Development of Hydromodification Control Methodologies for the Central Coast

The Joint Effort:

Phase 1

November, 2009

Agenda

1. Introductions
2. Presentation
   - Joint Effort: Phase 1
     - Work to date (e.g., objectives, guiding principles)
     - Phase 1 Scope of Work
     - Communication and Outreach
   - Hydromodification control criteria and implementation tools: Phase 2
3. Discussion (not addressed in preceding topics)

Joint Effort Project Team

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Phase 1 Scoping Support

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Definitions

Hydromodification – Alterations to the patterns and processes of runoff and sediment from a watershed into its receiving waters as a result of land-use changes; and that generally produce changes to the physical, chemical, and/or biological condition(s) of those receiving waters.

Hydromodification control – generally focused on stormwater management approaches to address changes to the watershed processes that directly affect receiving waters (e.g., surface runoff, infiltration, erosion).

The Hydromodification Control "Methodology" – As pertains to the Region 3 Joint Effort, the steps that must be conducted to determine the best stormwater management controls for new and redevelopment projects.

Hydromodification control criteria – numeric stormwater management objectives applied to new and redevelopment projects.

Watershed processes – as used in the Joint Effort, those processes and functions that occur at the water/land interface that affect the receiving waters (e.g., surface runoff, infiltration, evapotranspiration, erosion, sediment delivery).

Performance-based stormwater management – A mode of management that has definable outcomes that can be measured.

The Joint Effort: Development of Hydromodification Controls for Development Projects

Project Scoping

Develop Joint Effort Objectives and Guiding Principles

Develop Draft Methodology and Corresponding Scope of Work

Implement and Refine Methodology: Phase 1

- **Characterize Watersheds**
- **Identify Key Watershed Processes**

Methodology Implementation: Phase 2

- **Create Watershed/Waterbody Linkages**
- **Establish Criteria for Site-Scale BMPs**

From the Regional Board

Your SWMP must include an array of Best Management Practices (BMPs), including the six Minimum Control Measures listed in the General Permit, to achieve the following conditions:

I. Maximize infiltration of clean stormwater, and minimize runoff volume and rate
II. Protect riparian areas, wetlands, and their buffer zones
III. Minimize pollutant loading; and
IV. Provide long-term watershed protection

I. Maximize infiltration

II. Protect critical areas

III. Minimize pollutants

IV. "Provide long-term watershed protection"

Project Goals and Guiding Principles

- The intent of this project is to “manage stormwater” by protecting and/or reestablishing watershed processes (physical, chemical, and biological).
- The criteria for measuring successful management must be performance-based.
- Management prescriptions must be both scientifically supported and readily implemented.
- The products must provide both parcel-specific and watershed-scale benefits to municipalities and the Board—by supporting *all* watershed-based programs.

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4. Include biological outcomes

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1. Find them; recognize landscape variety
2. Characterize them in management-relevant terms
3. Recognize the legacy of past conditions
4. Include biological outcomes
5. Work in actual (and representative) places

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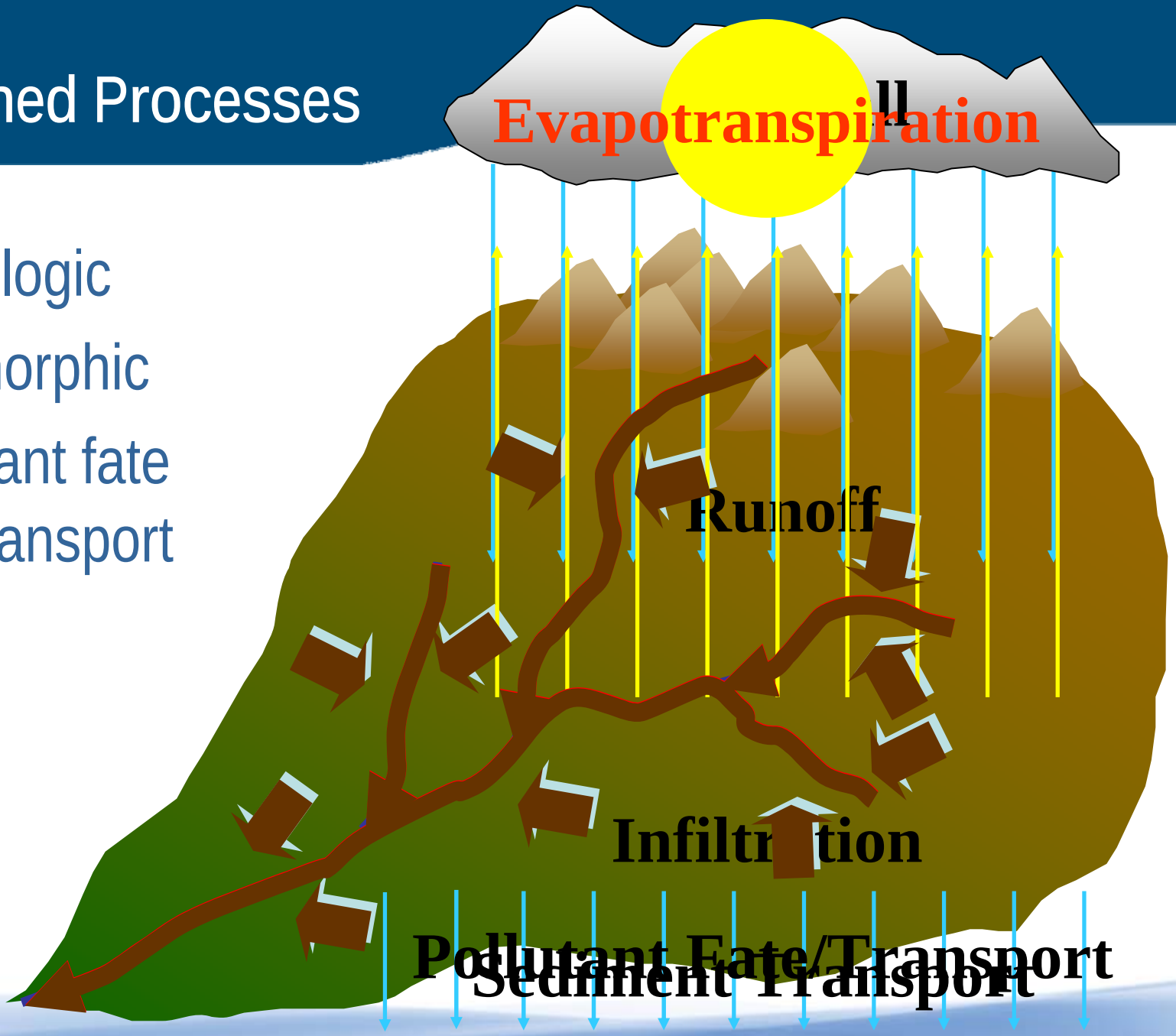
As background for describing the work in Phase 1, let's review some basic information related to watershed processes, the impacts of urbanization, and the challenges in protecting/restoring watersheds.

Watershed Processes

- Hydrologic
- Geomorphic
- Pollutant fate and transport



The Moving Target (how variability amongst watersheds can mean different starting points)

- Starting point
- Reference condition
- Naturally evolved receiving water condition
- Healthy watershed processes

The Influence of Human Activities

Change Due to Agricultural Use

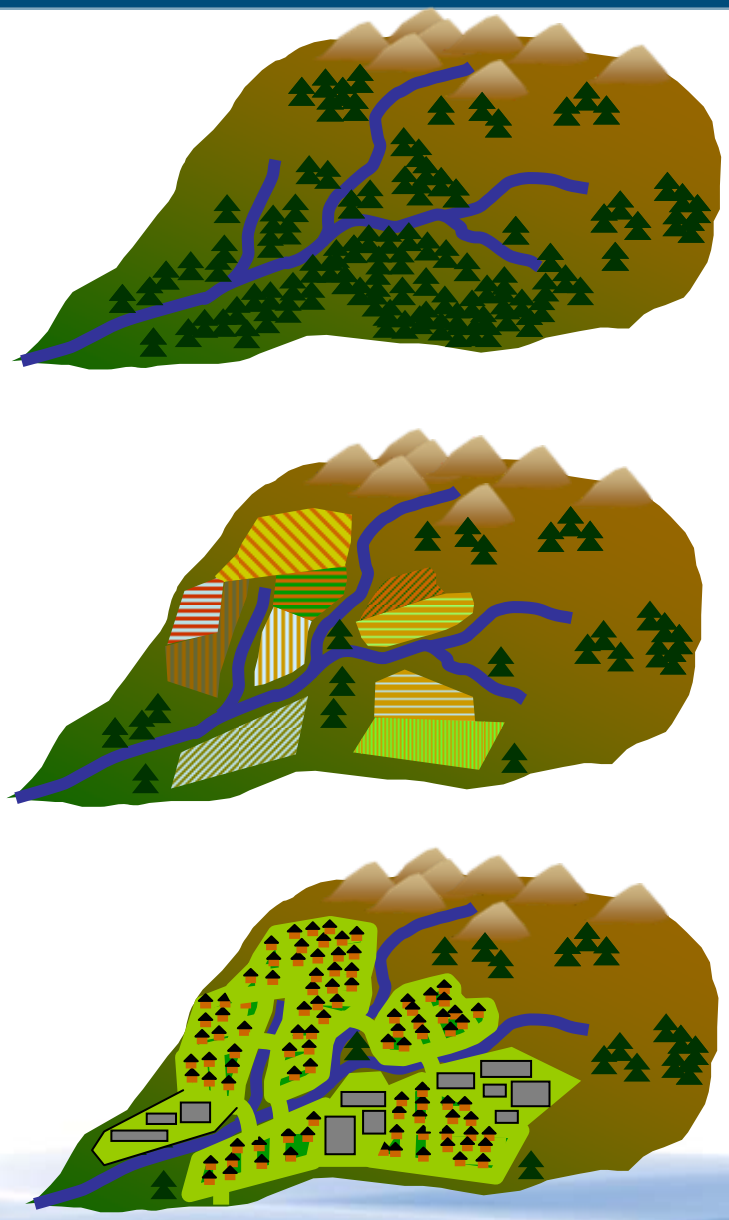
- Hydrologic impacts
- New pollutant sources

The Influence of Human Activities

Development

- Increased imperviousness
- Increased runoff
- Decreased infiltration
- Water quality degradation
- Channel instability
- Increased biological stress

Typical Trend



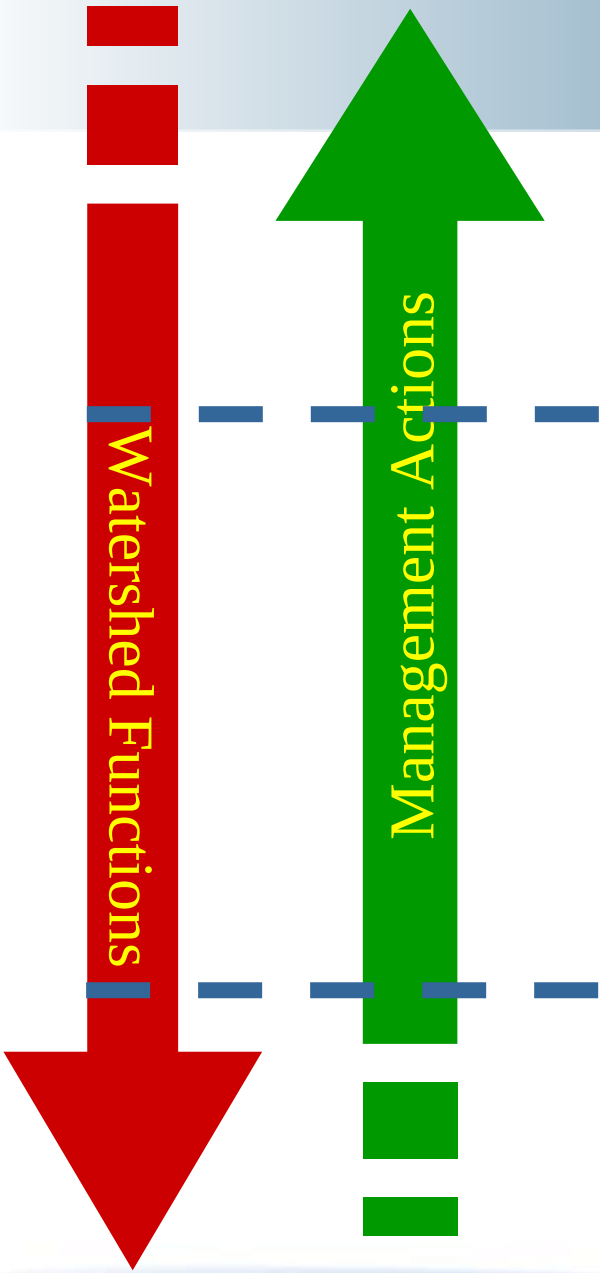
Increased Development

What's the Goal?

Management Actions

- BMPs
- Changing Behaviors

A Sliding Scale Based on Variable Conditions



Target

- Could be dependent on waterbody condition
- Could vary for each watershed

Existing Condition

- Will vary for each watershed

Protecting Key Watershed Processes

What information is needed to determine the best local and regional strategies for stormwater management?

Protecting Key Watershed Processes

The Joint Effort will incorporate watershed objectives in the development of hydromodification control criteria for new and redevelopment. Phase 1 is the first step in this process.

The Joint Effort: Phase 1

- Characterize watersheds
- Refine the methodology for the development of hydromodification control criteria

Phase 1: Watershed Characterization

- Rainfall
- Infiltration
- Evapotranspiration
- Surface runoff
- Sediment delivery
- Sediment transport

Phase 1: Establishing the “Building Blocks”

Phase 1 Summary

Characterize Landscape (Watersheds and Receiving Waters)

PRODUCTS:
- Maps
- GIS layers

Stratify the Landscape

PRODUCTS:
- Final classified landscape maps
- Associated GIS layers

Analyze Conditions and Processes

PRODUCTS:
- Report of findings

Refine Methodology to Develop Hydromod Control Criteria

PRODUCTS:
- Guidance document describing steps necessary to develop hydromodification control criteria

KEY: GIS | FIELD | ANALYSIS

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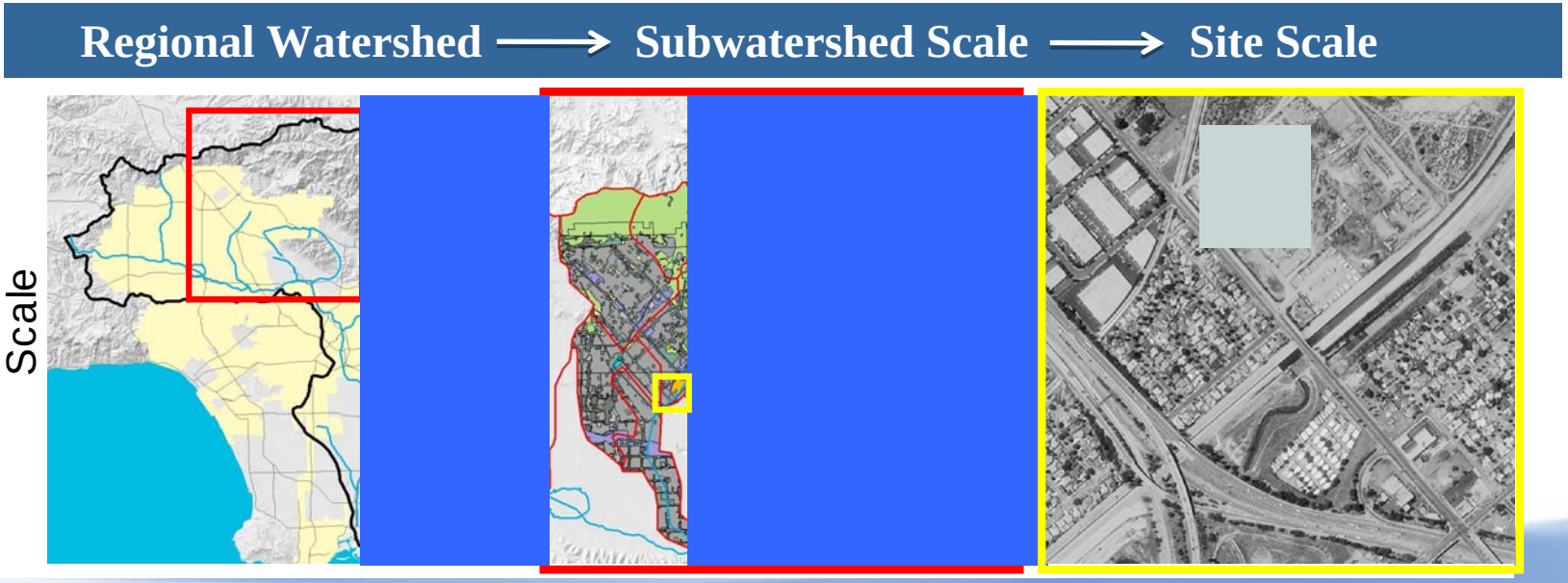
Phase 2 Considerations

- Quantitative measures
  - Criteria for BMP sizing
  - indicators for waterbody/watershed health
- Qualitative measures
  - Stakeholder acceptance
  - Public acceptance
  - Regulatory acceptance

The Challenge of Scale



Phase 2: Continued Methodology Implementation

Close Phase I Data Gaps

Create Linkage Between Watershed and Waterbodies

Establish Criteria for Key Watershed/ Subwatershed Processes

Establish Criteria for Site-Scale BMPs

PRODUCTS:

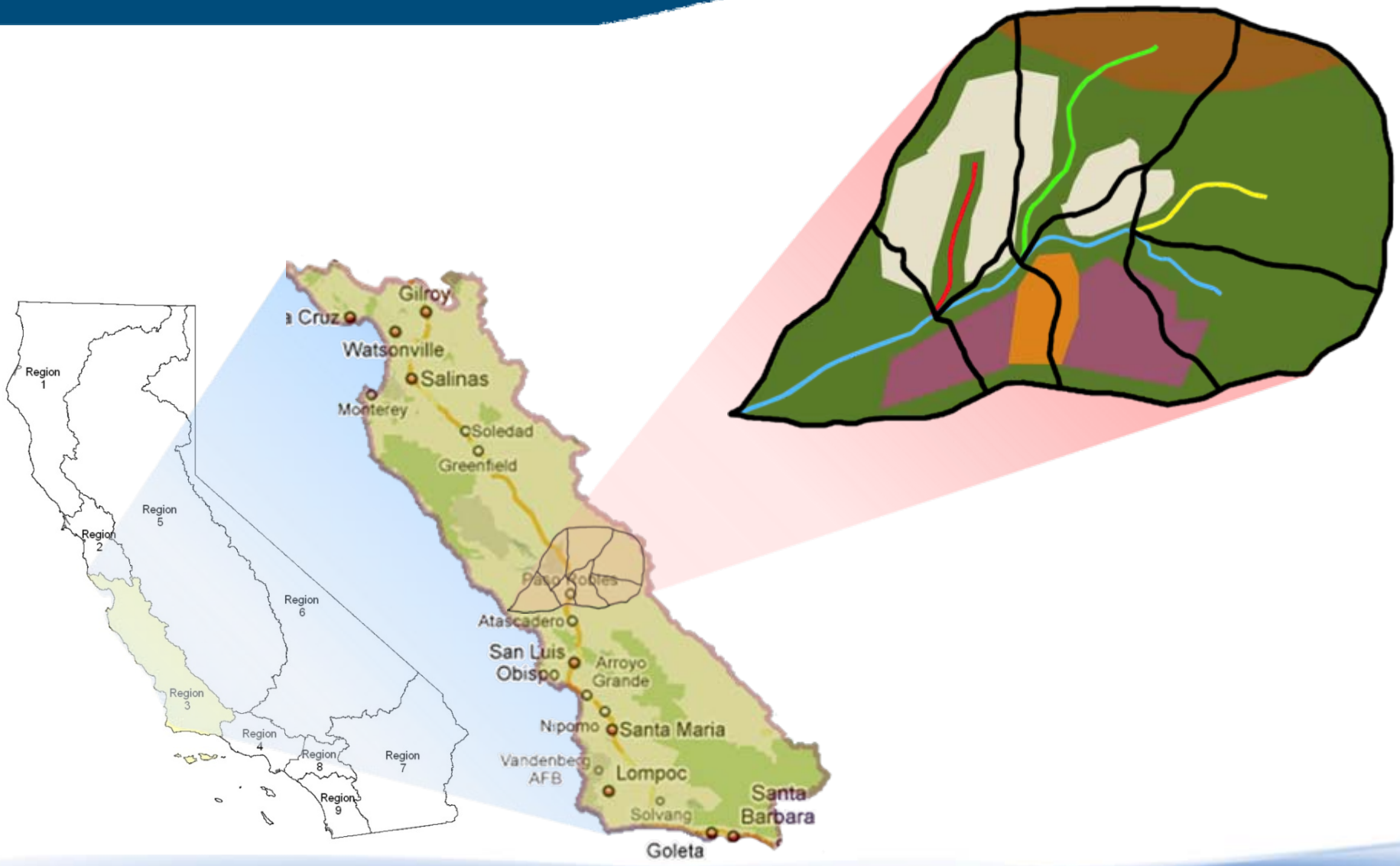
- Site-scale tools/criteria for stormwater control
- Implementation tools for users
- Recommendations for watershed context (e.g., stormwater trading)

KEY: **GIS** **FIELD** **ANALYSIS**

Phase 1 Communication and Outreach

- Scope of Work development
  - Meetings with municipalities to obtain feedback to assist in developing and refining scope
- Scope implementation
  - Technical characterization coordination
  - Milestone progress reporting, scope adaptations, etc.
  - Water Board chaired Technical Advisory Committee with multiple stakeholder representation

Discussion


Region 1
Region 2
Region 3
Region 4
Region 5
Region 6
Region 7
Region 8
Region 9
Gilroy
Watsonville
Salinas
Monterey
Soledad
Greenfield
Atascadero
San Luis Obispo
Arroyo Grande
Nipomo
Santa Maria
Vandenberg AFB
Lompoc
Solvang
Santa Barbara
Goleta