The Healthy Streams Partnership and the California Healthy Watershed Initiative

Lori Webber
State Water Board
Healthy Streams Partnership Facilitator

CALIFORNIA Healthy Streams PARTNERSHIP

CALIFORNIA WATER QUALITY MONITORING COUNCIL

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

SWAMP Surface Water Ambient Monitoring Program

California Water Boards

UCDAVIS UNIVERSITY OF CALIFORNIA

Marine Pollution Studies Laboratory Granite Canyon

United States Environmental Protection Agency

Department of Water Resources State of California

SCCWRP Established 1969

SCCWRP

A work group of the California Water Quality Monitoring Council whose mission is to promote the protection of healthy streams and the restoration of threatened and impaired streams.

HSP Website: http://www.mywaterquality.ca.gov/monitoring_council/healthy_streams/

- Cal/EPA
- Natural Resources Agency
- About the California Water Quality Monitoring Council

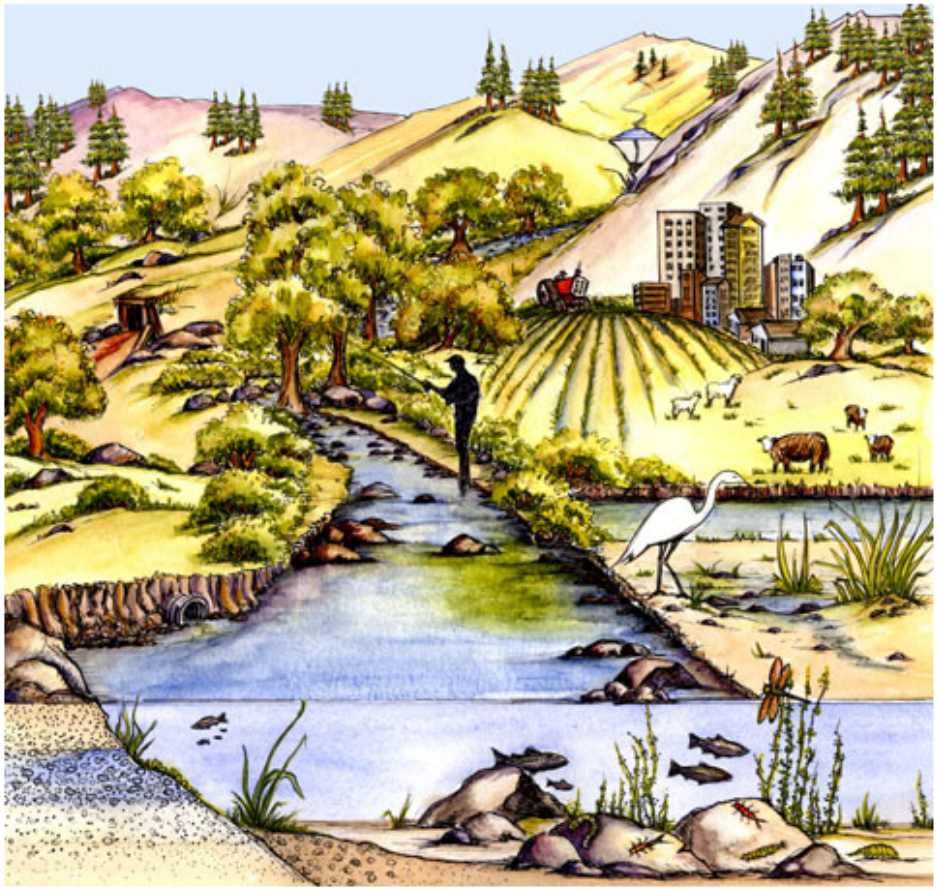
AQUATIC HEALTH LINKS

- Stressors
- Laws, Regulations & Standards
- Regulatory Activities
- Enforcement Actions
- Research
- Monitoring Programs, Data Sources & Reports

California Streams, Rivers and Lakes

Urban | Agriculture | Other Uses | Fines & Sands| Gravels | Cobbles & Boulders | Riffles & Rapids | Buffer | Riparian Cover | Pools | Groundwater | Water Quality | Sediment Quality | Stream Gradient | Channel Stability | Channel Alteration | Algae | Bugs | Fish | Fish Contaminants |

Also see: Hydrologic Connectivity | Hydrologic Sufficiency | Invasive Species | Sediment Balance



Healthy streams, rivers, and lakes provide safe drinking water, recreational opportunities, and important habitat for species ranging from the red-shouldered hawk to steelhead to crayfish and dragonflies. Maintaining healthy streams, rivers, and lakes can reduce the need for water treatment and water supply costs and make landscapes more resilient to climate change. To determine the health of a waterway and the flora and fauna that live there, investigators can use a combination of chemical, biological, and physical assessments. Among the characteristics that may be considered are habitat quality, aquatic life diversity, water chemistry, stream hydrology, the physical channel form, and sediment transport processes of the stream.

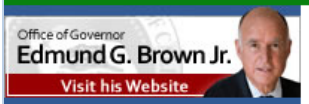
Navigation Instructions: Show | Hide .

- Portal Fact Sheet

QUESTIONS ANSWERED

- What is the extent of our stream and river resources?
- What is the condition of our streams and rivers?
- What is being done to make our waters healthier?

- California Watersheds Slideshow - Learn



- Cal/EPA
- Natural Resources Agency
- About the California Water Quality Monitoring Council

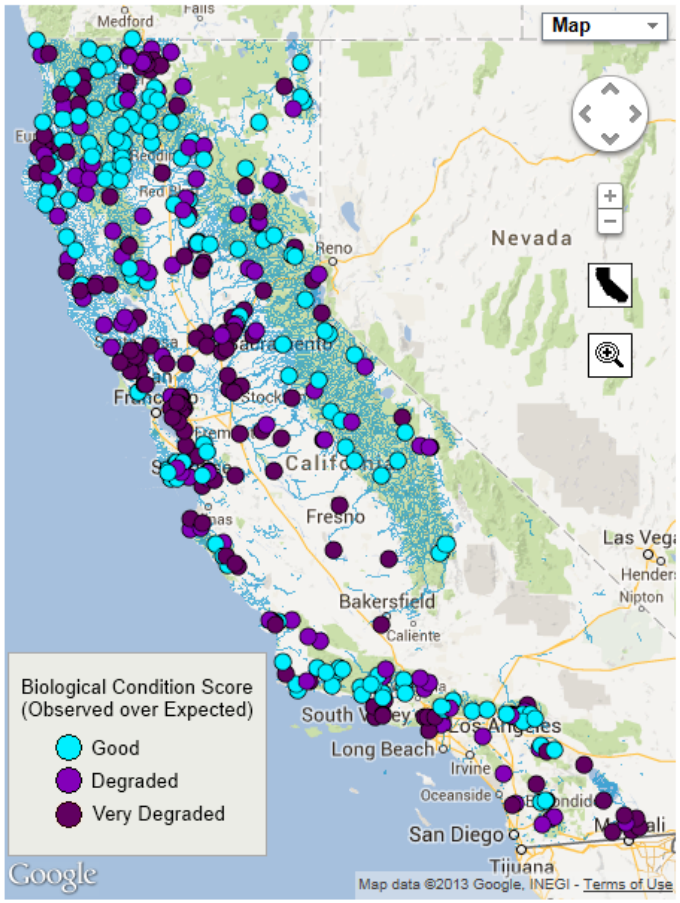
AQUATIC HEALTH LINKS

- Stressors
- Laws, Regulations & Standards
- Regulatory Activities
- Enforcement Actions
- Research
- Monitoring Programs, Data Sources & Reports

Home » Eco Health » Streams » Condition

California Streams, Rivers and Lakes

-- Select a Region Type --



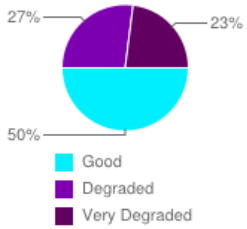
What do Benthic Macroinvertebrates tell us about the health of our streams?

One powerful way to measure stream health is through an assessment of the bugs, or benthic macroinvertebrates, that live there. Benthic macroinvertebrates, which live on the bottom of streams, include early life stages of insects such as dragonflies and mayflies, crustaceans such as crayfish, and worms and snails. The particular species and abundance of invertebrates present in a stream can help scientists determine both the current condition of a stream and the cumulative impact of longer term stressors, such as pollution. For example, a stream with a variety of species that includes sensitive species is considered healthier than one with a few pollution-tolerant species.

Bioassessment is the characterization of environmental conditions through the observation of biological communities of organisms. Two common types of bioassessment are O/E and IBI. O/E stands for observed over expected, which compares the number of certain species observed at a site to the number of those species that were expected to occur, based on data from reference sites that are known to be healthy. IBI is an Index of Biotic Integrity, which combines a variety of individual measures of health of a community of organisms, such as species richness (how diverse the community is) and pollution tolerance (how resistant to pollution they are).

» View reports of the State Water Board's Perennial Streams Assessment (PSA)

Statewide Statistics



» What do these biological condition categories mean?

This map shows data generated by:

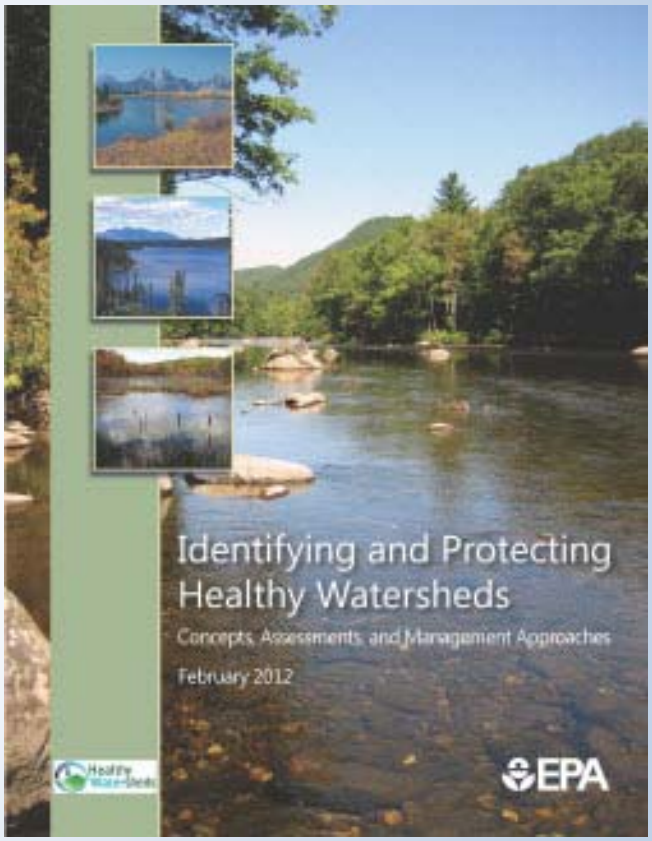
USEPA Healthy Watershed Initiative

Overarching goals of the Initiative

- Identify healthy watersheds.
- Protect and maintain healthy watersheds, and increase their numbers over time.
- Raise the visibility and importance of protecting high quality waters.

EPA HWI website

www.epa.gov/healthywatersheds



California Healthy Watershed Initiative

- Partnership between **USEPA Healthy Watershed Initiative** and the **Healthy Streams Partnership**.
  - USEPA funded
  - Technical work conducted by Cadmus
  - HSP serves as the technical review team
- Goal: Develop integrated assessments of watershed health.
  - Multimetric indices

HWI-HSP Partnership Assessment Core Team

***Laura Gabanski**, USEPA HQ*
***Owen McDonough**, USEPA HQ*
***Laura Blake**, Cadmus*
***Corey Godfrey**, Cadmus*
***Peter Ode**, CDFW*
***Eric Stein**, SCCWRP*
***Terry Fleming**, USEPA Region 9*
***Fraser Shilling**, UCD*
***Tom Suk**, Lahontan Water Board*
***Lilian Busse**, San Diego Water Board*
***John Hunt**, UCD*
***Kris Jones**, DWR*
***Karen Worcester**, Central Coast Water Board*
Dave Paradies
***Karen Larsen,** State Water Board*
***Max Gomberg**, State Water Board*
***Jon Marshack**, State Water Board*
***Lori Webber**, State Water Board*

Multimetric Indices

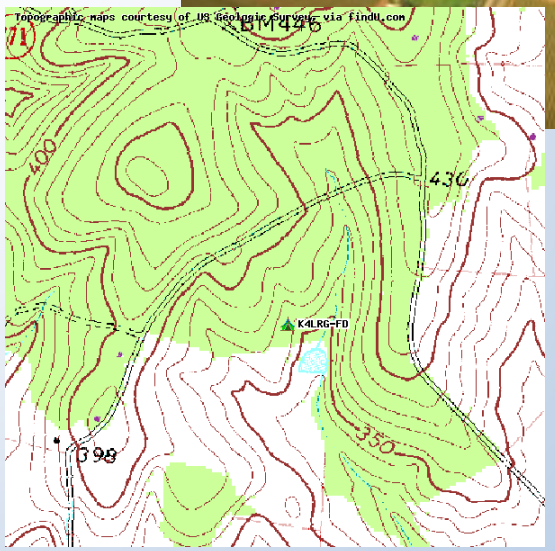
Watershed Condition Index

Stream Health Index

Watershed Vulnerability Index

Watershed Condition Indicators

- Structural components of watershed condition, landscape condition
- Geospatial datasets, based on remote sensing
- Continuous and complete coverage across the state
- Examples: land use, soils



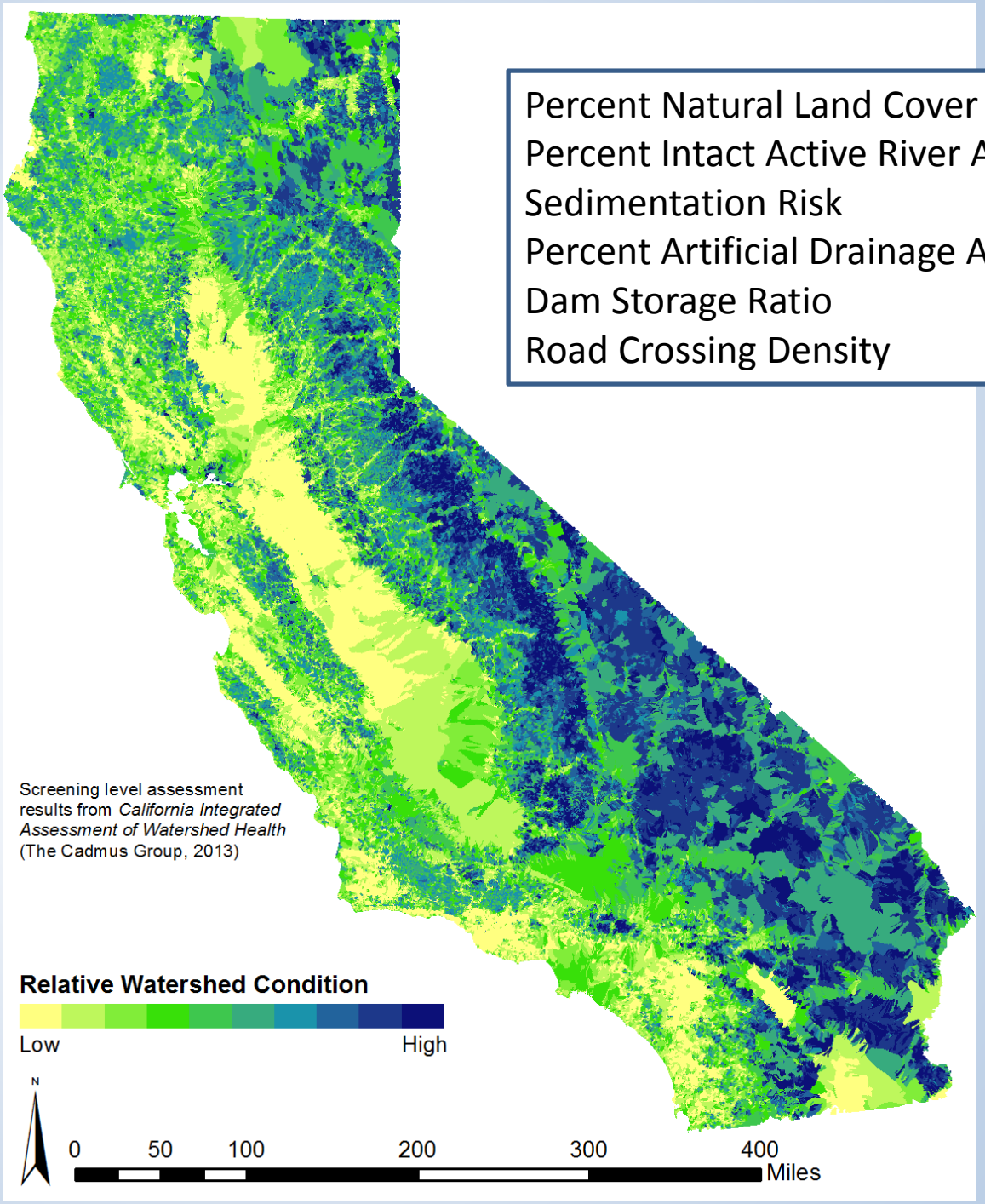
Stream Health Indicators

- Characterize instream conditions
- Field monitoring datasets
- Examples: water quality parameters, habitat measures
- Many watersheds throughout the state have not been monitored
- Statistical models were developed to predict values in unmonitored locations

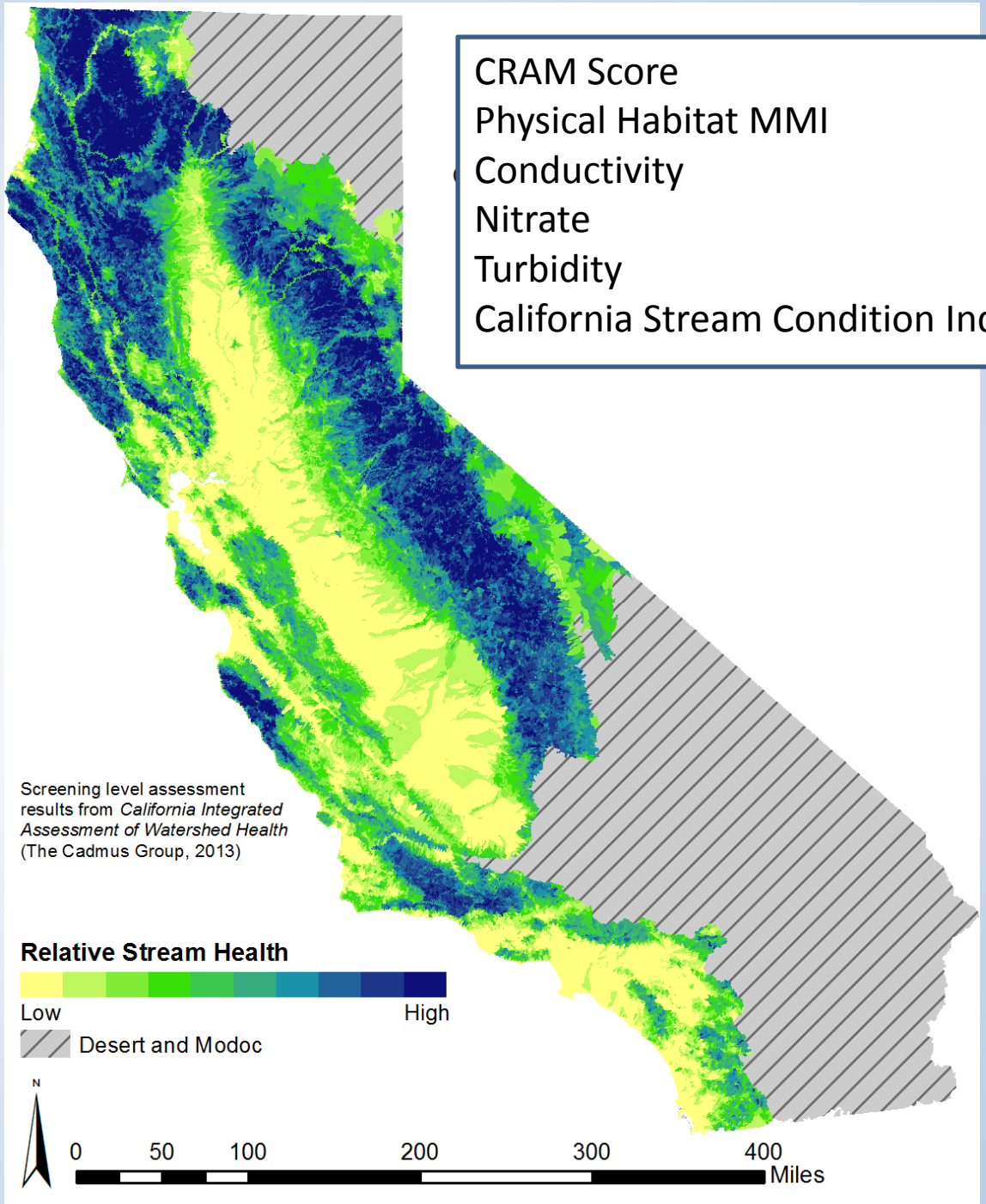
Watershed Vulnerability Indicators

- Characterize potential exposure to future risks – e.g. climate change, fire.
- Modeled projections, continuous coverage across state.

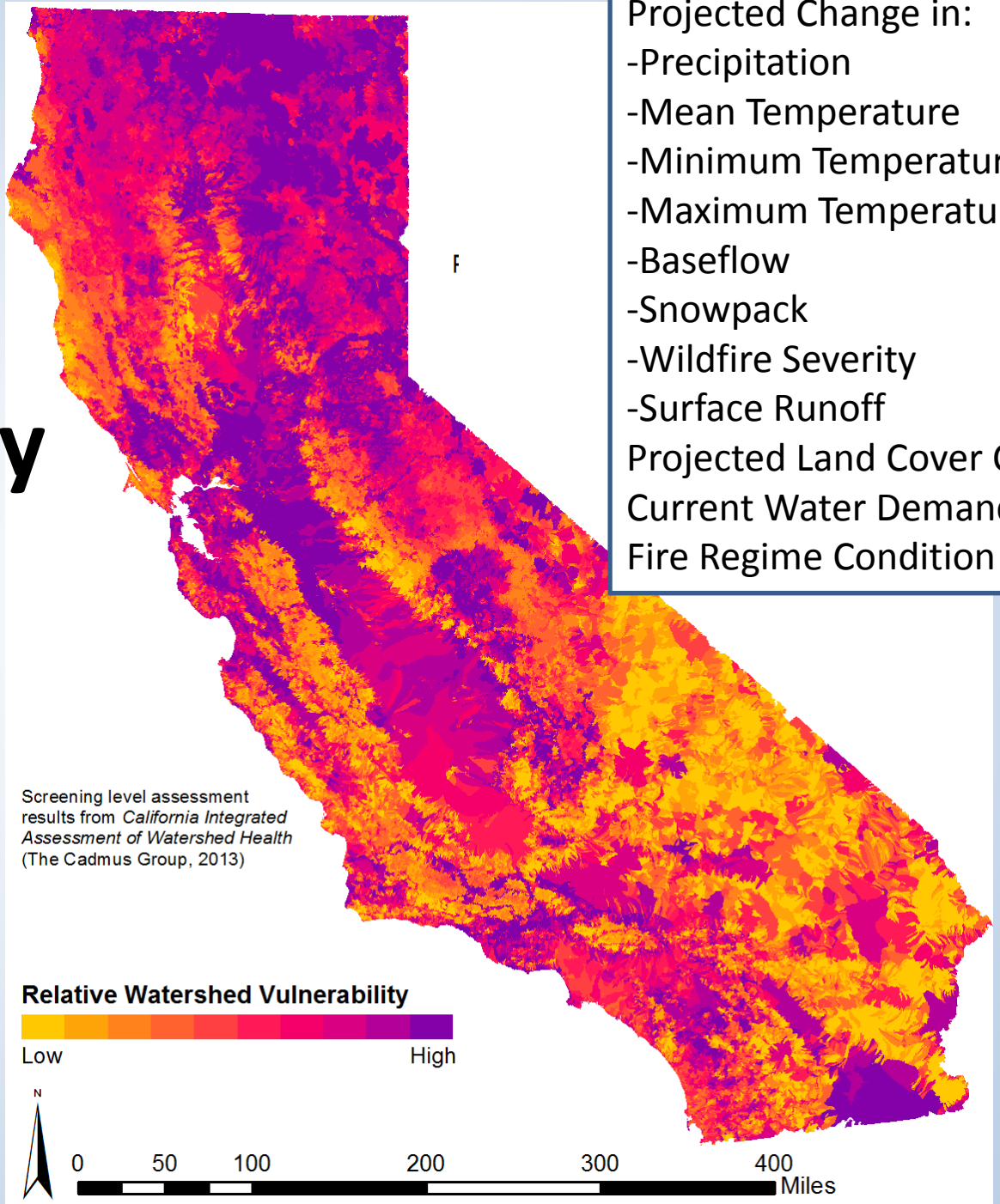
Relative Watershed Condition Index



Relative Stream Health Index



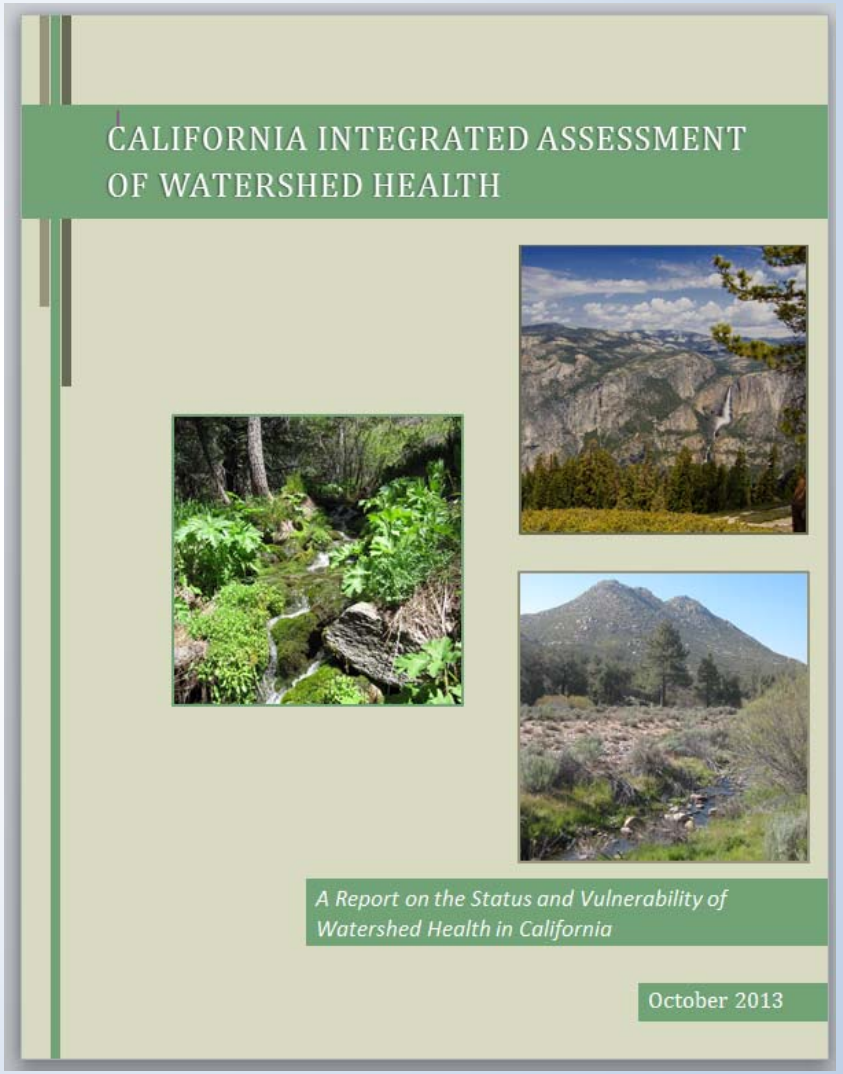
Relative Watershed Vulnerability Index



Projected Change in:
-Precipitation
-Mean Temperature
-Minimum Temperature
-Maximum Temperature
-Baseflow
-Snowpack
-Wildfire Severity
-Surface Runoff
Projected Land Cover Change
Current Water Demand
Fire Regime Condition Class

Final Report

- Cadmus and USEPA are finalizing the report with input from HSP technical team.
- Assessment data now available for use.



Next Steps

- Communicate Results
  - Healthy Streams Portal
  - Watershed Report Cards
  - Technical tools
- Support management actions to protect and restore watersheds
  - Integrated Report
  - Restoration grants
  - Policies and plans
- Build on existing framework
  - Continue to refine assessments
- Collaborate with similar efforts

Healthy Streams Partnership

http://www.mywaterquality.ca.gov/monitoring_council/healthy_streams/

Healthy Streams Portal

http://www.mywaterquality.ca.gov/eco_health/streams/

Lori Webber, SWRCB

916-341-5556

lori.webber@waterboards.ca.gov