

Incorporation of LID into State Board Programs

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Our Mission and Framework

- "Our mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations."
- *Q: Why are we so focused on discharges?*
- *A: The legal framework (Clean Water Act) drives us to be discharge-oriented.*

Millions of Californians

- 1980 - 23.7 million
- 2005 - 37 million
- 2030 - 48 million (projected)
- where?

What are some examples of water resources we should protect?

- Wetlands and streams, including:
 - Riparian areas
 - Intermittent, ephemeral and headwater streams
 - Isolated “wetlands” (e.g., vernal pools)
- Watershed functions and values
- Protect from what?

Paradise Lost – why are they special?

- California has lost 95% of inland wetlands and streams since 1850's due to "development"
- They are a critical part of the watershed:
 - support BUs onsite
 - maintain the "quality of the water" of watershed
 - provide critical watershed functions like generating/moving/storing sediment, removing pollutants, retaining flood flows, and supporting habitat connectivity

Why do they need special protection?

- Highly sensitive ecosystems
- Most threatened by landscape activities (urbanitis, development, industry, etc.)
- It is much more difficult to regulate landscape activities than it is to control point discharges
- It is very difficult to restore them once they are gone

What human activities impact wetlands and streams?

- Bank hardening (rip rap, concrete, refrigerators, cars, etc.)
- Dams and diversions
- Development (stream/swale burial, realignment, concrete-lining, etc.)
- "Agricultural" activities (vineyard development, dairy waste, cattle, stream crossings, clear-cut erosion, etc.)

The Clean Water Act

- Passed in 1972, it set goals for all “waters of the United States” to:
 - be free of all discharges causing pollution; and
 - be “fishable, swimmable,” meaning they support these use
- Is similar/analogous to our CA Water Code

Beneficial Uses Used to Protect California Wetlands & Streams

- **AGR** - Agricultural Supply
 - **FLD** - Flood Peak Attenuation/Flood Water Storage
 - **FRSH** - Freshwater Replenishment
 - **GWR** - Groundwater Recharge
 - **MAR** - Marine Habitat
 - **MUN** - Municipal and Domestic Supply
 - **RARE** - Preservation of Rare and Endangered Species
 - **REC-1** - Water Contact Recreation
 - **REC-2** - Non-Water Contact Recreation
 - **SHELL** - Shellfish Harvesting
 - **SPAWN** - Fish Spawning
 - **WARM** - Warm Freshwater Habitat
 - **WILD** - Wildlife Habitat
 - **WQE** - Water Quality Enhancement
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CWA - Permits

- Section 402 - Point Sources
 - The National Pollutant Discharge Elimination System (NPDES) - applies to all point sources of pollutants
 - Stormwater outfalls are considered "point sources" and these regulations apply to:
 - Industrial Sources (including Construction Activities)
 - Municipal Sources (large and small communities)

• CWA - Dredge and Fill Discharges

- Section 404/401 - regulate the direct discharges of dredge and fill material to US Waters
- US Army Corps issues 404 permit, which triggers the State's "401 Certification" (that the project complies with our standards)
- "401 Certifications" are one-time compliance tools that apply to many new developments in California, due in part to our abundance of ephemeral and intermittent streams

401 Certification - One-time compliance measurement

- CWA 401 certification process give the Water Boards one shot at evaluating compliance with our "standards"
- If we get our permitting wrong, the waterbodies and their designated beneficial uses could be lost forever
- Could be a de-facto Basin Plan amendment

CWA - Total Maximum Daily Loads (TMDLs)

- If the beneficial uses are impaired, the State must adopt a TMDL that allocates pollutants to all the sources in a watershed
- TMDLs take a long time to develop and adopt

CWA - TMDLs

- TMDLs take decades to implement
- They are watershed-based, but they are also pollutant (or impairment cause) specific, so they may or may not lead communities towards more sustainable approaches to Water Resource planning
- It's a Regulatory "Backstop"!

What can the Water Boards do to help implement/enforce the CWA?

- Appropriately designate, development and enforce appropriate Beneficial Uses.
- We also need to develop effective criteria for protecting uses from pollutants and/or habitat disturbance associated with urbanization impacts.
- Encourage avoidance and minimization of impacts through better siting and management practices.

Examples of LID in State Board Programs

- State Board's Sustainability Resolution (Resolution 2005-0006)
- North Coast and San Francisco Bay RWQCB's Wetland and Stream Protection Policy
- State Board's Wetland and Stream Protection Policy

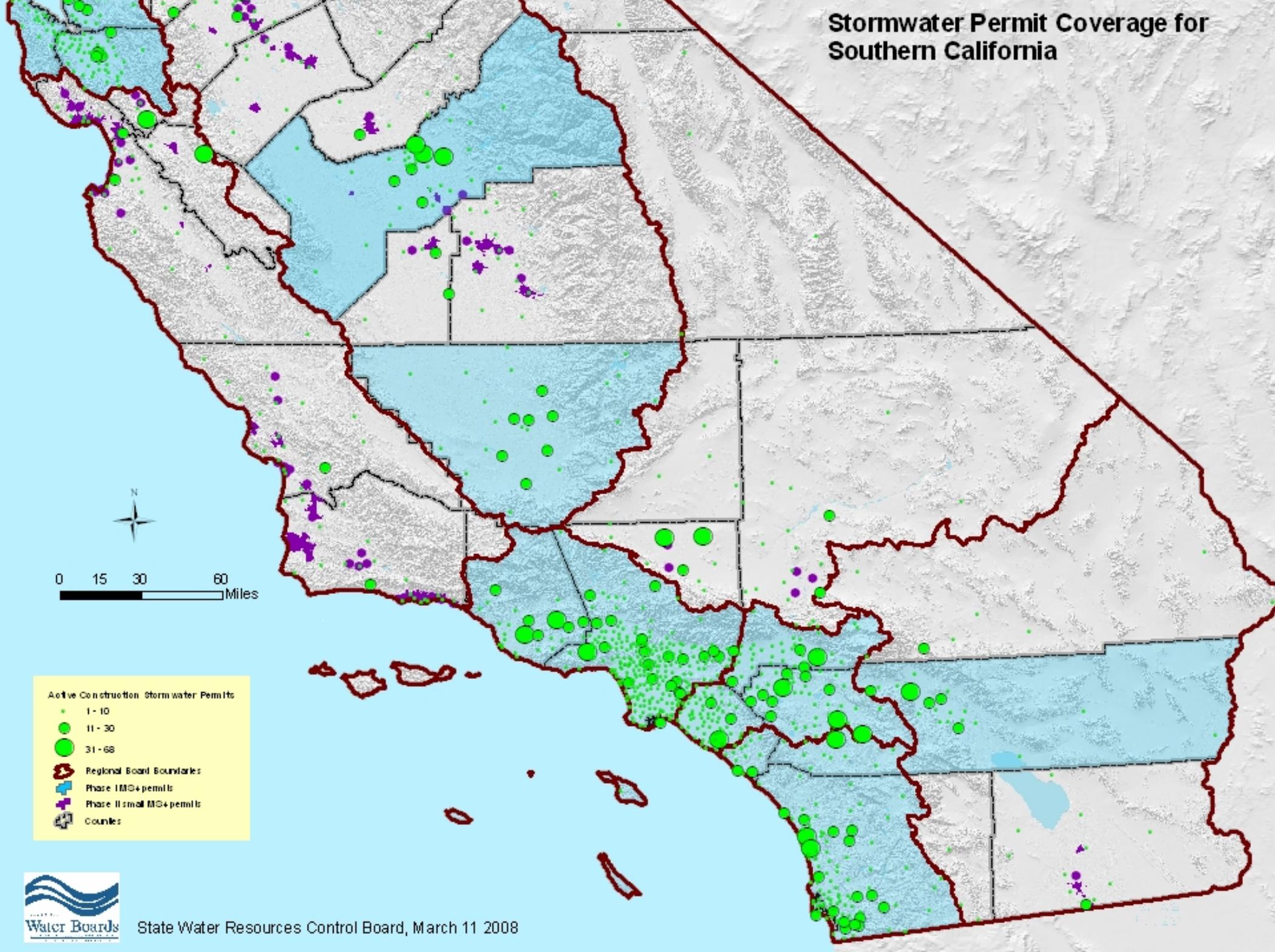
Examples of LID in State Board Programs

- San Francisco Bay RWQCB's MS4 Requirements
- San Diego County Phase 1 MS4 Permit
- Ventura County Draft Phase 1 MS4 Permit
- Draft Construction General Permit
- Sacramento County Riparian Buffer Sizing Methodologies

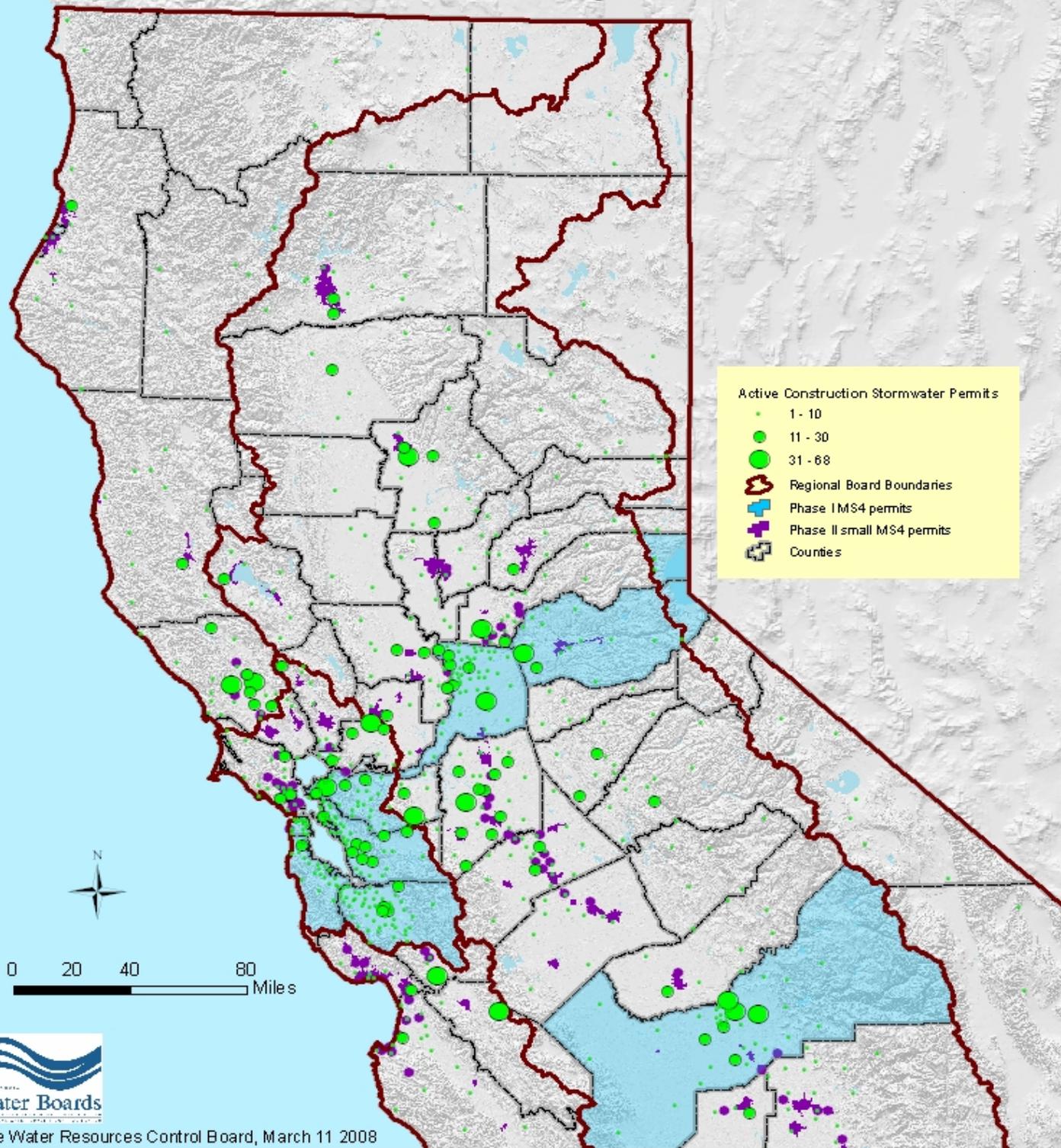
The background features four horizontal, wavy bands of a light blue color, creating a decorative, water-like effect. The waves are smooth and flow from left to right across the page.

MS4 Coverage

Stormwater Permit Coverage for Southern California



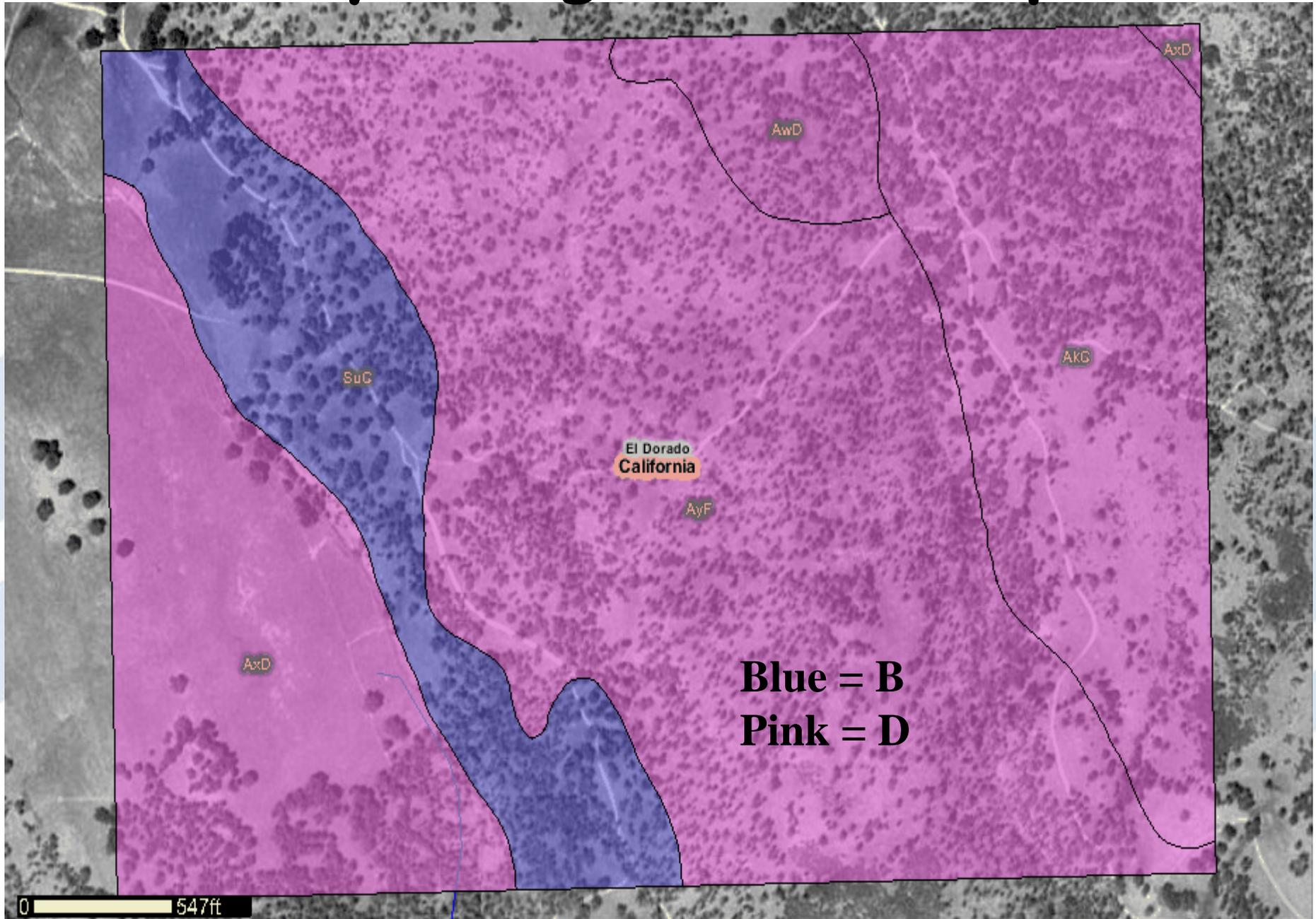
Stormwater Permit Coverage for Northern California





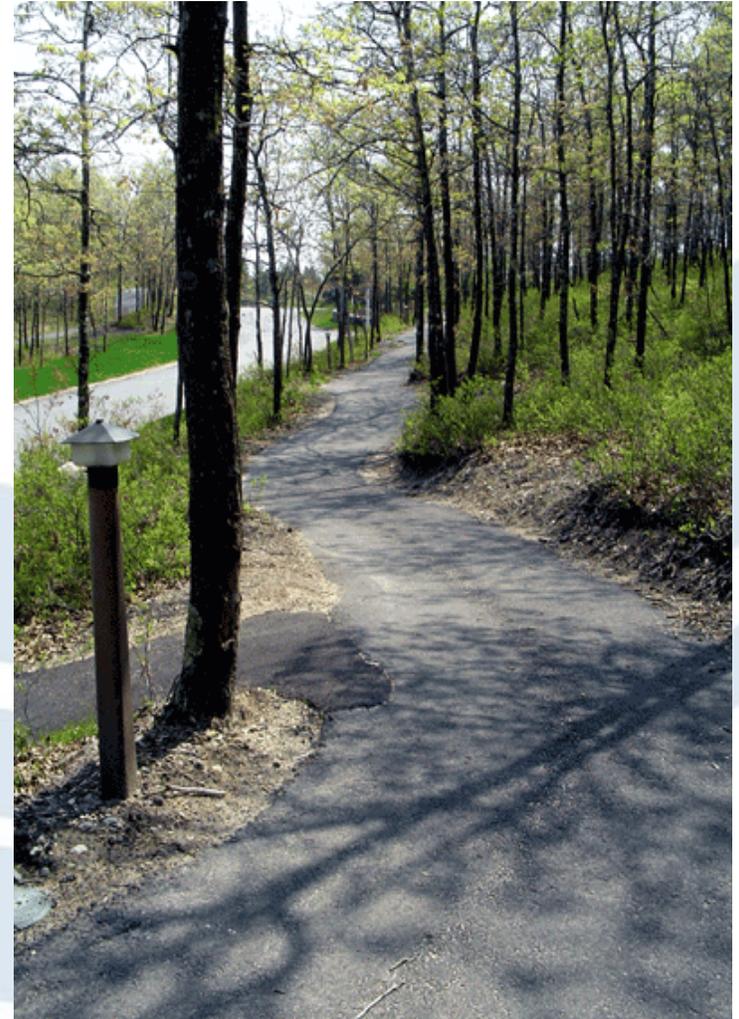
Solutions

Hydrologic Soil Groups



Ways to mimic pre-development water balance and T_c

- Soil quality improvement (porosity)
- Native and drought tolerant vegetation
- Trees
- Permeable pavement
- Riparian buffers
- A general reduction of connected, impervious surfaces in runoff pathways
- Bioretention
- Disconnected downspouts/rain chains/rain barrels







School Parking Lot, Portland OR

Rain chains and
mulch combo

Sacramento









PHOTO: RIVERSIDES STEWARDSHIP ALLIANCE















Manzanita Village

University of California Santa Barbara



LID Regulatory Review

*A REVIEW OF LOW IMPACT DEVELOPMENT
POLICIES:
REMOVING INSTITUTIONAL BARRIERS TO
ADOPTION*

Commissioned and Sponsored by:
California State Water Resources Control Board
Stormwater Program
And The Water Board Academy

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