



# Healthy horses, healthy watersheds

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# Napa County Resource Conservation District

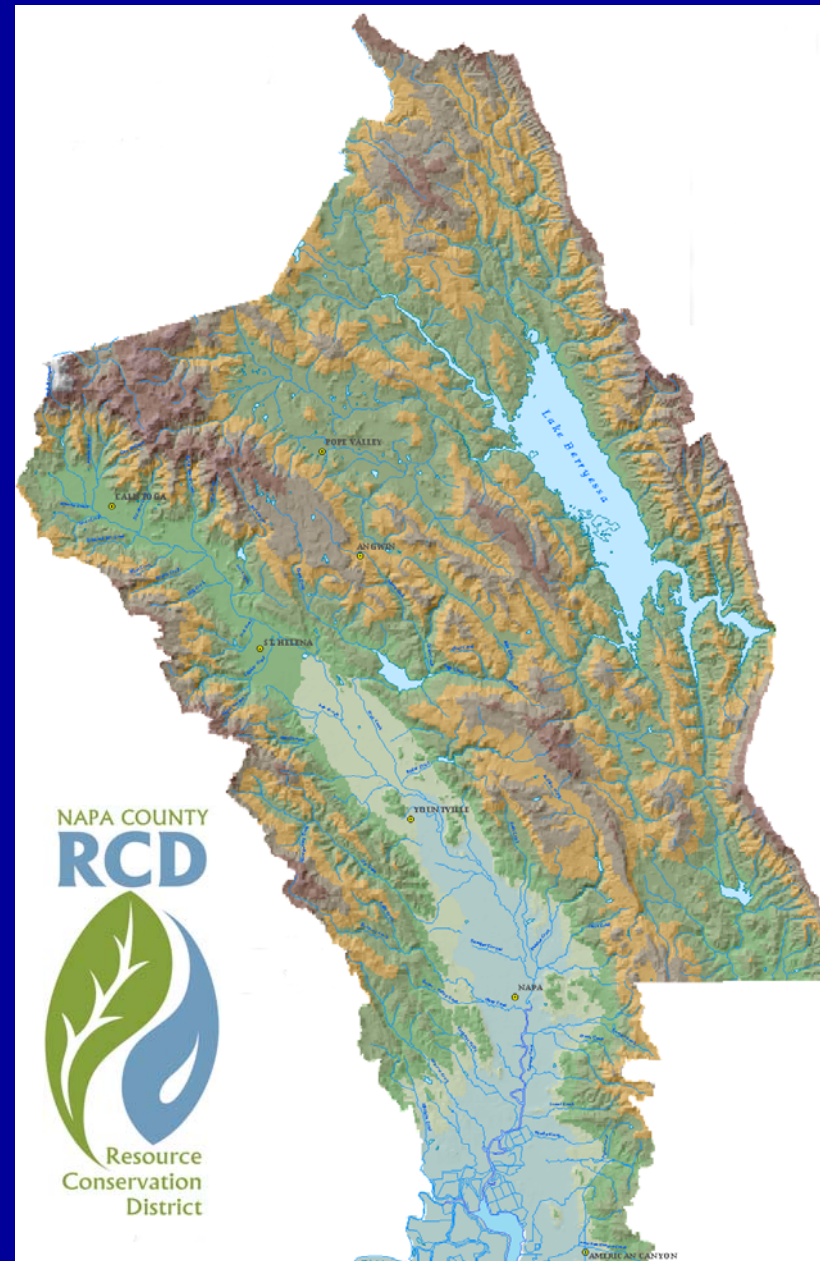


[www.naparcd.org](http://www.naparcd.org)



# Napa County Resource Conservation District

- Formed in **1945**
- Managed by a **7-member** board of directors
- **8** staff
- Work in close partnership with the **USDA – Natural Resource Conservation Service (NRCS)**







# ***MISSION***

***Promote  
responsible watershed management  
through  
voluntary community stewardship  
and  
technical assistance***

# GOALS



## ***EDUCATION***

***Promote watershed-based land stewardship of natural resources***



## ***ASSESSMENT***

***Evaluate watershed conditions and functions***



## ***PLANNING***

***Provide resource conservation planning services***



## ***IMPLEMENTATION***

***Implement resource conservation practices and projects***



# What is a Watershed?

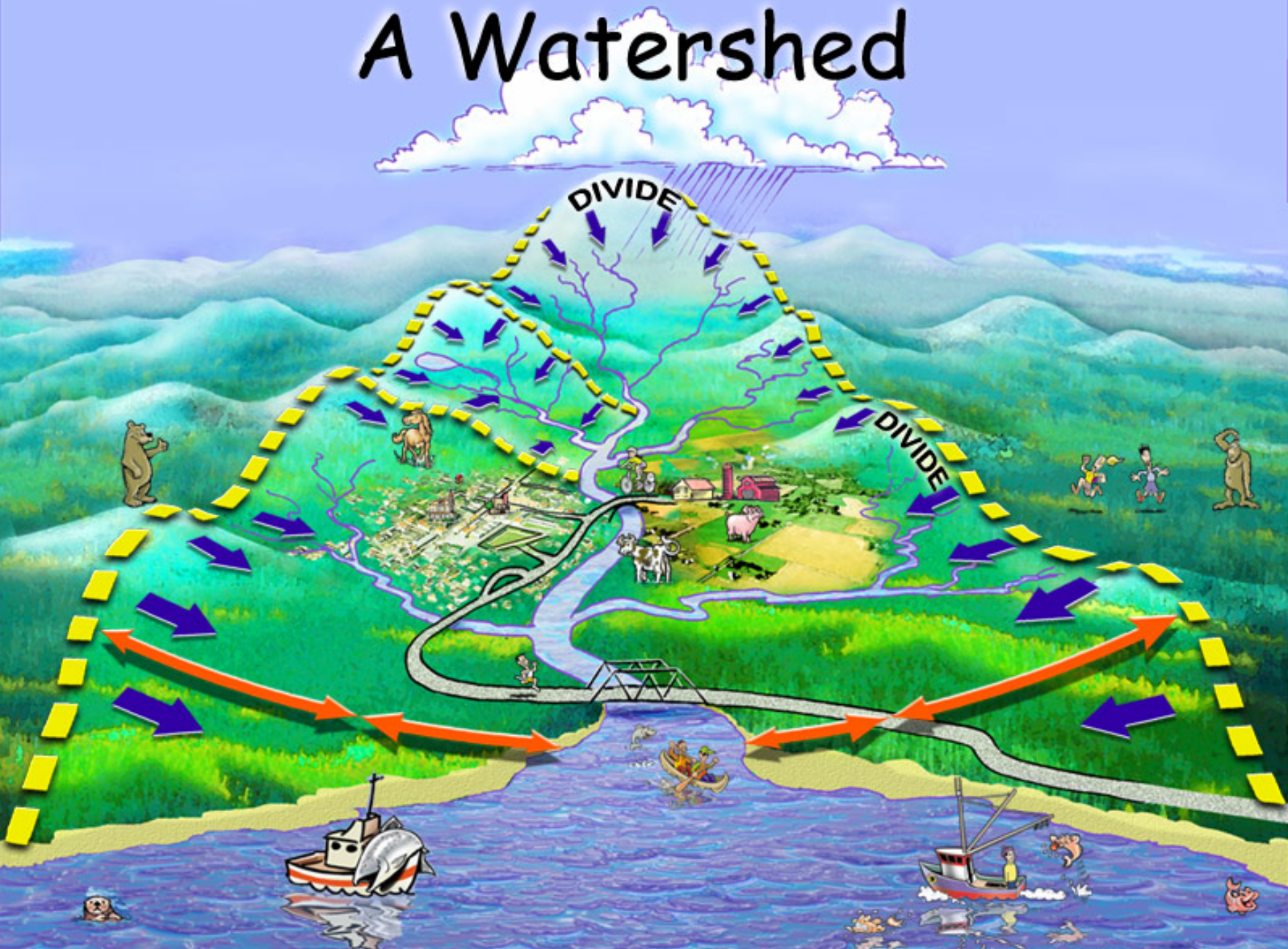
A region or area that drains to a common body of water



Everything in a watershed is connected by water



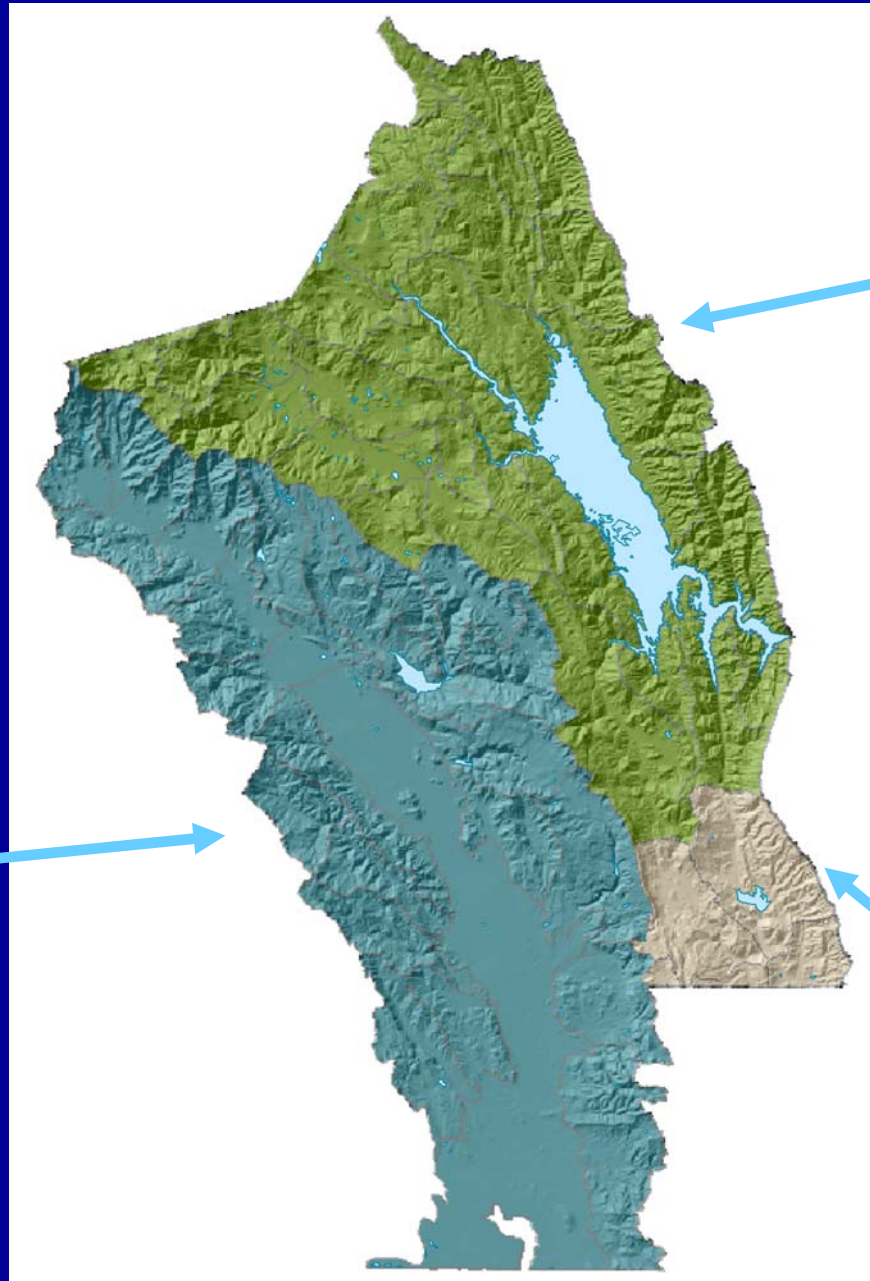
# A Watershed





# Watersheds of Napa County

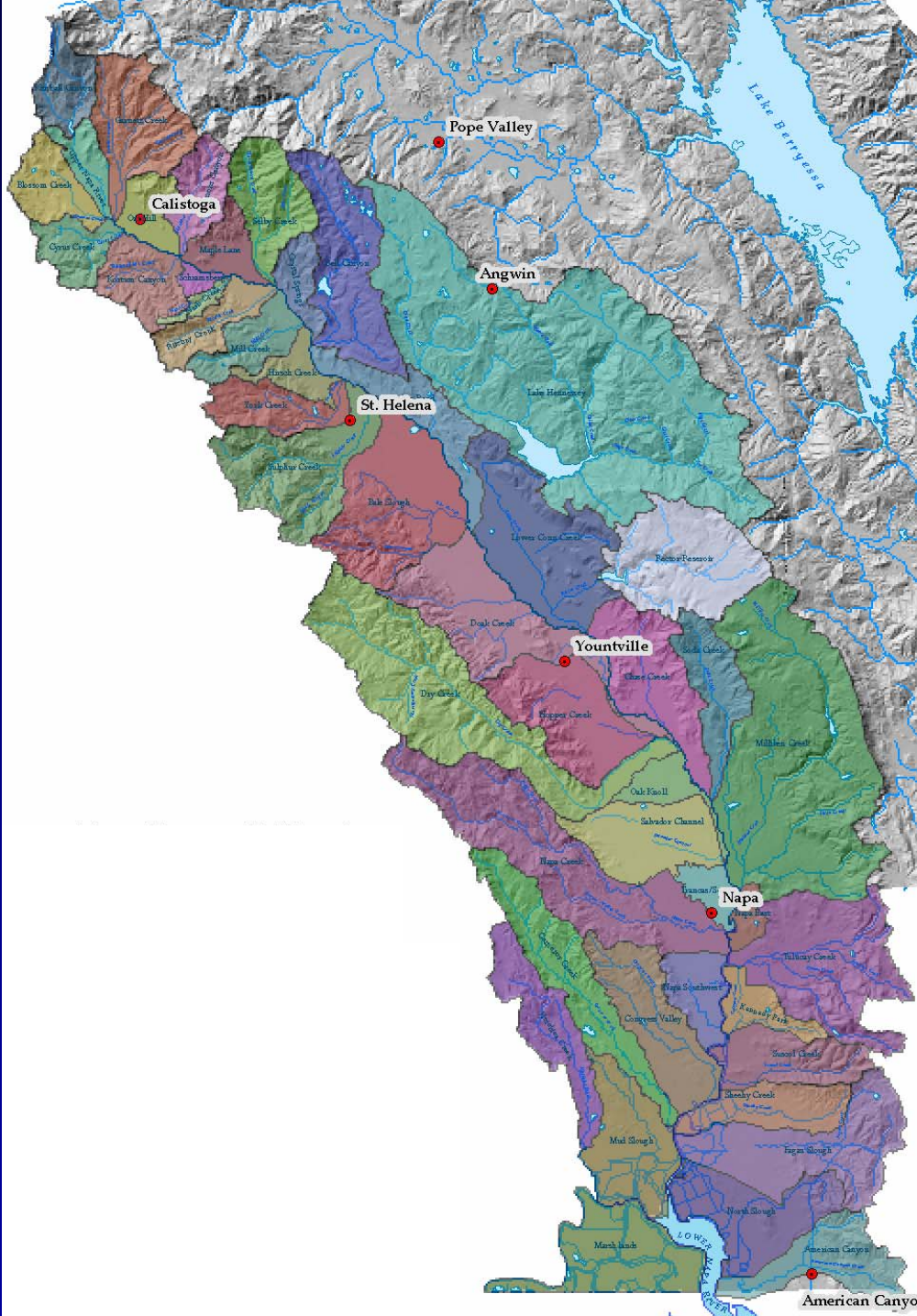
Napa River  
Watershed



Putah Creek  
Watershed

Suisun Creek  
Watershed

# Subwatersheds of the Napa River Watershed





# Healthy watersheds provide:

- water for ag, drinking, etc.
- fish and wildlife habitat
- flood protection
- aesthetic value
- recreational value





# What makes watersheds healthy?



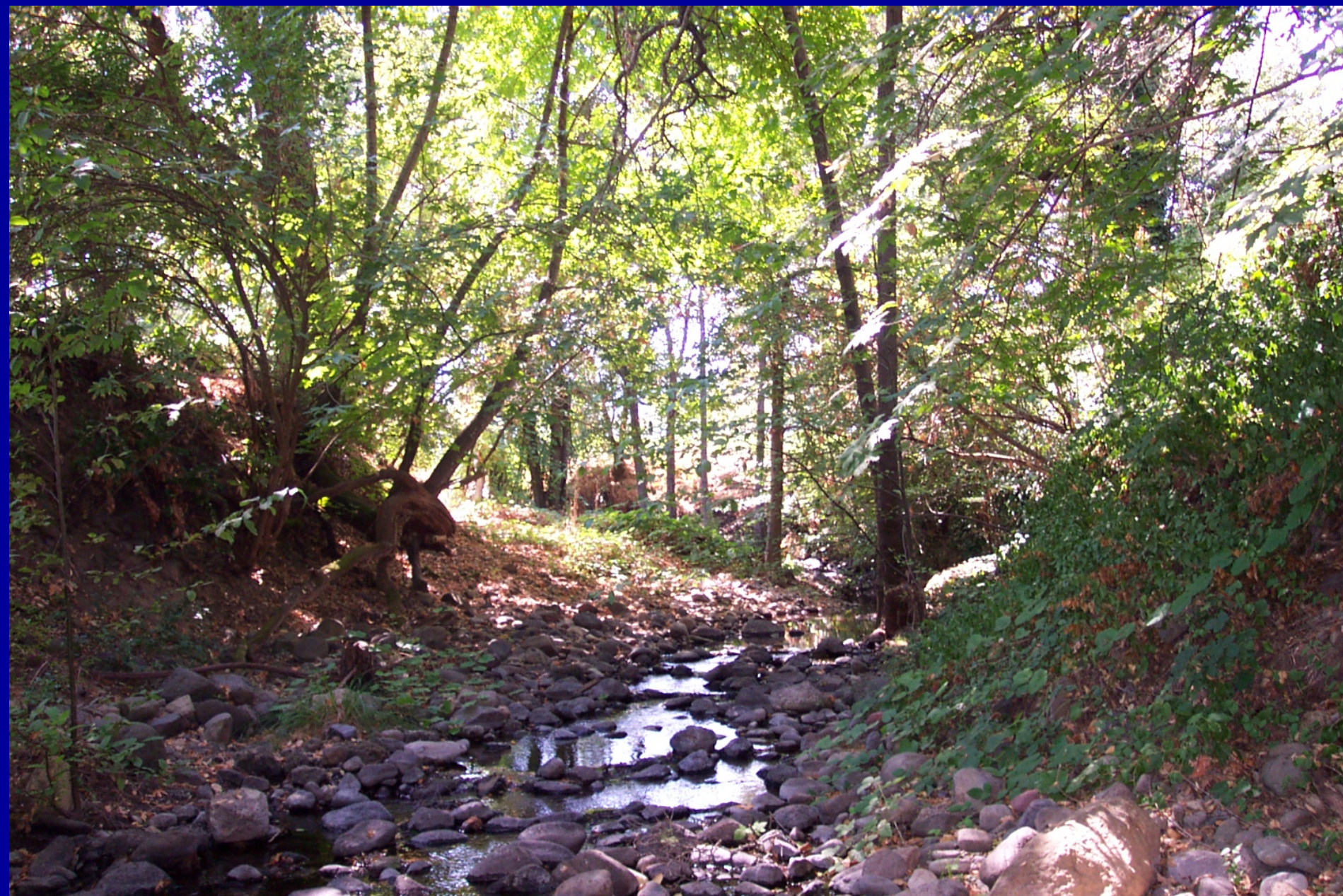


# What makes watersheds healthy?

Wide riparian areas with variety of native plants  
(trees, shrubs, grasses)

- Habitat, food for beneficial organisms (insects, birds, etc.)
- Shade keeps water cool
- Filter run-off from landscape before entering creek
- Absorb water and reduce flooding
- Plant roots reduce potential for erosion
- Creek has room to move







# What makes watersheds healthy?

Complex creek habitat – with woody debris, pools, runs provides habitat for diversity of organisms

- Supports diverse insect and fish community
- Supports diverse community of insect and fish predators

# The Napa River watershed supports a diverse fish community

51 fish species in Napa River Basin

28 freshwater fish species

- 14 exotic
- 14 native
  - 2 salmonid species
    - Chinook salmon
    - Steelhead trout





Steelhead trout life-cycle.

# Salmonid Habitat Requirements



- Clean, cold water
- Stream flow
- Sheltered pools
- Food (invertebrates)
- Migration corridor
- Spawning gravels without excess fine sediment





# Salmonid decline in the Napa River Basin

- **Steelhead trout**
  - Historically 8,000 – 10,000 adults
  - Currently 200 – 1,000 adults
- **Chinook Salmon**
  - Historically unknown (2,000-5,000 adults)
  - Currently 200 – 400 adults



# What makes watersheds healthy?

Stable banks that don't contribute too much sediment to waterways

- Sediment builds up on creek bottoms
- Decreases ability of fish to reproduce
- Decrease quality of habitat for bottom dwelling organisms







Steep banks are unstable, lead to erosion





12.19.2002





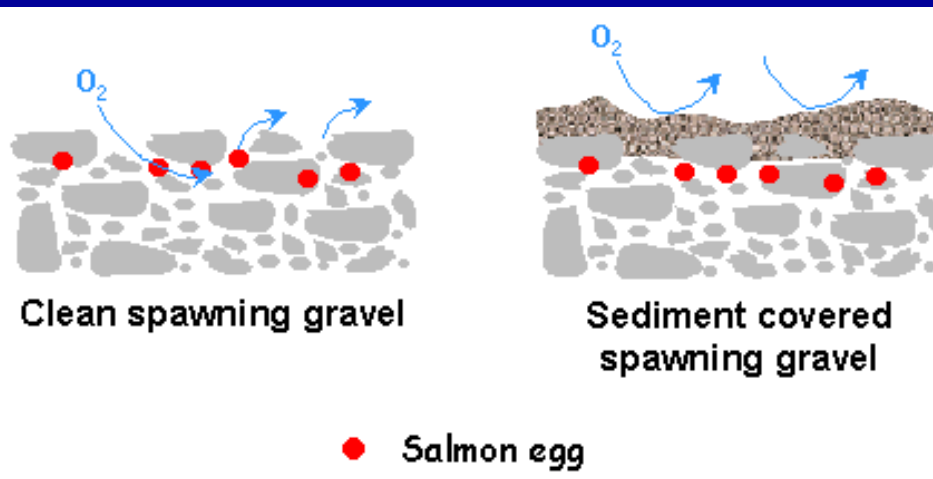




# Sediment impacts fish



Jeffrey Rich





# Clean Spawning Gravel





# Spawning Gravel with Sediment





# What makes watersheds healthy?

## Clean run off from land (rural and urban areas)

- Minimal nutrients (animal waste and fertilizer)
- Minimal pathogens (animal waste)
- Minimal toxic chemicals (pesticides, paint, oil, trash)
- Minimal decaying material (leaves)

# Stormdrain Pollution





**When You're Putting Fertilizer on Your Lawn,  
Remember to Keep it on Your Lawn.**



**We put fertilizers and pesticides on our lawns. Sprinklers and rain wash them away, and they can wind up in our lakes, streams and the ocean. Fertilizers in water can cause too much algae to grow. Algae use up the oxygen that fish need to survive. If used improperly, pesticides can harm plants and animals in water.**

**It's a pattern that you can help prevent. Consider alternatives to these products. Use pesticides and fertilizers sparingly. Please visit [www.epa.gov/region2](http://www.epa.gov/region2) to find out what else you can do.**





Algal bloom in creek, depletes oxygen for fish



# Animal waste contributes nutrients and pathogens (*E. coli*)



# Toxic Chemicals





# Toxic Chemicals









# Toxic chemicals



# Decaying material





# Healthy watersheds, healthy humans, healthy horses





