

Managing Hydromodification: The Next Generation



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“Traditional” Perspective

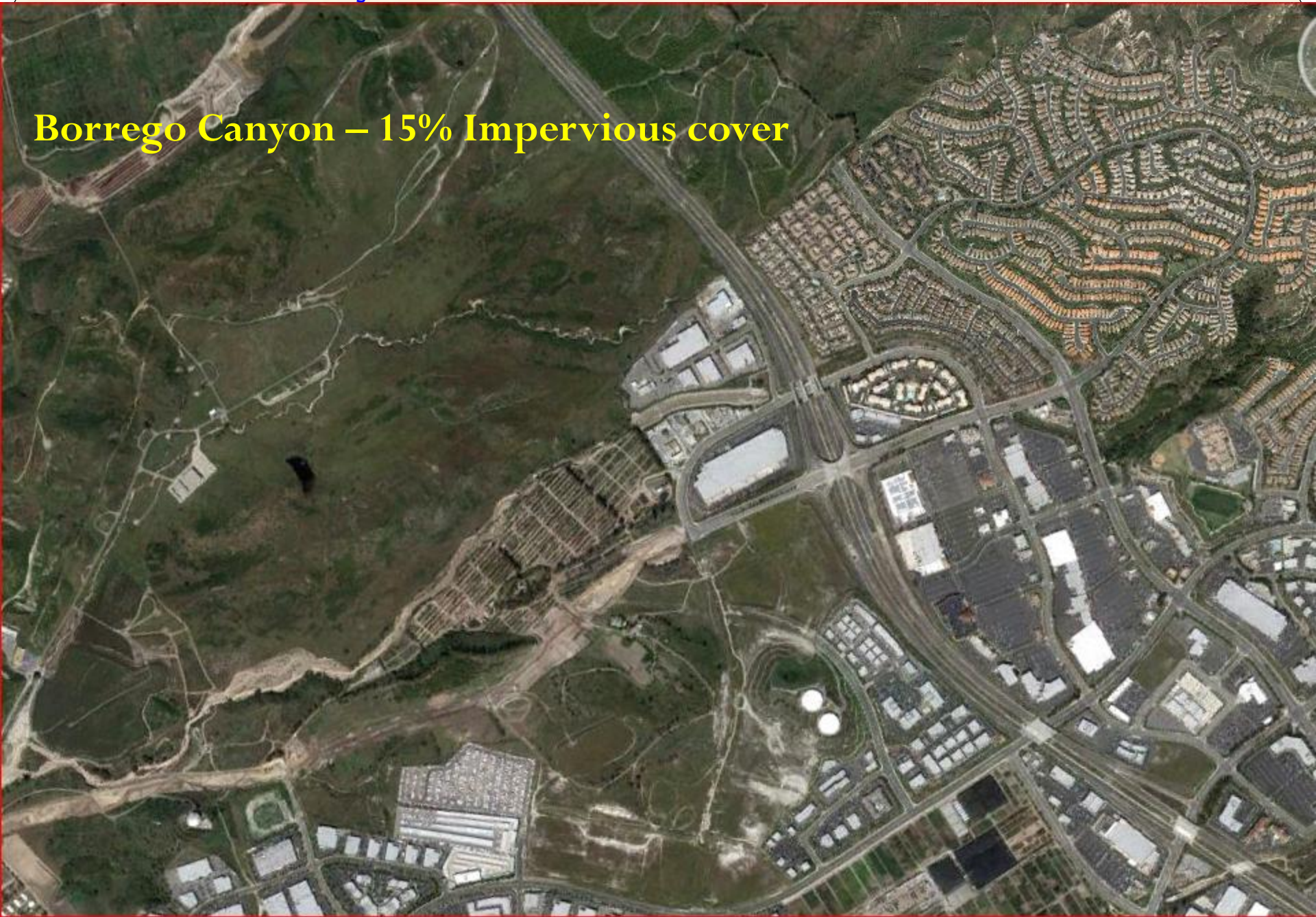


“Traditional” Management Approaches

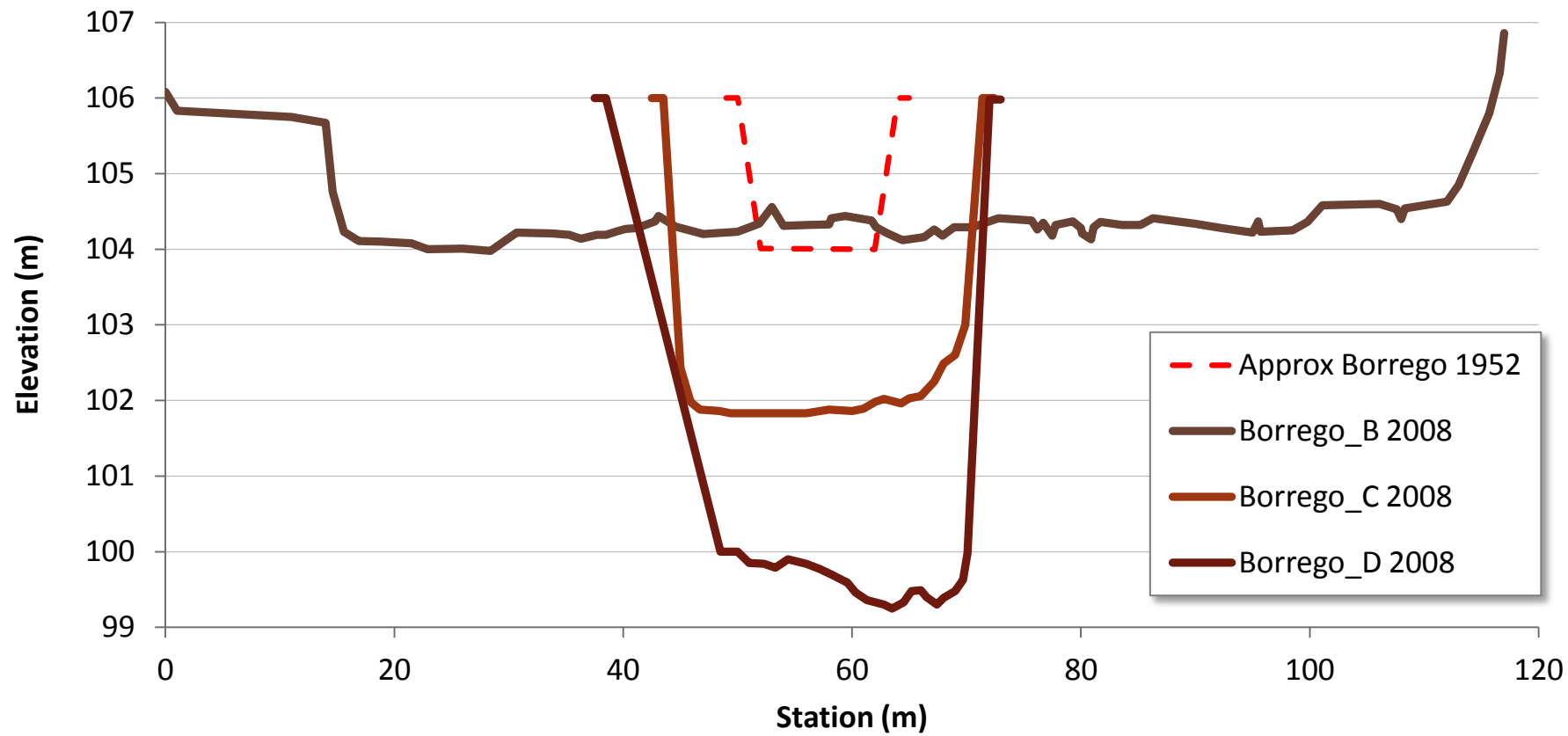
- Management triggers based on impervious cover
- Focus on LID and flow-duration control (e.g. 10% Q2)
- Exemptions where hydromodification requirements don't apply



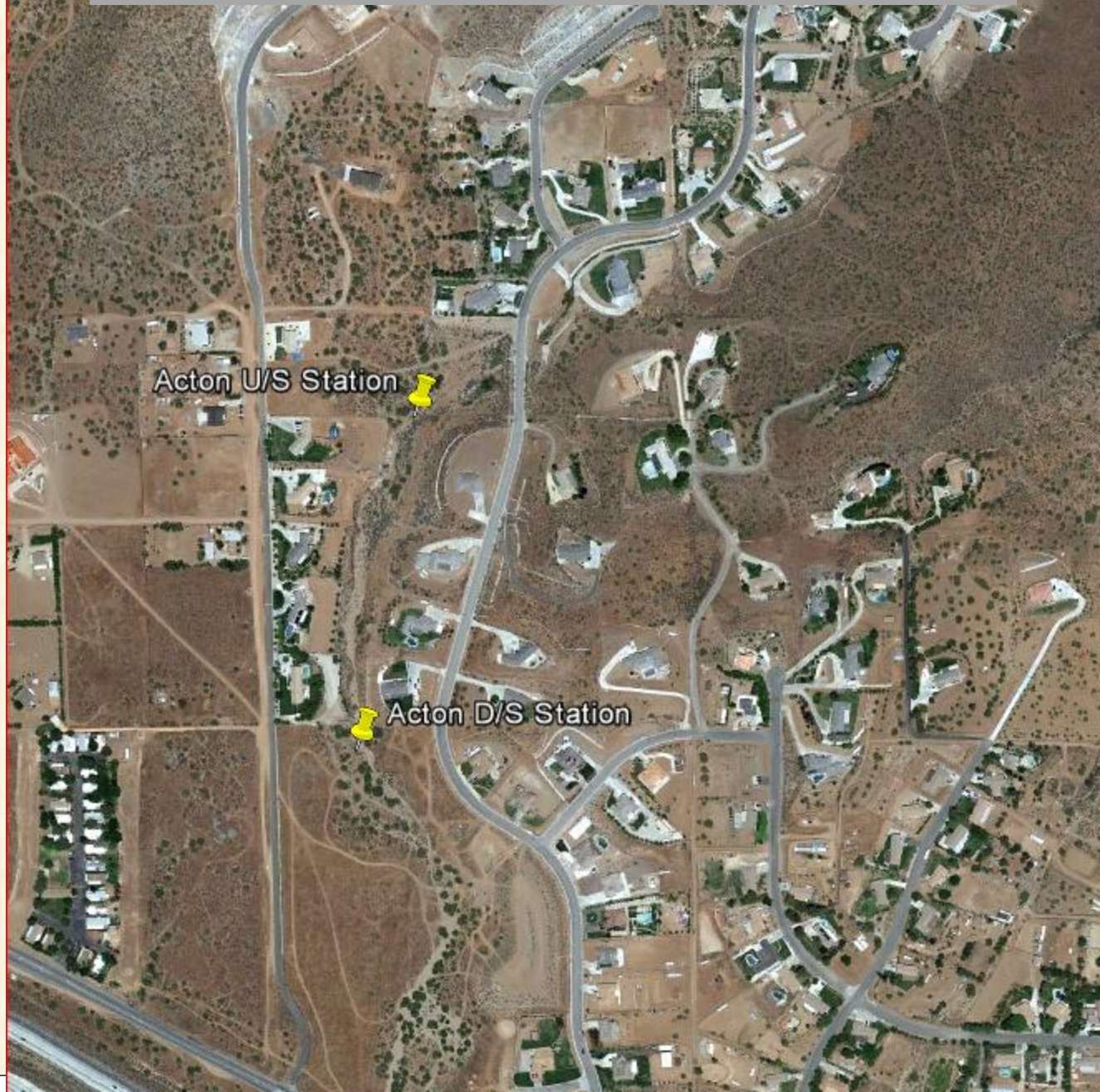
Borrego Canyon – 15% Impervious cover



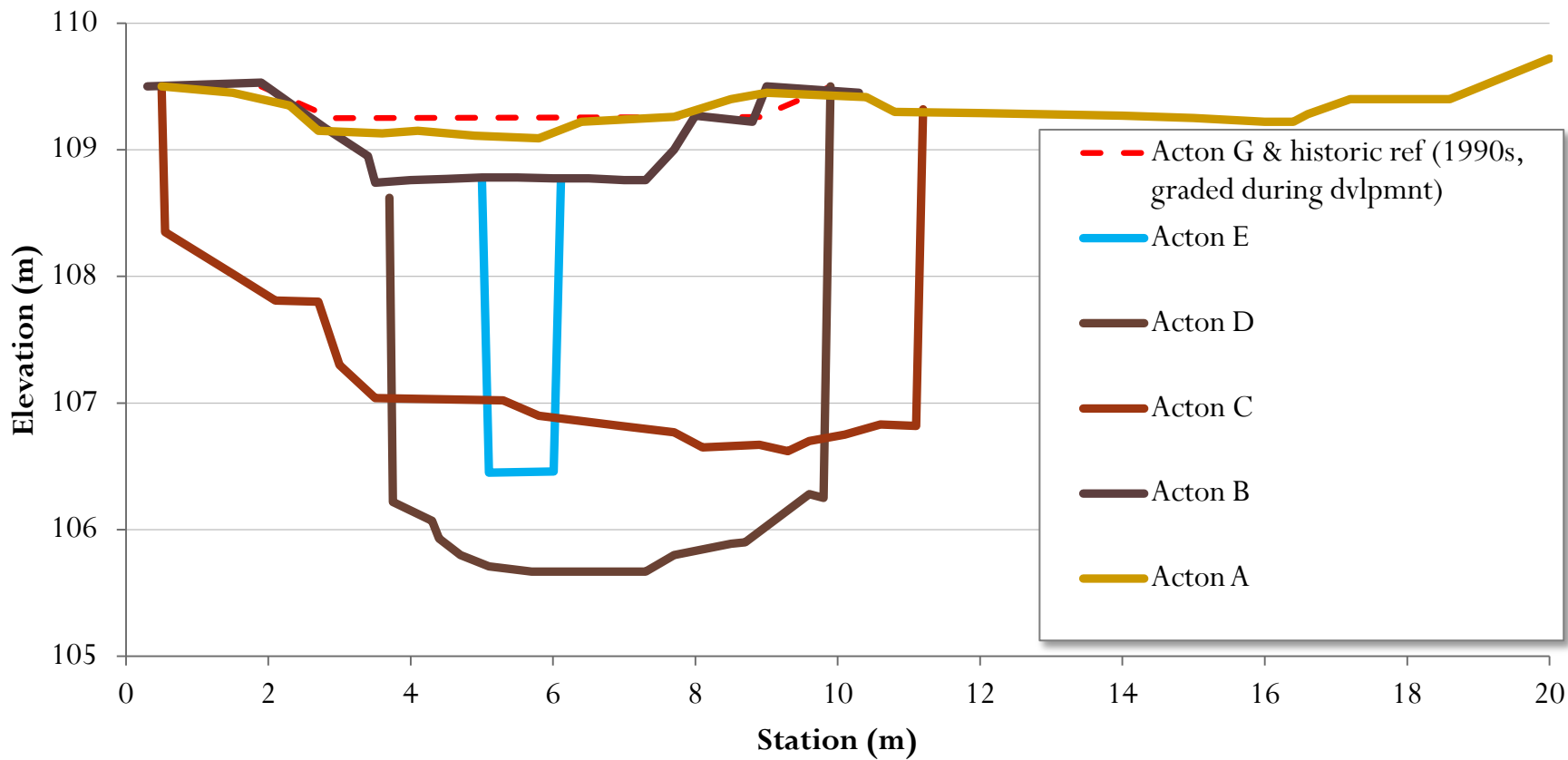




Acton Canyon – 2-3% Impervious cover







Is this the best approach?

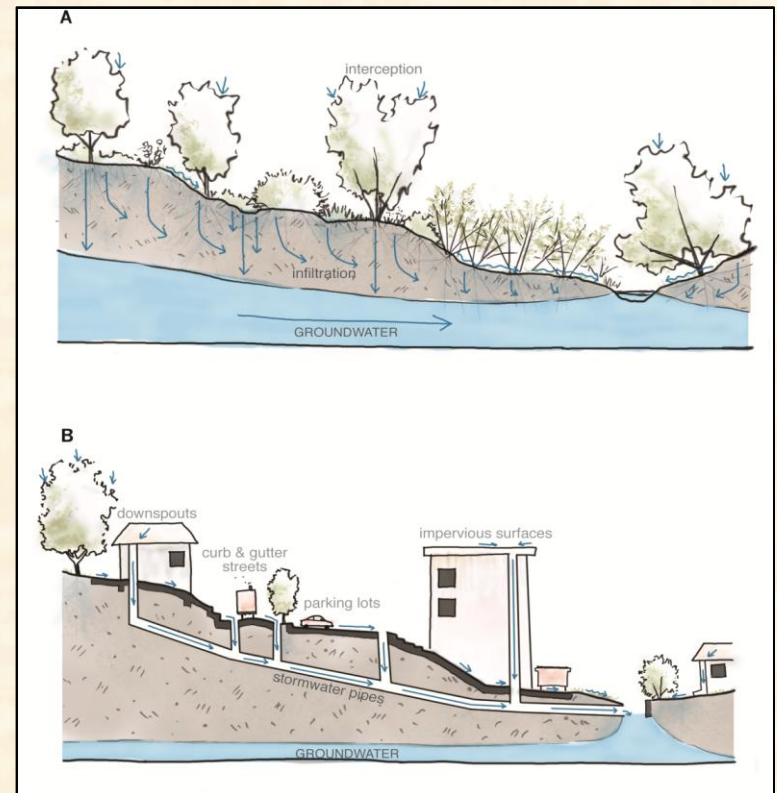
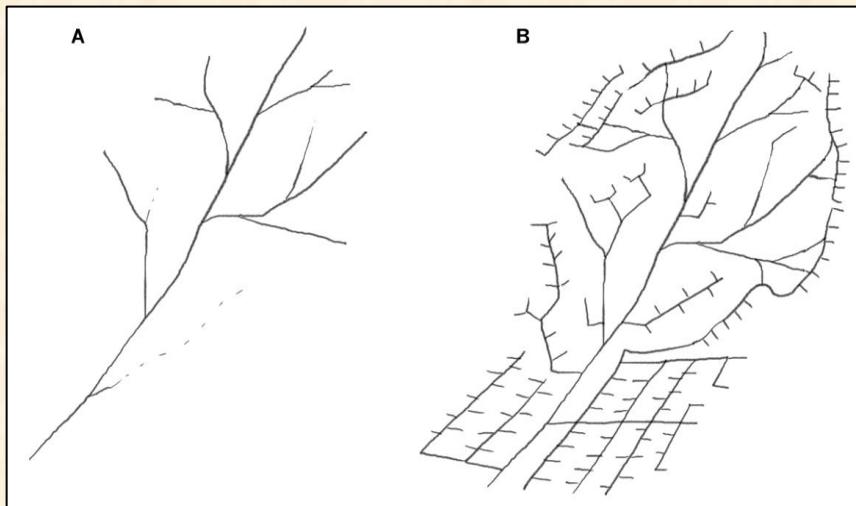


“Evolved” Perspective

- *Hydromodification = Alteration of watershed structure and processes*

~~“Do I need to apply hydromodification management”~~

How and Where should I apply hydromodification management



What Does this All Mean?

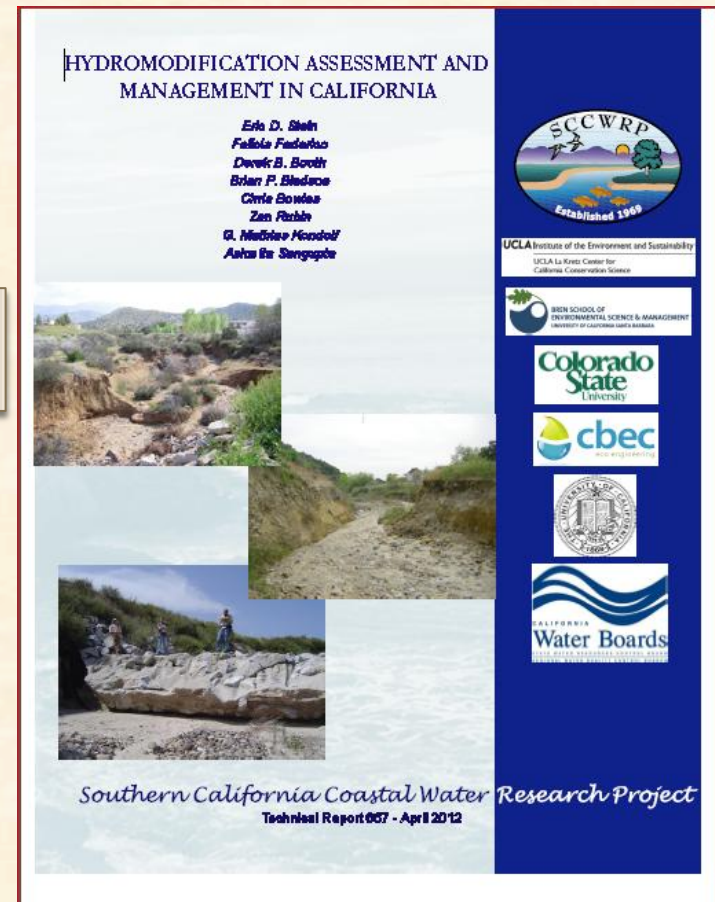
- It's not just about streams, its about protecting the watershed
- Relying solely on site-based flow control will not be effective at addressing all hydromodification effects
- Hydromodification management should evolve from narrowly-scoped, project-based actions to solutions within an integrated watershed strategy
- Hydromodification control measures cannot be driven solely by new development and redevelopment
 - Legacy effects must be remedied
- Success should be evaluated through systematic monitoring using physical and biological endpoints
 - Monitoring results should feed back to affect future management decisions

Framework for Hydromodification Management

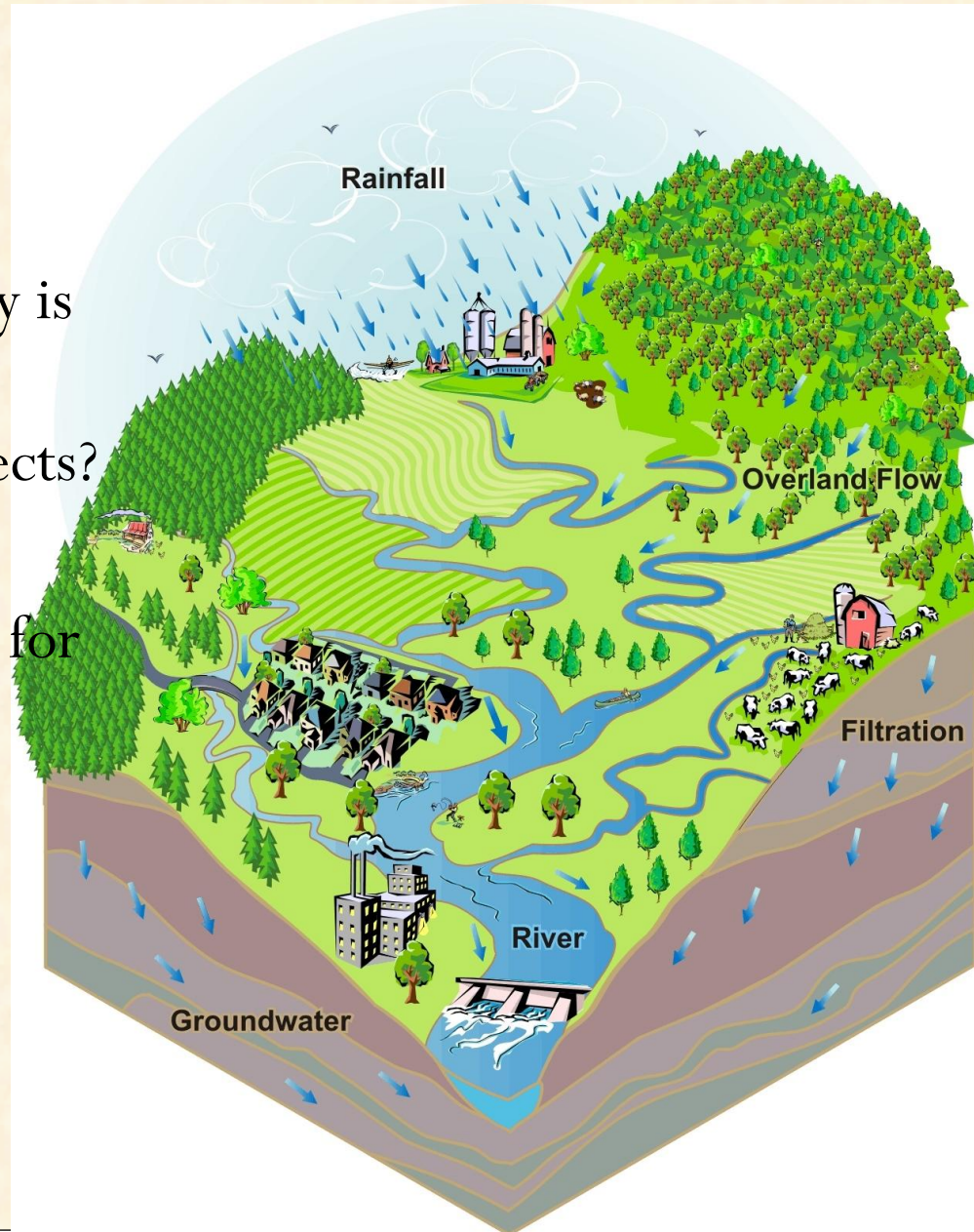
Technical guidance on *assessment* of hydromodification impacts, development of strategies and approaches to *management* of hydromodification effects, and *monitoring* the effect of management actions.

SCCWRP Technical Report #667

<http://www.sccwrp.org/Documents/TechnicalReports.aspx>



- Where in the watershed is the project?
- What type of stream/water body is the project discharging into?
 - What are the anticipated effects?
- What are the management goals for the receiving waterbody?
- What are the upstream and downstream opportunities?
 - Available land/resources
 - Greatest potential effect

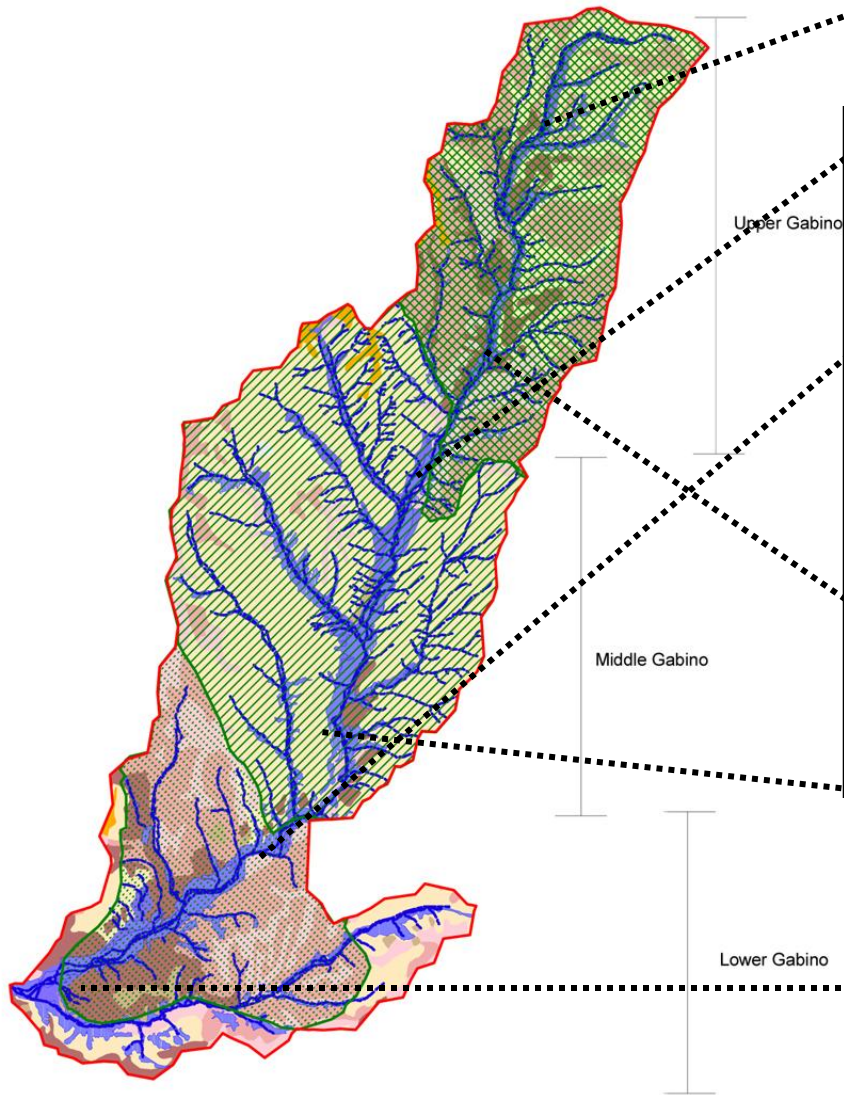


Multi pronged strategy

- Planning
 - Avoid course sediment yield areas
 - Upland restoration
 - Protect infiltration areas
- Site-based mitigation
 - LID
 - On-site basins
 - Regional basin (flow + sediment)
- Floodplain management
 - Buffers and setbacks
 - In-channel rehabilitation
 - Regional restoration

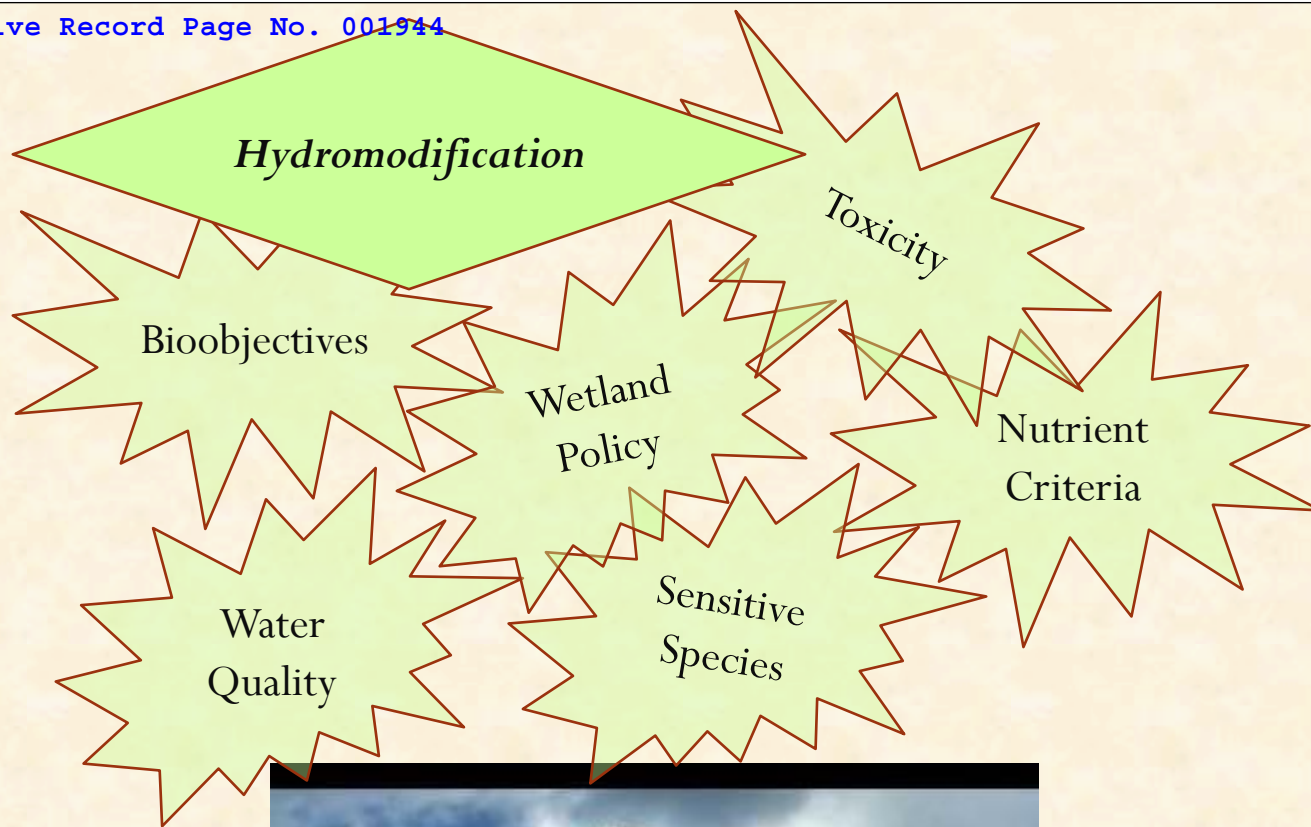


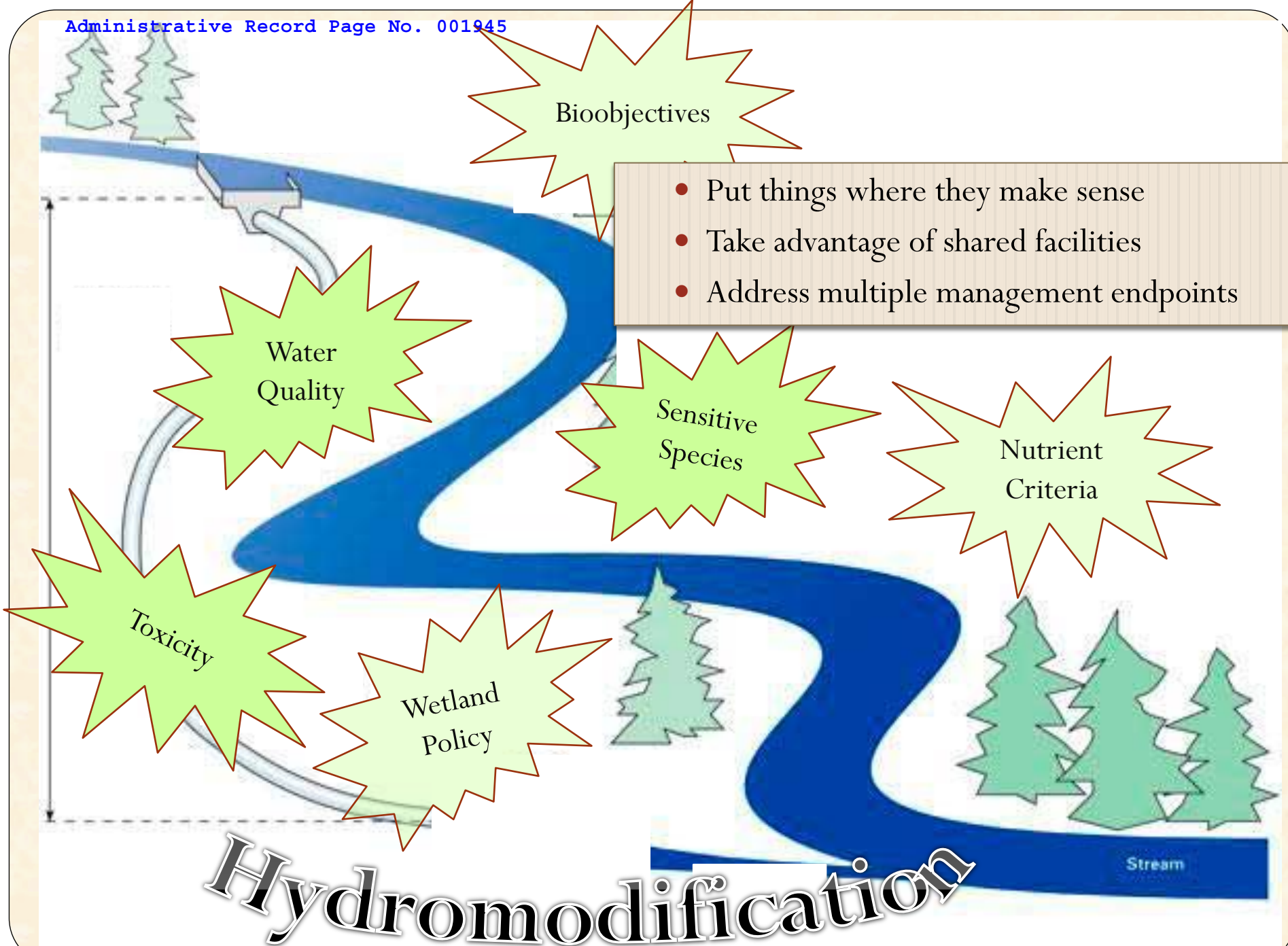
Watershed-based Mitigation



Retain Areas for Infiltration

Floodplain Restoration & Protection





Need for Monitoring

Severe lack of data on hydromodification responses

- **Performance**
 - How do specific BMPs or facilities function relative to their designs?
- **Effectiveness**
 - How well do specific management actions or suites of actions protect the condition or beneficial use of receiving waters?
- **Characterization**
 - What is the condition of target areas relative to specific benchmarks (e.g. standards, reference condition, ambient)?
- **Trends**
 - Are conditions improving or declining over time?

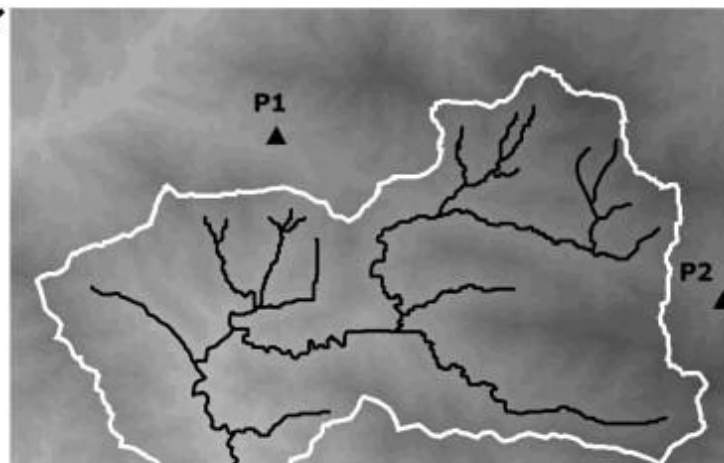
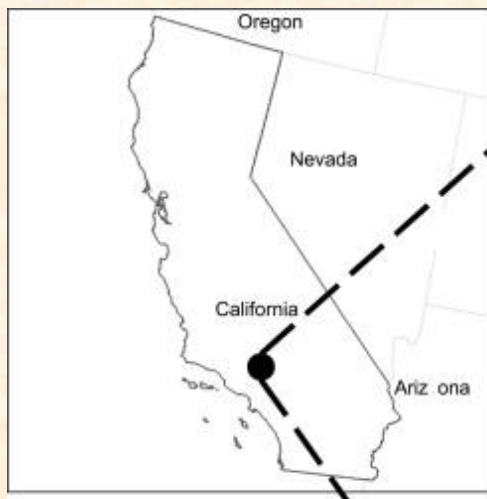
Monitoring should be question driven & adaptive with clear feedback to management action.

Monitoring with Multiple Assessment Endpoints

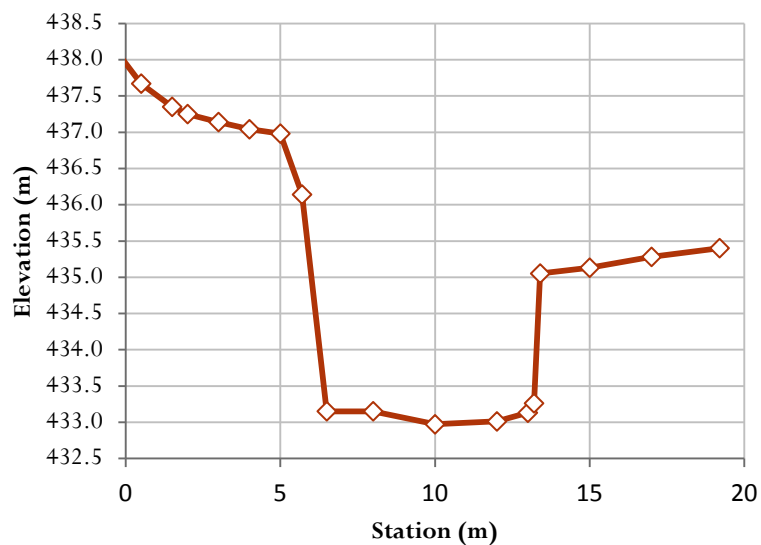
- Pressure
 - What is affecting the condition?
- State
 - What is the condition?
- Response
 - What is the status of a management or valued endpoint?



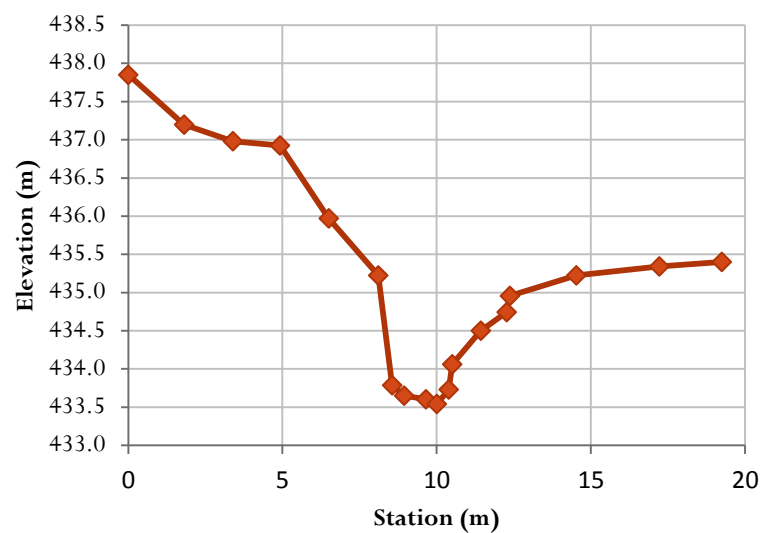
Establish Sentinel Sites



Hasley1_A (2011)



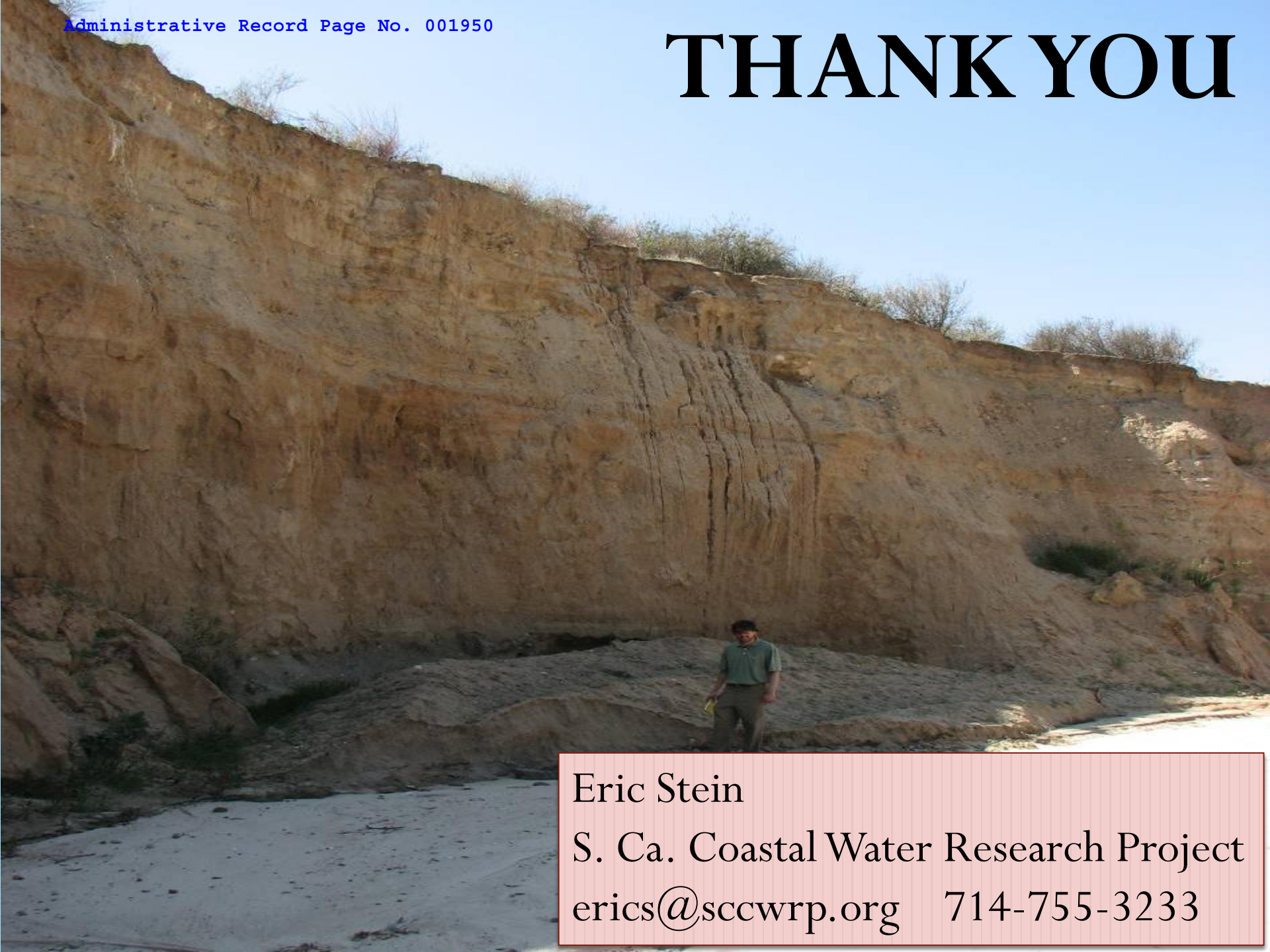
Hasley1_A (2007)



Summary of the Next Generation

- Uses watershed analysis as the foundation for all management actions
- Establishes management endpoints for stream reaches and upland areas based on watershed scale analysis
- Site-based control measures determined in the context of the watershed analysis / management endpoints
- Includes off-site compensatory mitigation measures
- Integrates hydromodification management across multiple programs
- Multi-faceted monitoring program that evaluates and informs adaptive hydromodification management

THANK YOU



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