Setting Goals and Defining Watershed and Stream "Health" to Better Integrate Policies, Programs, and Projects

Rainer Hoenicke and Josh Collins
San Francisco Estuary Institute,
Aquatic Science Center

Why Stream Goals?

Bay Area Stream Goals Group

Mitch Avalon, Jim Fiedler, Richard McMurtry, Paul Amato, Trish Mulvey, Anne Draper, Josh Collins, Rainer Hoenicke, et al.

All the policies, programs, and projects for flood control, fire control, erosion control, water quality, water supply, air quality, wildlife protection, land use …

What do they add up to?


If we were to fix
all the environmental problems,
obey all the environmental laws,
what would the world look like?

What *should* it look like?

How much of what kinds of habitats are needed where, and why?

to account for all the resources spent …

on watershed planning, protection, and restoration …


The whole of government
and society
needs the same set
of stream goals
to assure that the various policies,
programs, and projects are
adequately coordinated to protect
the land and life it should support.


Stream goals represent success against which we can measure progress …


The product is not a plan,
it's a *process*.
Ecosystem management is
public debate based on enough
scientific information
to manage uncertainty
and make hard decisions.

Rationale for a Watershed Perspective

- Water and Sediment Flow Downhill
- Landscape Alterations Affect Runoff Magnitude and Duration
- Flow Alterations Affect Bank Erosion and Channel Incision
- Mobilized Sediment Is Deposited in the Lowlands

What Does A Healthy Watershed Look like?

- Functions are intact
- Risks to life and property are reduced to acceptable levels
- Economic and community activities are supported and can be sustained

Who Manages All This?

- Department of Public Works
- Planning Department
- Board of Supervisors, City Councils
- Clean Water Program
- Water Recyclers
- Water Districts
- Fire Departments
- Vector Abatement Districts
- Rec and Parks Departments
- Etc.

Who Regulates the Managers?

- Water Boards - Clean Water Act, Sections 401, 402, 303(d) etc. – Porter Cologne WDR
- Department of Fish and Game - Fish and Game Code,1600 Series, 2500 Series
- EPA, CoE – Clean Water Act, Section 404

What Do We Need to Know?

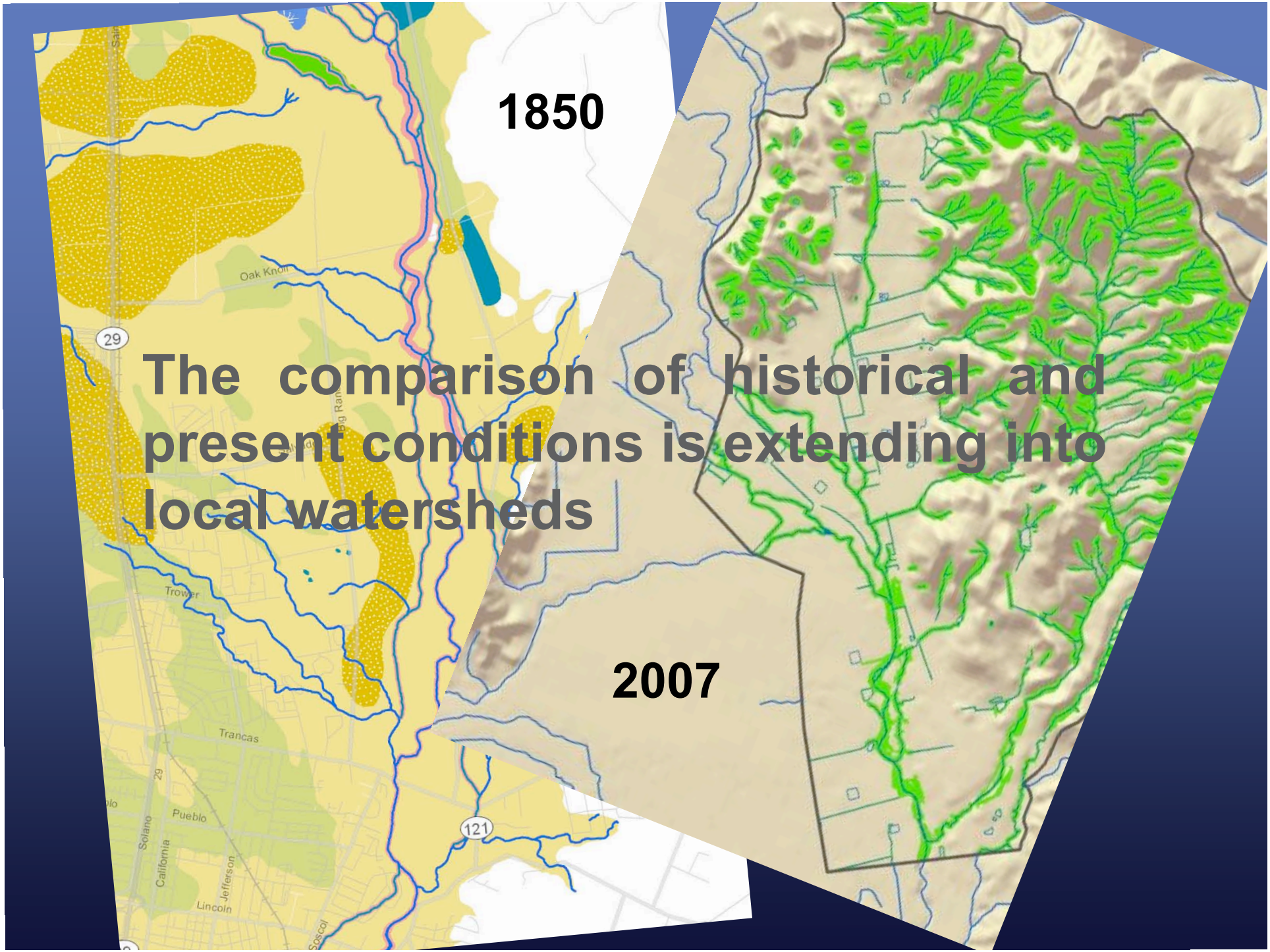
- What does the drainage network look like?
- Where do water and sediment go?
- Where are valuable natural and recreational resources?
- What did the landscape look like prior to major alterations?
- Where are protection and restoration opportunities?

Setting Goals

- Where do we want to go?
- What is feasible?
- What are the tradeoffs?
- How do we optimize among conflicting goals?

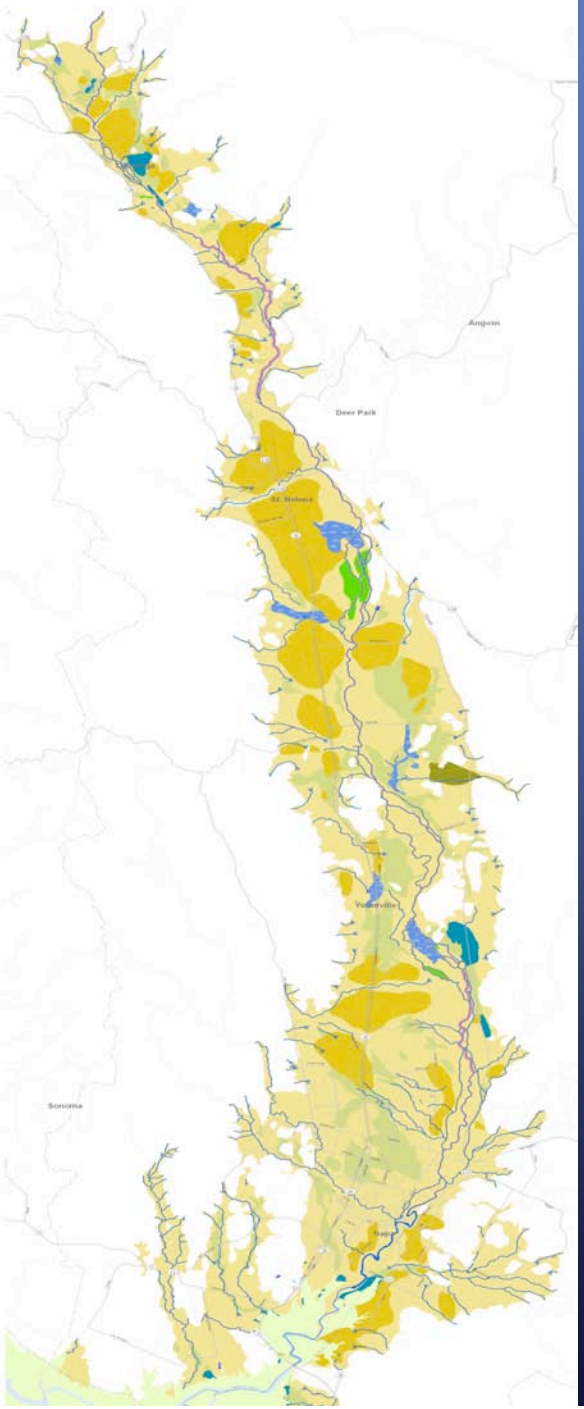
Proven Path to Stream Goals

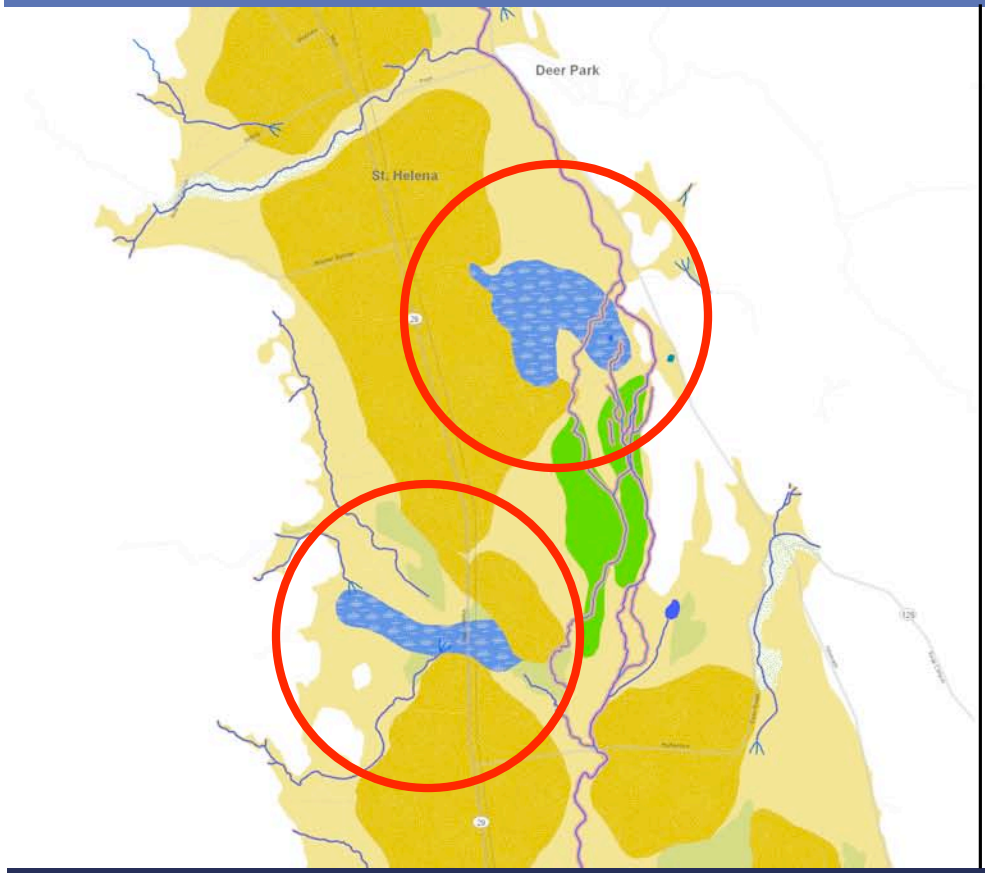
1. Understand the Past
2. Understand the present
3. Understand change
4. Envision the Goals
5. Turn policies, programs and projects into ways to achieve the goals
6. Monitor progress toward the goals
7. Adjust the goals for new understanding

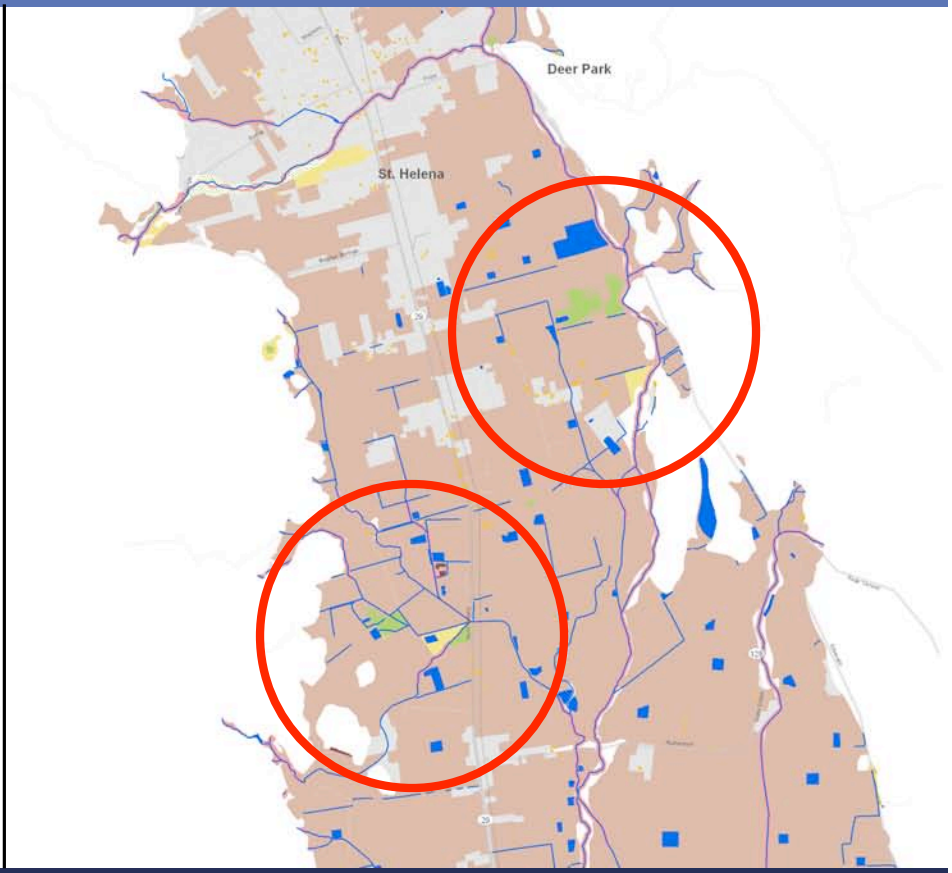

1850
2007
The comparison of historical and present conditions is extending into local watersheds
Oak Knoll
29
Trower
Trancas
Pueblo
Solano
California
Jefferson
Lincoln
121

Napa Valley
circa 1800

- Tidal Marsh
- Wet/Alkali Meadow
- Willow Grove
- Freshwater Marsh
- Valley Oak Savanna
- Grassland




Deer Park
St. Helena


Deer Park
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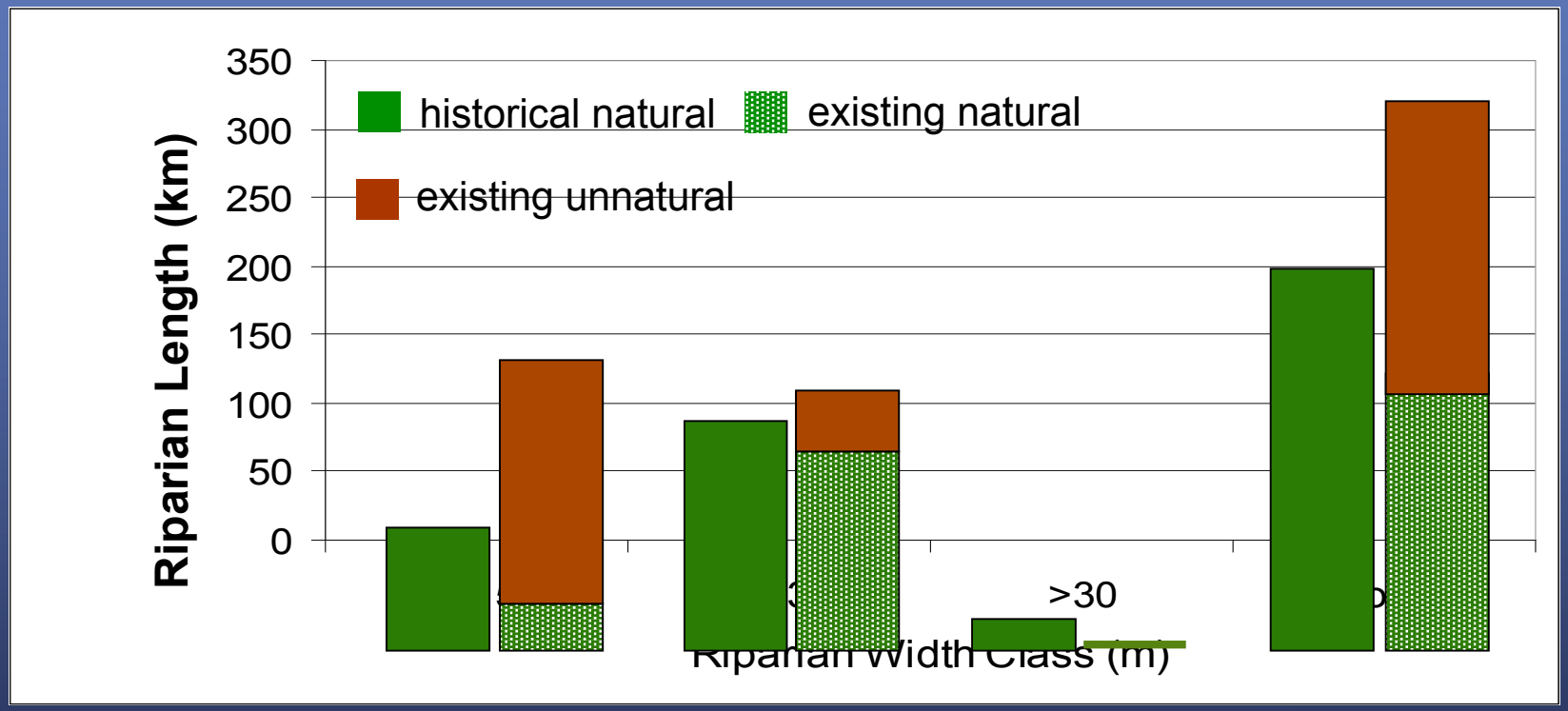
Historical Change in Riparian Extent
Napa Watershed



Riparian Width Class (m)

Different Problems at Different Scales

Regional Examples Involve Many Streams

- Anadromous fish recovery
- Sea level rise (upstream migration of tide)
- "Landscape Resistance" to restoration
  - Regional transportation and utility corridors disrupt stream-Bay connections
  - Subsided and contaminated lands
- Regional, State and Federal coordination of policies and programs to address problems

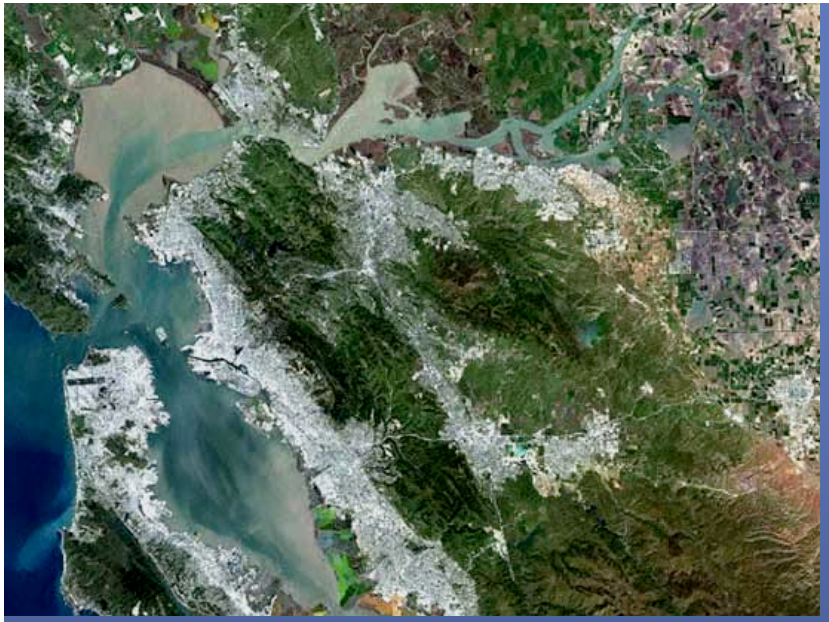
Different Problems at Different Scales

Examples for Local Watersheds

- Physics
  - Chronic stream incision/sedimentation
  - Non-point source pollution
- Ecology
  - Anadromous fishery declines
  - Riparian habitat loss and invasion
- Consumptive competition for water and land
  - Flood control, irrigation, ecological service

So …

what would stream goals look like?



Possible Regional Goals

- Allocation of fisheries restoration efforts among watersheds;
- Baylands Goals Version 2: intertidal restoration to accommodate sea level rise;
- Coupling stream and bayland restoration to infrastructure maintenance and upgrades.

Expected Local Goals

- Reach-specific recommended hydrograph to optimize among watershed objectives;
- Land use design recommendations to achieve chosen hydrograph
- Reach-specific restoration templates to accommodate chosen hydrograph

Next Steps

Stream Goals pilot projects

Napa River (2006-08)

Miller Creek (2007-08)

Coyote Creek (??)

Diablo Creek (??)

Walnut Creek(??)


Thank You