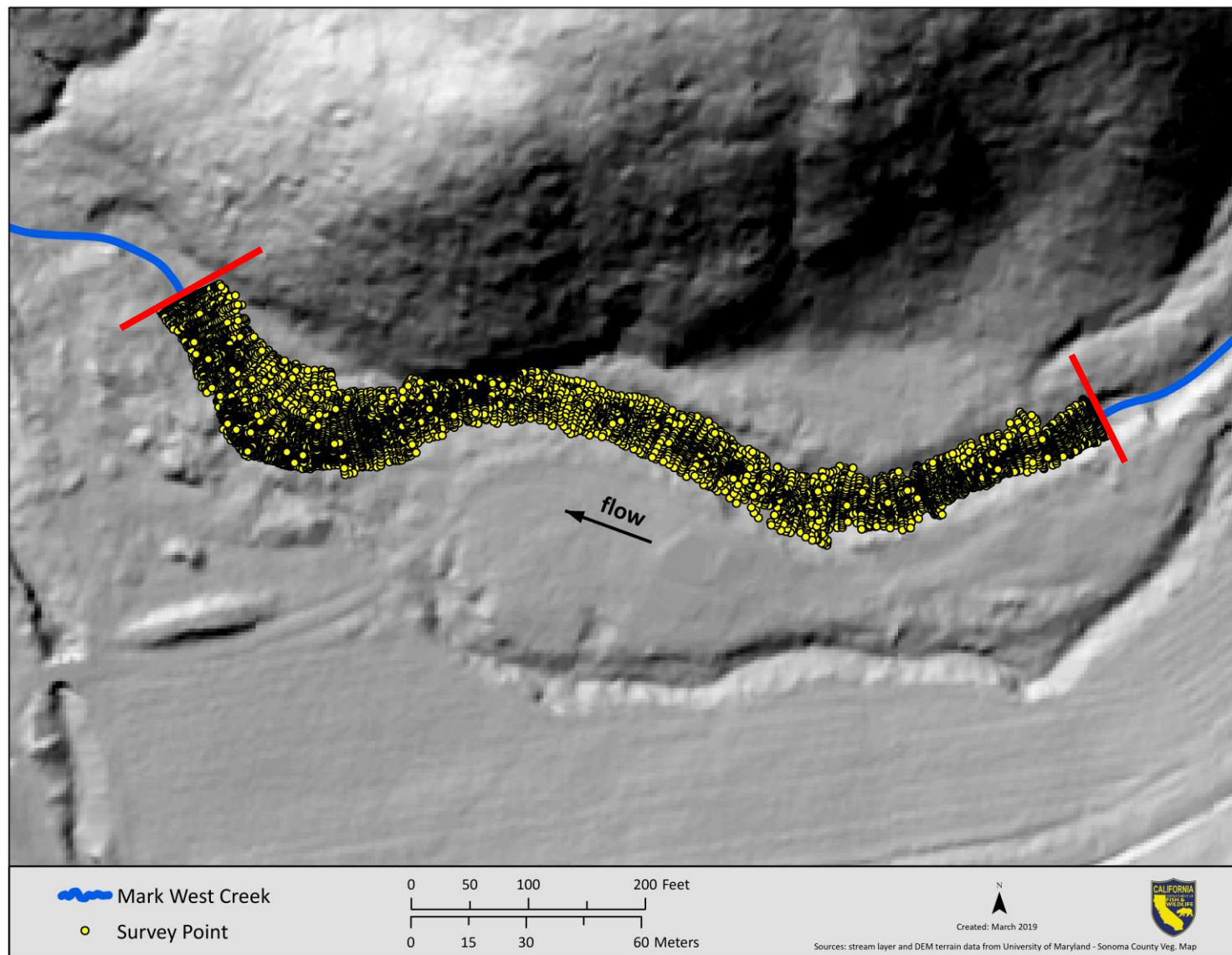
Discharge and Water Surface Elevations (WSELs)



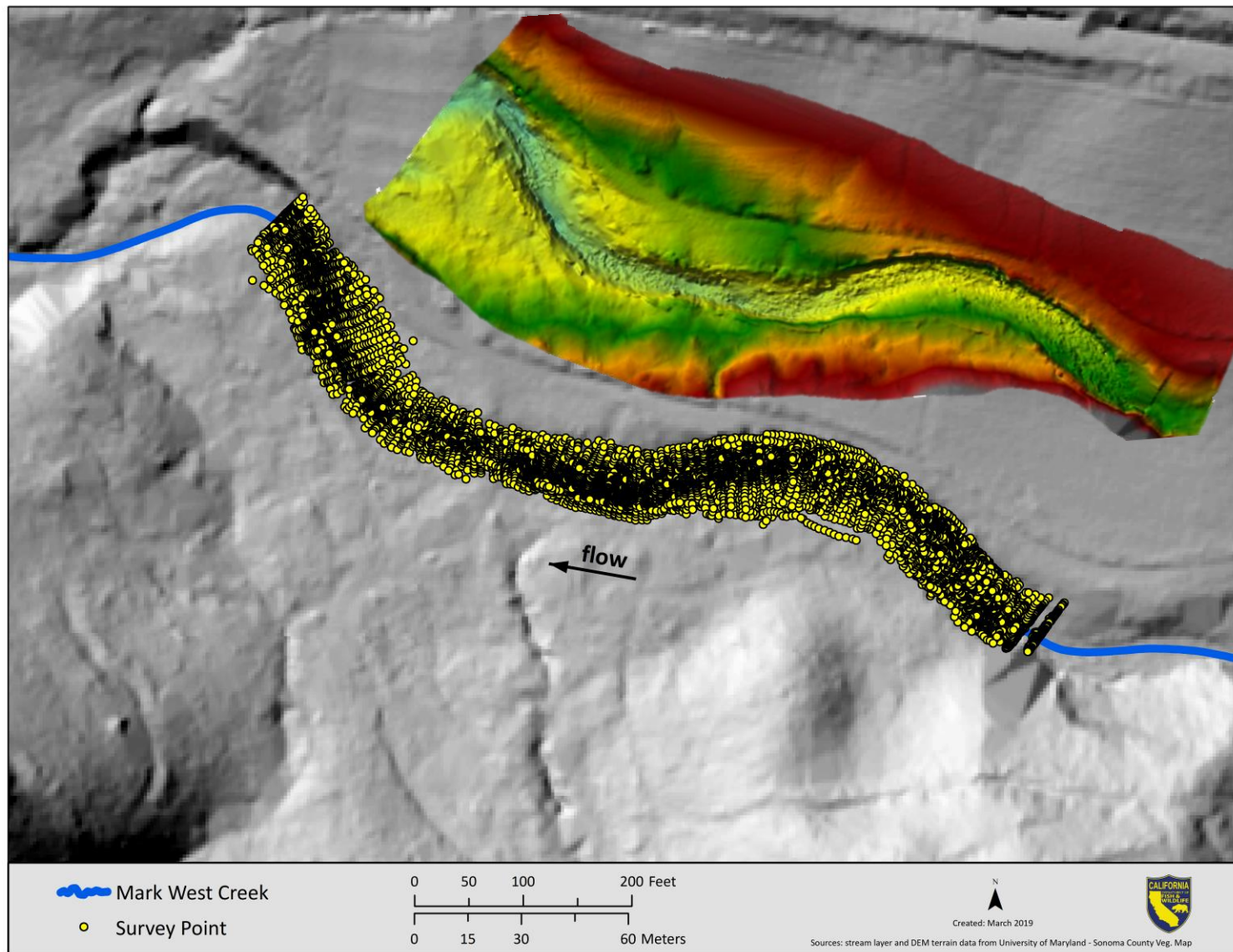
Data Collection



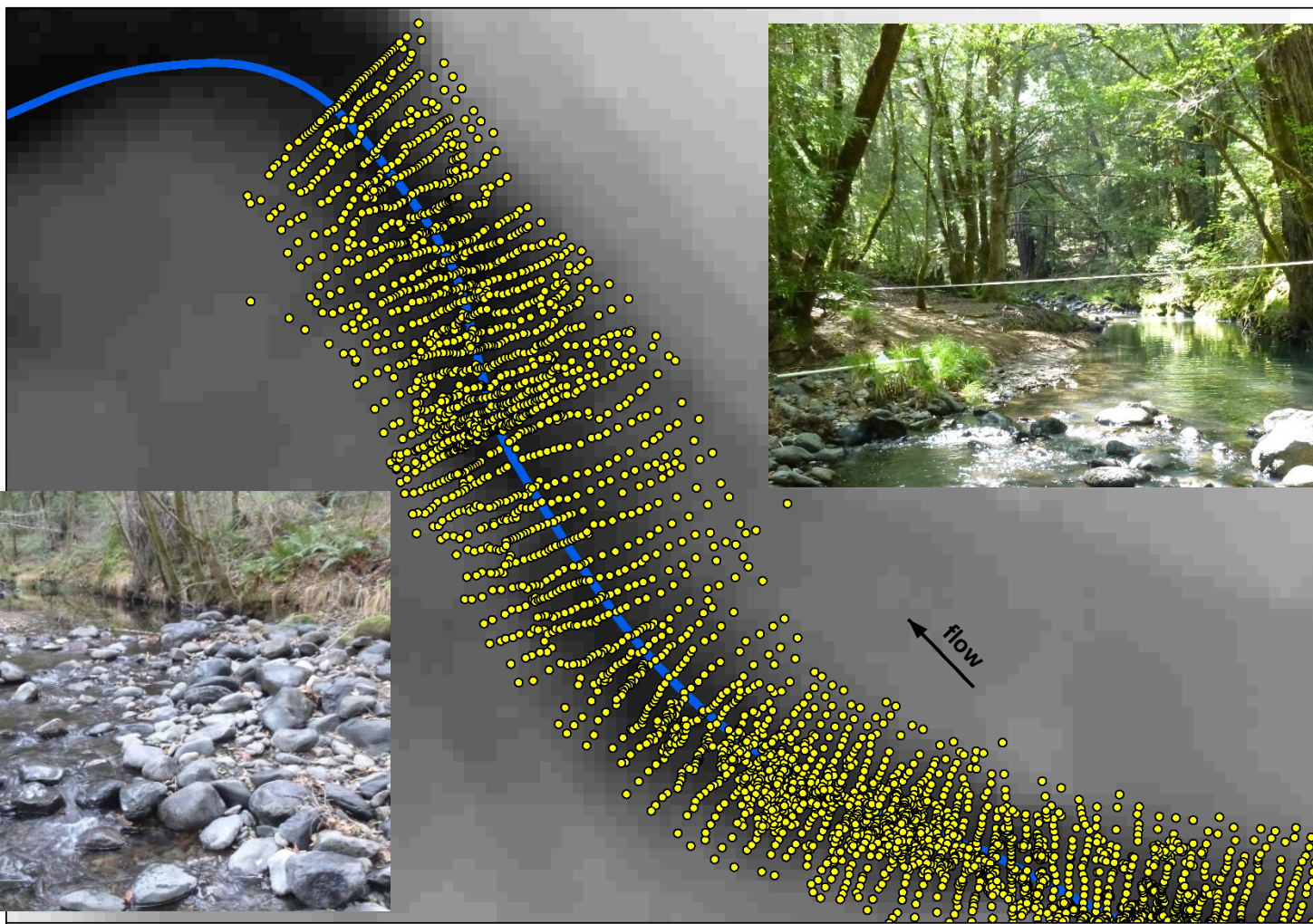
Site 1: Lower





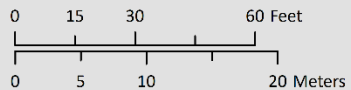
Site 2: Middle



Survey Point Variability – Site 2



-  Mark West Creek
-  Survey Point



Created: March 2019

Sources: stream layer and DEM terrain data from University of Maryland - Sonoma County Veg. Map



Time-lapse Cameras



Time-lapse Camera: Site 2

2018-12-05 12:00:00 PM T

48°F



HC500 HYPERFIRE



Time-lapse Camera: Site 2

2019-01-31 9:00:00 AM T

51°F



HC500 HYPERFIRE

RECONYX

Time-lapse Camera: Site 2

2019-01-11 11:00:00 AM T

50°F



HC500 HYPERFIRE



Time-lapse Camera: Site 2

2019-01-18 10:00:00 AM T

48°F



HC500 HYPERFIRE



Time-lapse Camera: Site 1

2019-02-25 9:00:00 AM

T



50°F

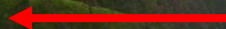


HC500 HYPERFIRE



Time-lapse Camera: Site 1

2019-02-26 9:00:00 AM T 52°F



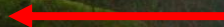
HC500 HYPERFIRE



Time-lapse Camera: Site 1

2019-02-26 11:00:00 AM T

52°F



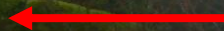
HC500 HYPERFIRE



Time-lapse Camera: Site 1

2019-02-26 1:00:00 PM T

53°F



HC500 HYPERFIRE



Time-lapse Camera: Site 1

2019-02-26 3:00:00 PM T

53°F



HC500 HYPERFIRE



Next Steps

- Develop stage-discharge rating curves for WY2018
- Build 2-D models for Sites 1 and 2
 - Generate terrain layers
 - Calibrate and validate
- Survey Site 3 (validation velocities and depths, bed topography)
- Continue discharge and WSEL measurements for WY2019



Questions?

