



Instream Flow Projects in Coastal Watersheds

An approach to developing and implementing projects

Matt Clifford, Trout Unlimited



STEPS

- Deciding where to work
- Identifying problems
- Developing objectives
- Project “Recon”
- Landowner outreach
- Project development
- Funding
- Permitting
- Construction



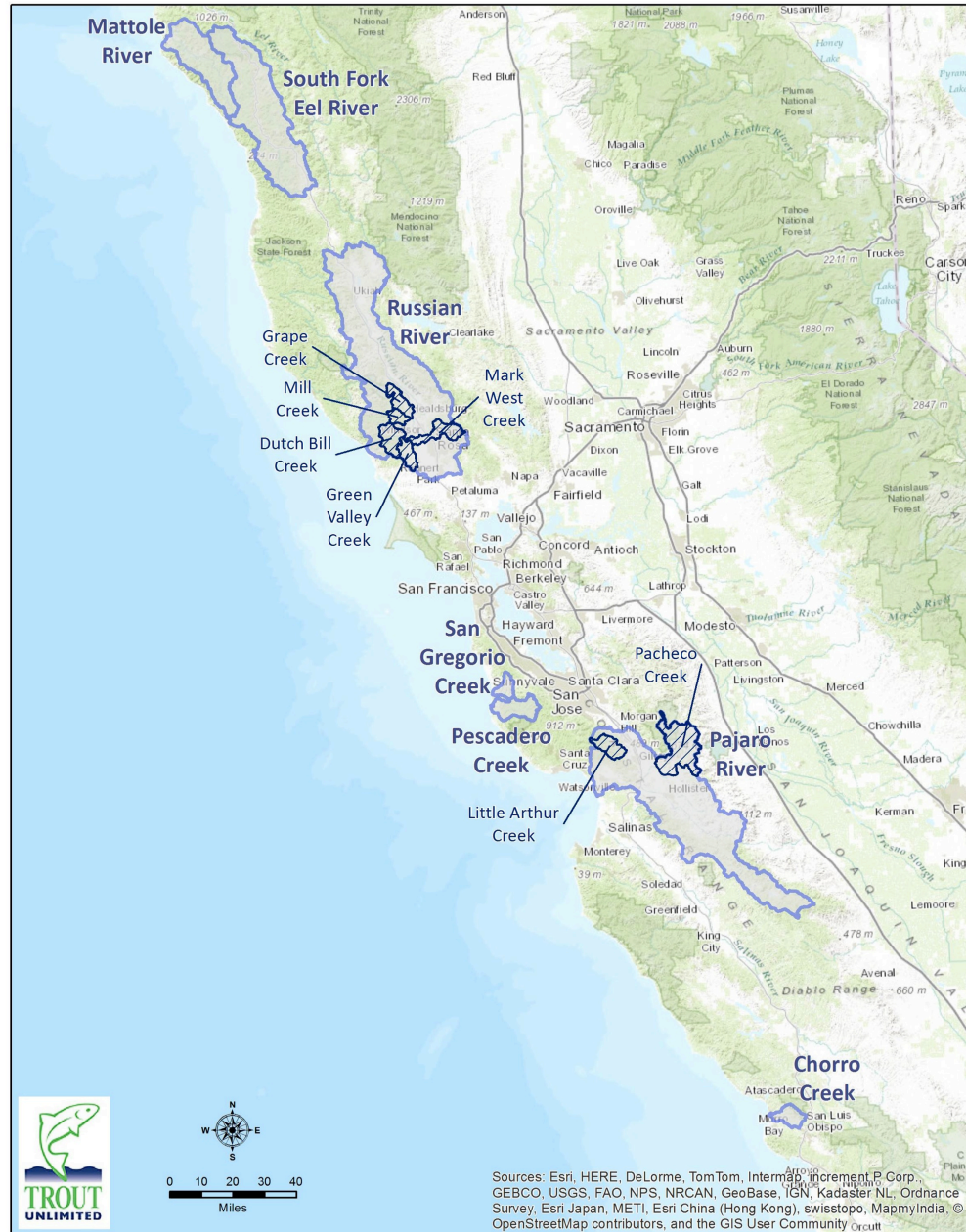
Where to Work?



Medium-gnarly watersheds.



California Water Project - Cooperative Streamflow Project Watersheds



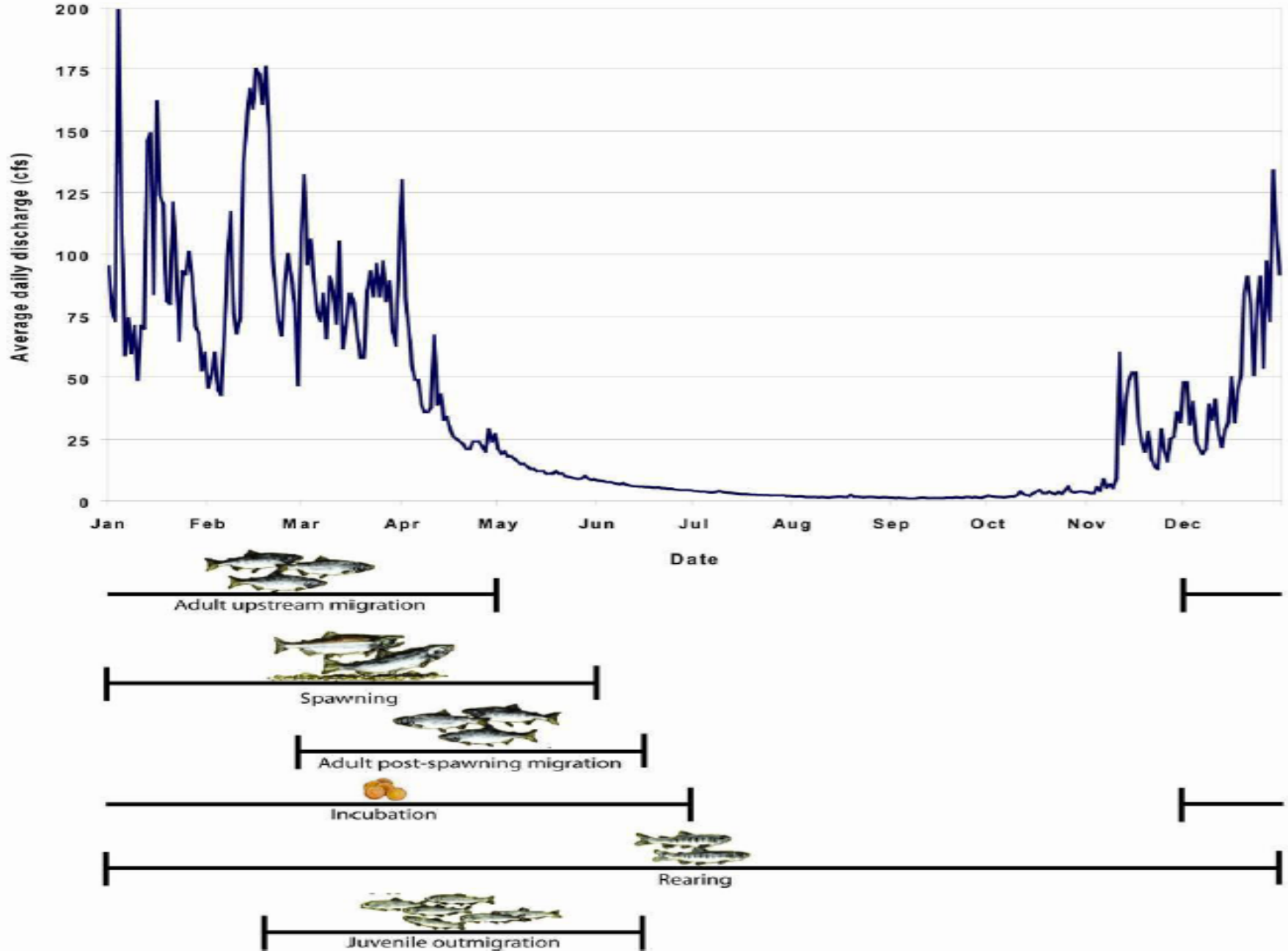
Identifying Streamflow Problems

At what stages of their life cycle is streamflow creating problems for fish?

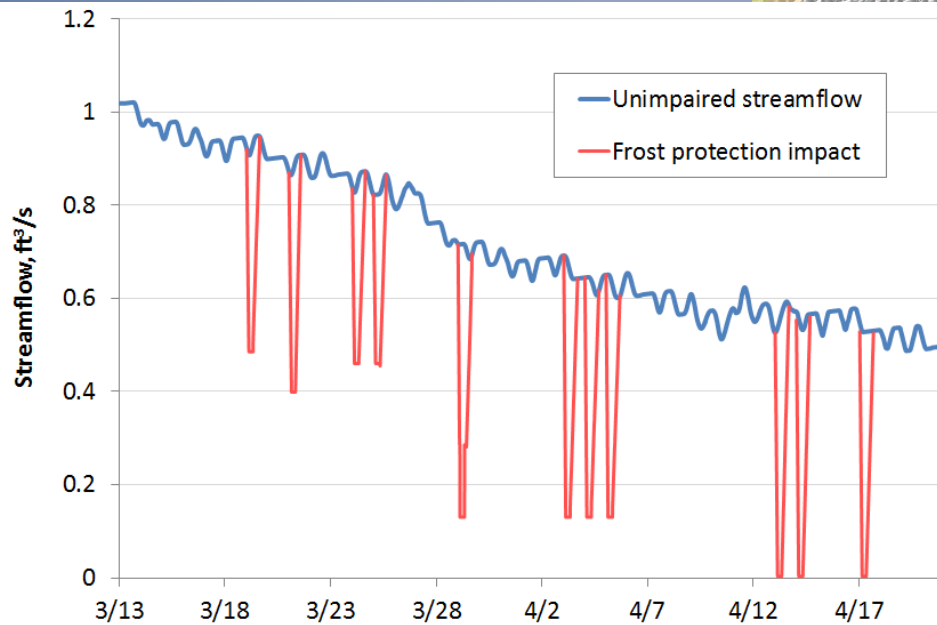
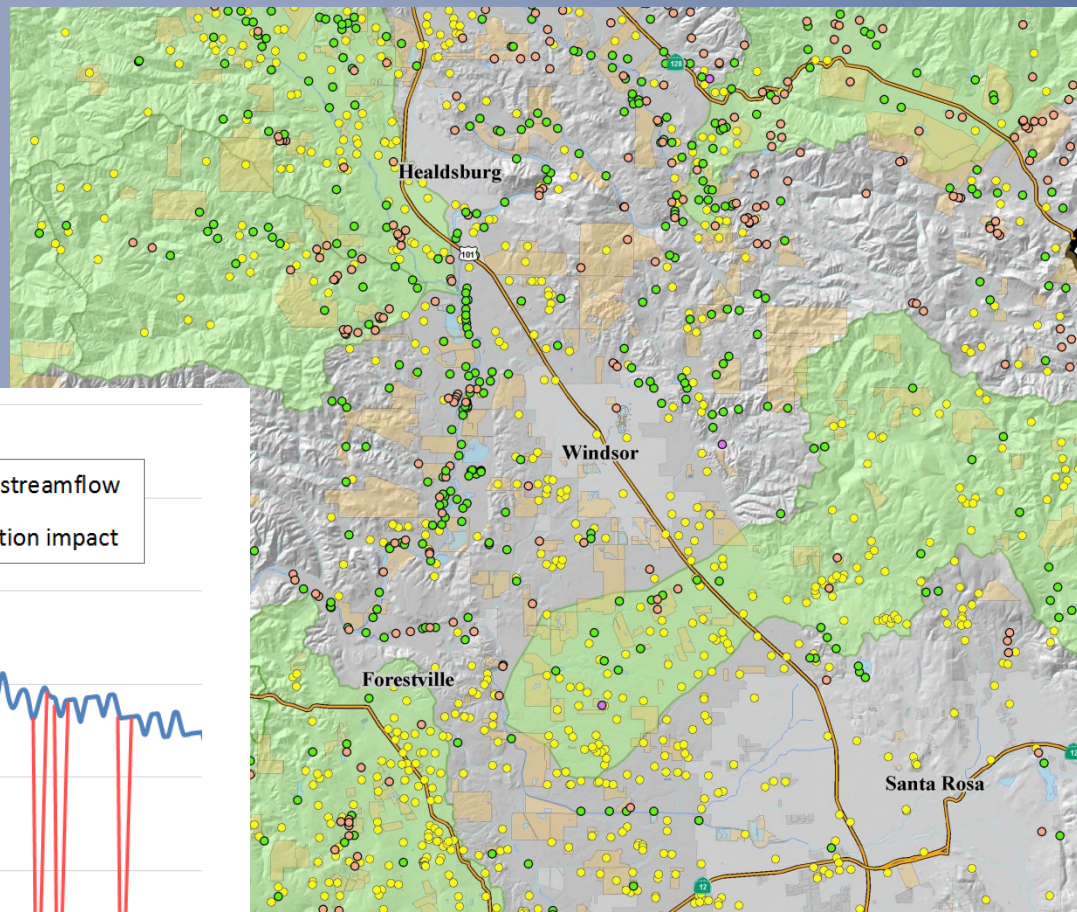
- Spawning
- Rearing (0+, 1+)
- Adult migration
- Juvenile migration

Acute vs. chronic problems

Gaging



San Gregorio Creek



Russian River Tributaries (Frost Protection)



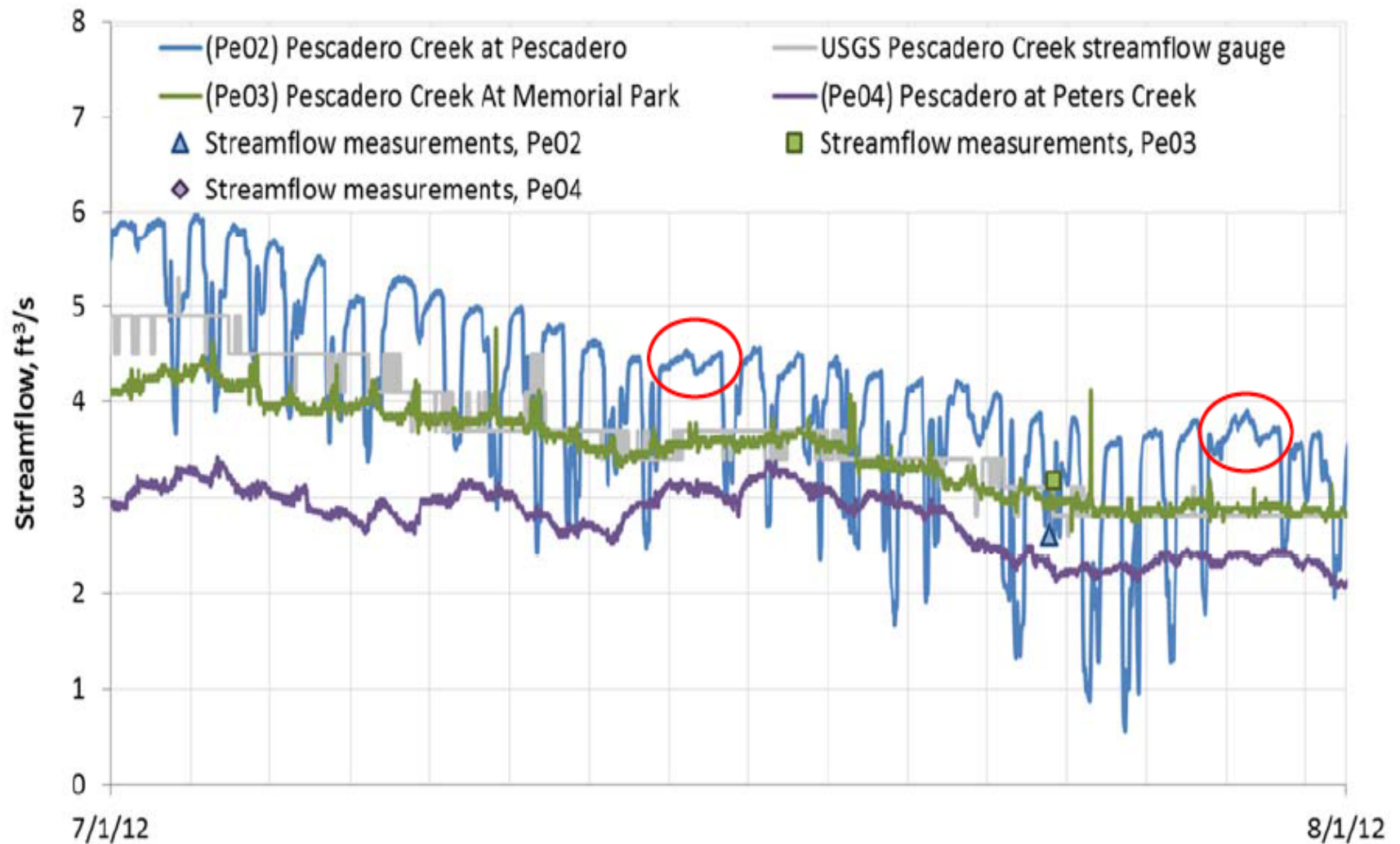


Figure 5. Streamflow recorded at Pescadero creek gauges, July 2012. Vertical grid lines denote two-day intervals. Areas circled in red denote flow dynamics at Pe02 on Sundays.

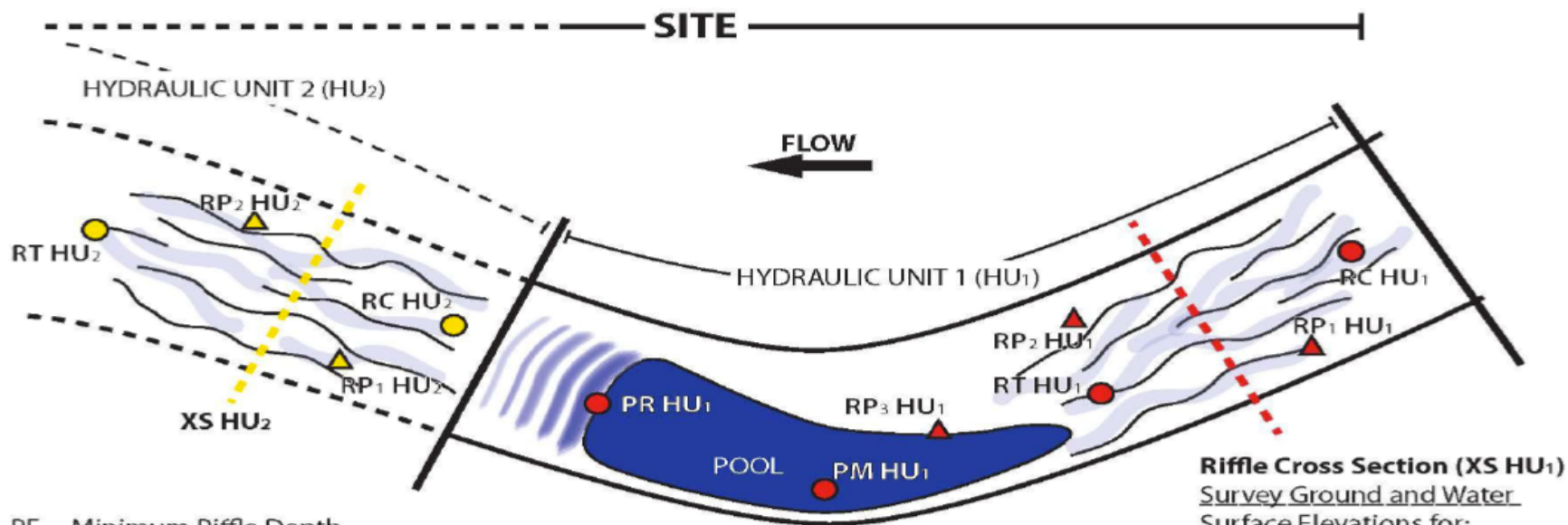
Pescadero Creek

Streamflow Objectives

- How much water do we need in the stream?
- Where?
- When?

STREAMFLOW THRESHOLDS FOR JUVENILE SALMONID REARING HABITAT IN THE MATTOLE HEADWATERS SOUTHERN SUB-BASIN





RF = Minimum Riffle Depth
 RCT = Riffle Crest Thalweg
 RT = Riffle Tail Thalweg
 PM = Pool Maximum Depth
 PR = Pool Ramp

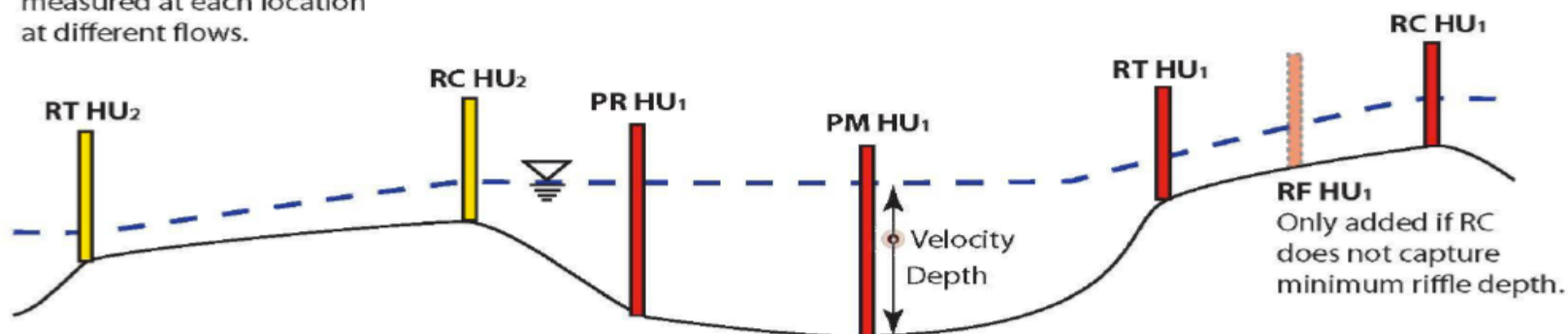
Depth and velocity are measured at each location at different flows.

RP = Juvenile Rearing Pins
 (n = 1 to 5 per HU)

Riffle Cross Section (XS HU₁)

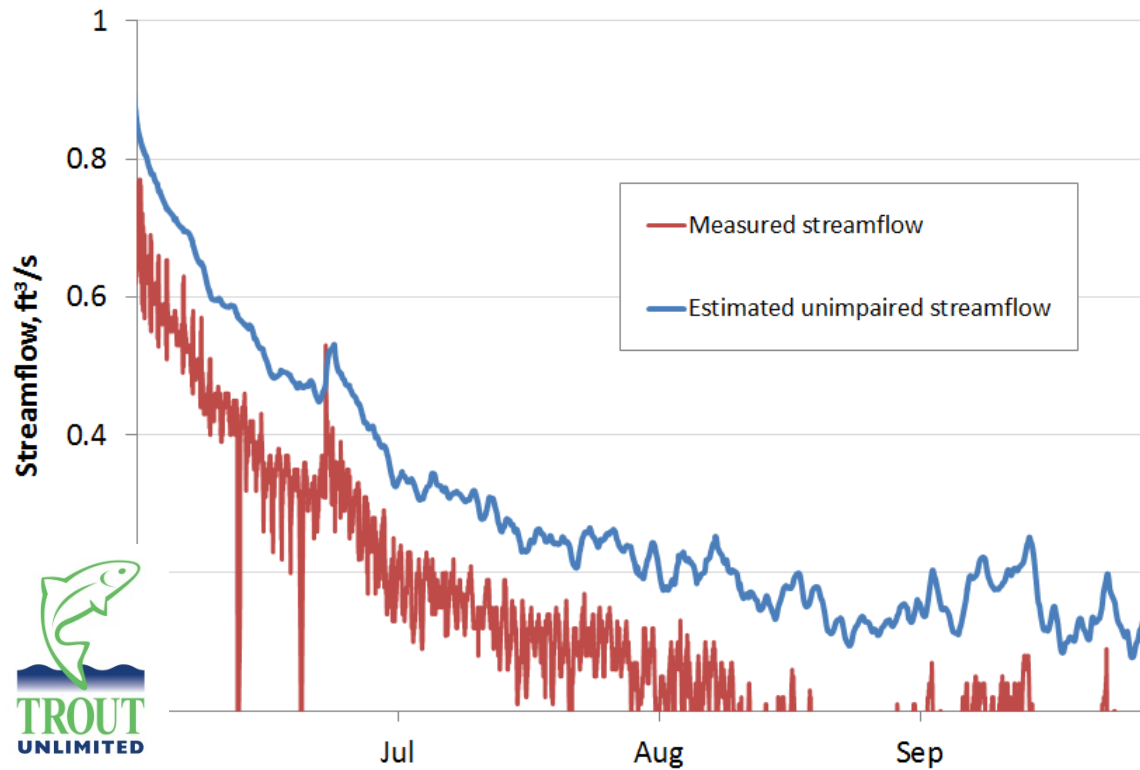
Survey Ground and Water
Surface Elevations for:
 Wetted Perimeter
 Depth

Measure Velocity for:
 BMI Production
 BMI Drift



Little Arthur Creek

- No site-specific fishery study
- Three years of flow data
- Eight years of records of observations by fish rescue volunteers



“Recon”

- How much water is being diverted & used?
- When?
- Where?



Sources of information

- Water rights
- Aerial photos/ GIS modeling
- Observation
- Landowner outreach



Discussing Water Rights, A Western Pastime

Landowner Outreach:

Go local



Sample TU Partners – Landowner Outreach

- Mattole (Sanctuary Forest)
- Little Arthur (CHEER)
- San Gregorio/
Pescadero (San Mateo
RCD, TU Steelhead
Coordinator)
- Green Valley, Dutch Bill,
Mill, Mark West, Grape
(Gold Ridge & Sonoma
RCDs)



Project Development



Sample Project Types

- *Ponds, Residential Tanks: Trading winter storage for summer diversion*
- *Roof rainwater collection*
- *Fans as alternative to water for frost protection*
- *Rotation of diversions*
- *Fixing leaks*
- *Irrigation efficiency*
- *Groundwater recharge*
- *[your idea here]*



PERMITTING



Funding

The Trick:

Figuring out **who** will fund what **types** of work, in **what order**

Funding

Grant Sources:

- CA Coastal Conservancy
- CA Dept. of Fish and Wildlife
- NOAA
- NRCS
- USFWS
- National Fish Habitat Action Plan
- NFWF
- EPA/ CA RWQCBs (319 funds)
- NRCS (Farm Bill funds)
- Water Districts
- IRWMP
- Private foundations

The Funding Spectrum

HARD -----> HARDER -----> REALLY HARD

Landowner Outreach

Project Scoping

Stream gauging

Site-specific studies

Project Design

Project Construction

MONITORING





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