The Vision for Bioassessment in the Region 9 Water Quality Programs

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“The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters”

"We used to implement the Clean Water Act as if crystal clear distilled water running down concrete conduit were the goal of the Act"

San Diego Region Biomonitoring

- 1991-1993 - Santa Margarita River Assessment
- 1995 - Camp Pendleton
- 1996-1998 - San Diego River Assessment
- 1998-present - San Diego Stream Team surveys
- 1998-2001 - Regional Board Ambient Bioassessment Monitoring Project
- 2002-present - SWAMP
- 2003 - Repeatability Study
- 2004-2006 - Cedar Fire Impact Assessment
- 2008 - Harris/Witch/Pomacha Fire Impact Assessments & Reference Site Characterization

Bioassessment Publications

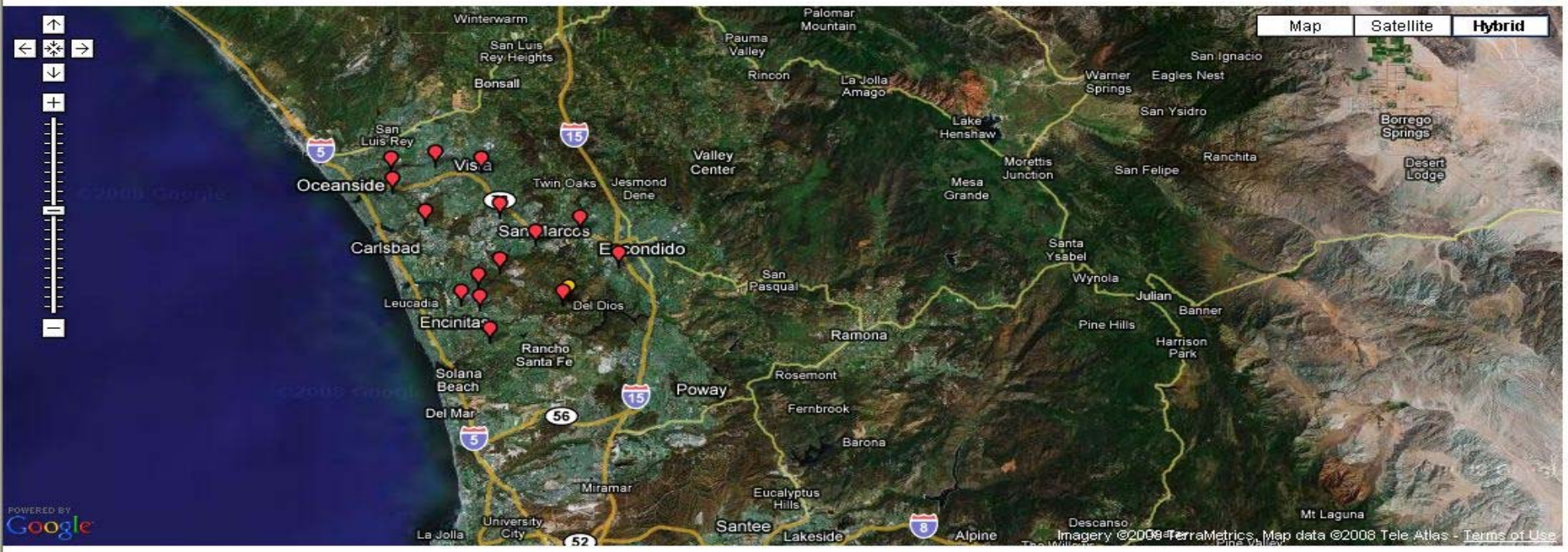
- Ode, Rehn, and May (2005) – SoCal IBI
- Thesis work
  - Zickovich (2007) Correlations between genetic diversity and water quality
  - Voss and Pohlman (2008) Biological Integrity in San Diego Region
  - Schurman (in preparation) Post Cedar Fire Biological Assessment
- San Diego Stream Team
- Ecolayers WaterWiki

San Diego Stream Team

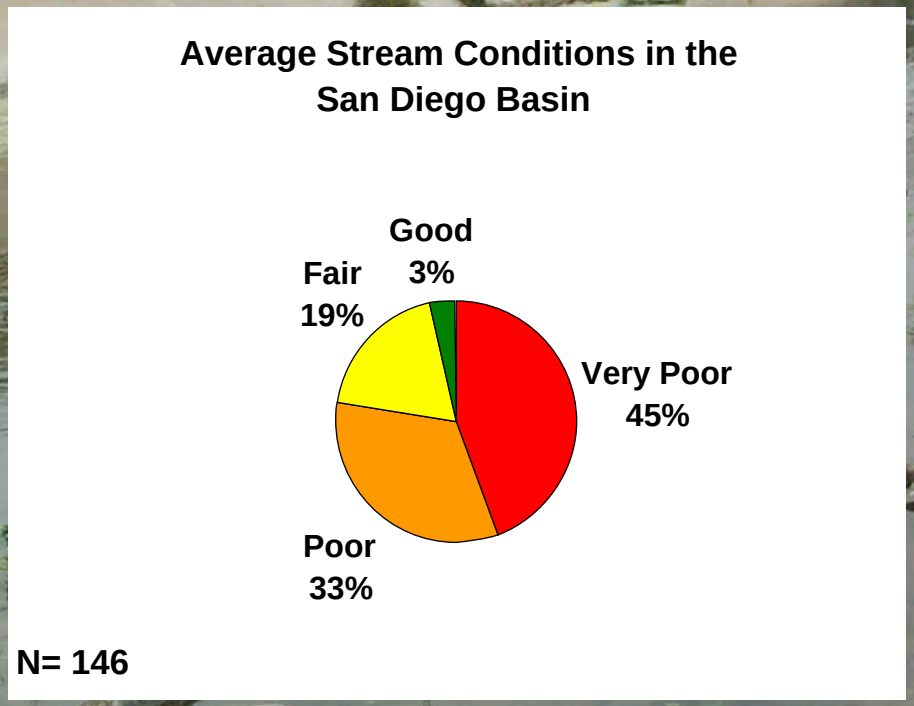
Monitoring the Health of San Diego County Rivers and Streams

Graph | Very Poor | Poor | Average | Good | Very Good | No Data

Watershed: Carlsbad Coastal Region



and it isn't good news…



- Sources: Ode et al 2005, Voss & Pohlman (2008 in press), Busse et al 2008 (in preparation)

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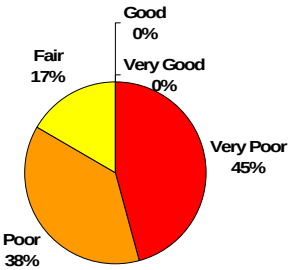
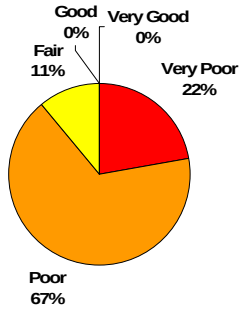
Average Water Condition of the San Juan Watershed

N=24



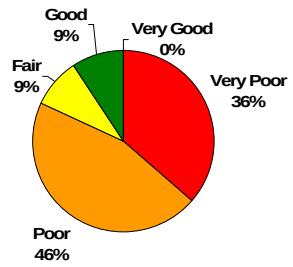
Average Condition of the San Dieguito Watershed

N= 9



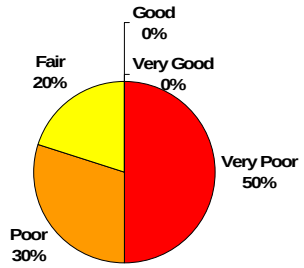
Average Condition of the San Diego Watershed

N= 11



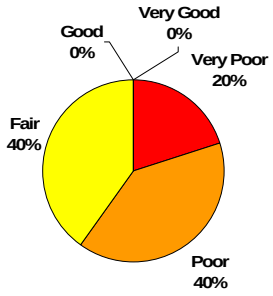
Average Condition of the Sweetwater Watershed

N= 10



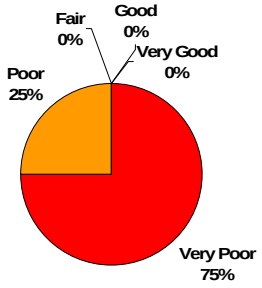
Average Condition of the Santa Margarita Watershed

N=15



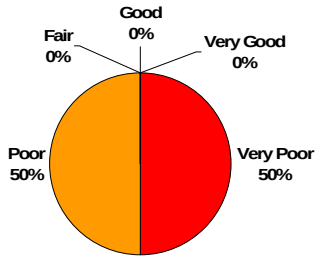
Average Condition of the Pueblo San Diego Watershed

N= 4



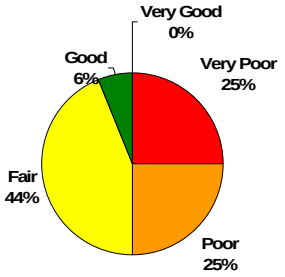
Average Condition of the Otay Watershed

N= 2



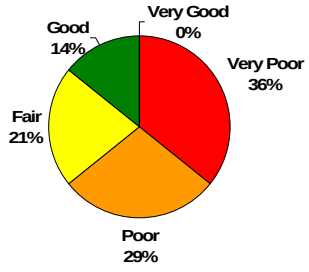
Average Condition of the Tijuana Watershed

N= 18



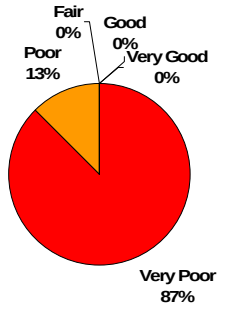
Average Condition of the San Luis Rey Watershed

N=14



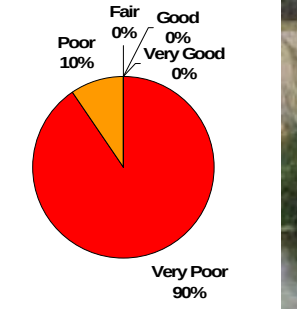
Average Condition of the Penasquitos Watershed

N= 9



Average Condition of the Carlsbad Watershed

N= 21



Urban Stream Syndrome

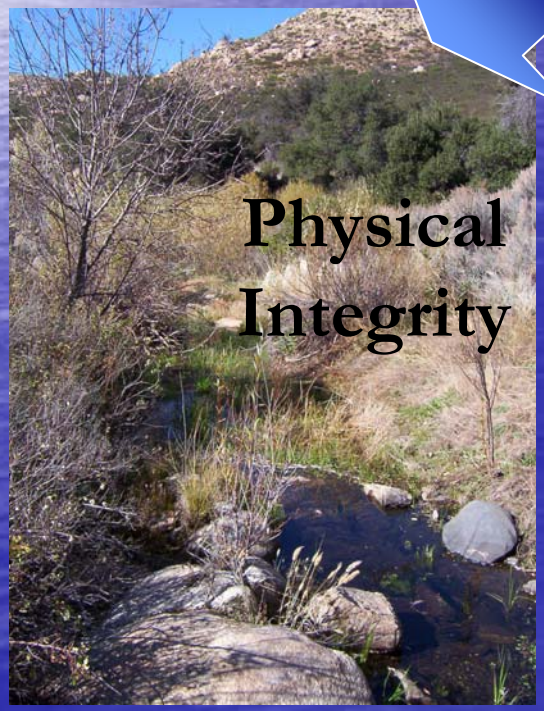
- Most stream segments rated “Poor” or “Very Poor”
- Urbanization and hydromodification are the principal impacts
- Storm water programs have been costly & largely ineffective
- Profound need for the next steps
  - stressor identification,
  - LID/Hydromodification Plan implementation,
  - Restoration/rehabilitation of receiving waters
  - “real things” - BMP implementation and evaluation

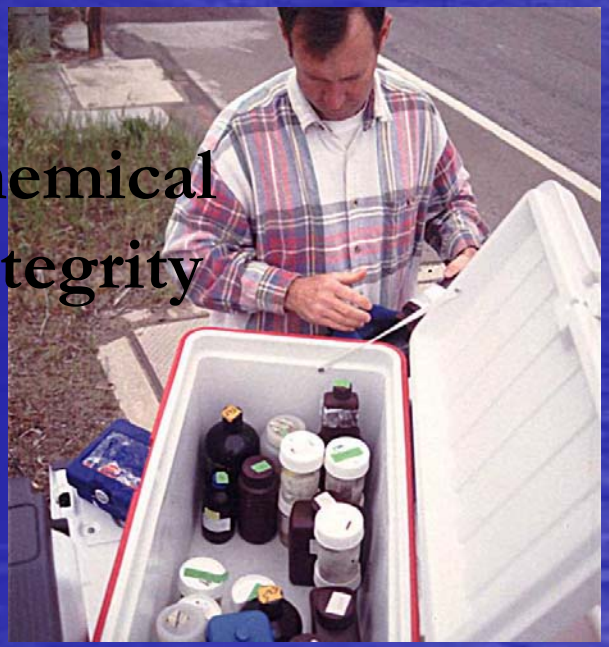
Vision for Regulatory Use of Bioassessment Data

Triad Approach

Plans
Standards
Permits
TMDLs
Enforcement

Biological Criteria
Analytical Tools
Data Management
Publication





NPDES Permits

- 2000-present San Diego Co. MS4
- 2002-present Orange Co. MS4
- 2004-present Riverside Co. MS4
- 2003-present Padre Dam POTW

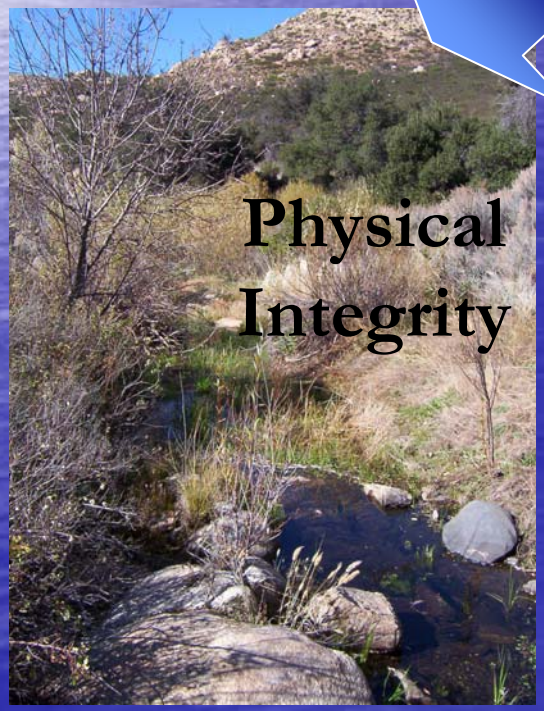
- 1997-2003 Rancho California POTW
  - Bioassessment is a core requirement
  - Periphyton added starting in 2007
  - Emphasize stressor identification and abatement in permit compliance

Storm Water Triad

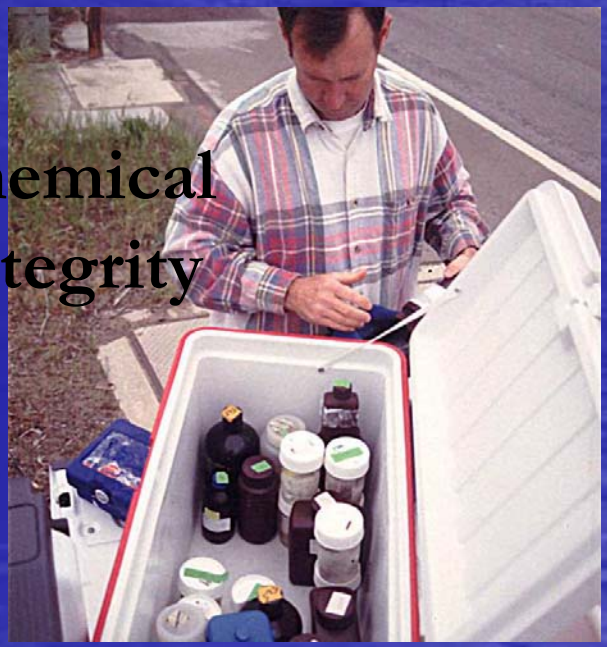
SWMPs,
TRT, LID,
& Hydromod.
BMPS

Receiving Waters
Monitoring
Program Effectiveness
And BMP Evaluation
IC/ID

Permit



Enforcement &
TMDL
Implementation



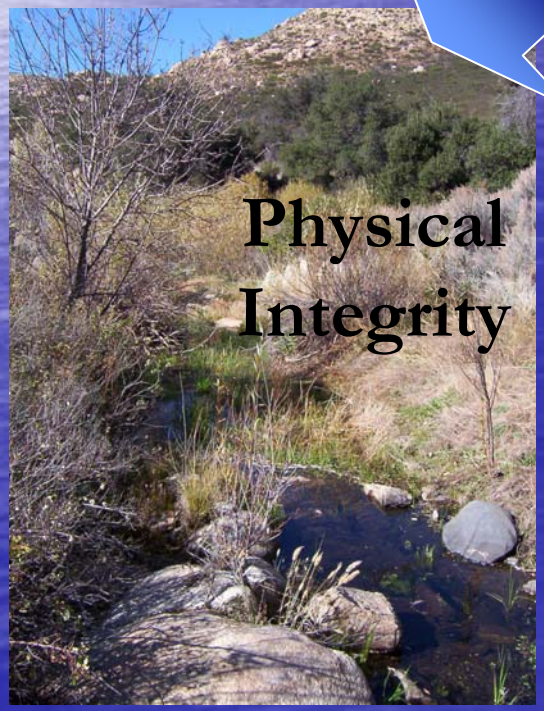
401 Water Quality Certifications

- 1998 - Poggi Creek
- 2003 - Escondido Creek
- 2004 - Aqua Hedionda Creek projects
- 2004 - Forester Creek
- 2005 - San Marcos Highlands
- 2006 - San Luis Rey Arundo Control
- 2007 - Rancho Mission Viejo

401 Certification Triad

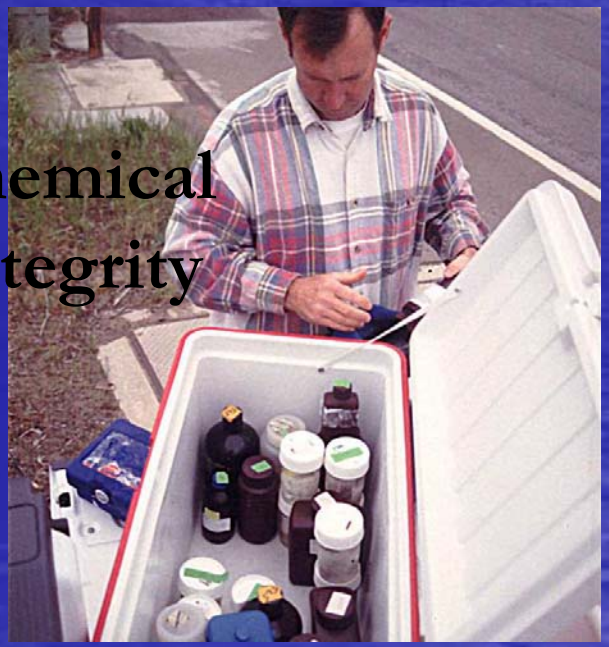
Minimization, Mitigation, & LID/Hydromod BMPS

Bioassessment Monitoring & Mitigation Performance Standards



Certification

SWMPs, Treatment BMPs



Assessment, Impairment, & TMDLs

- Foundation for Region 9 SWAMP Strategy
  - SMC Stream Assessment Study Design
- 305(b) Report
- 2008 303(d) List of Impaired Water Bodies
- 2004 Rainbow Creek Nutrients TMDL
- Pending Coastal Watersheds TMDLs
  - 7 Lagoons and Tributaries
  - Santa Margarita River
  - San Diego River

Enforcement

- Incorporating into CWC §13267 and §13225 Technical Report Directives
- Supporting data for enforcement actions
- Ongoing test cases
  - Bulldog Concrete
  - Peckman Pond
- Evaluate success/compliance of Orders

Grant & Clean Up Funded Projects

- Citizen Monitoring (2 projects)
- Restoration Projects (11 projects)
- Pollutant Load Assessment (1 Project)
- BMP implementation (3 projects)

- 2 current biological monitoring method development projects with SCCWRP for periphyton and non-perennial streams.

- Tijuana River Clean Up Project

New Storm Water – TMDL Strategy

- Watershed Urban Runoff Management Plans
- Expanded Watershed Monitoring
- Close linkage with SWAMP
- Heavy emphasis on biological integrity as a compliance point
- WURMP Integration with TMDL development
- 3, 5, and 10 year planning horizons
- Implementation Plan Ready TMDLs

Responding to Arcadia II

Significant revisions to Basin Plan Water chemistry objectives should only be considered in the context of Biological and Physical integrity.

Goals

- Non Perennial Stream IBI
- Periphyton IBI
- Post Fire Assessment
- TMDLs with B-IBIs & P-IBIs
- Adopt Biological Criteria
- Support TALUs

Conceptual San Diego Region Biological Criterion

Waters of the State shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

Without detrimental changes in the resident biological community

means no loss of ecological integrity when compared to natural conditions at an appropriate reference site or region.

Ecological integrity *means the summation of chemical, physical, and biological integrity capable of supporting and maintaining a balanced, integrated adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat in the region.*

Acknowledgements

End