

A photograph of a person wearing a hat and a light-colored shirt, wading in a shallow stream. The water is calm, reflecting the surrounding environment. In the background, there are steep, forested mountains under a clear sky. The scene is peaceful and natural.

Using the Southern California IBI (Index of Biological Integrity) to Inform Clean Water Act Impairments

Alison Lipman, Ph.D.
Stream Team Manager
Heal the Bay, Santa Monica
28 October 2009

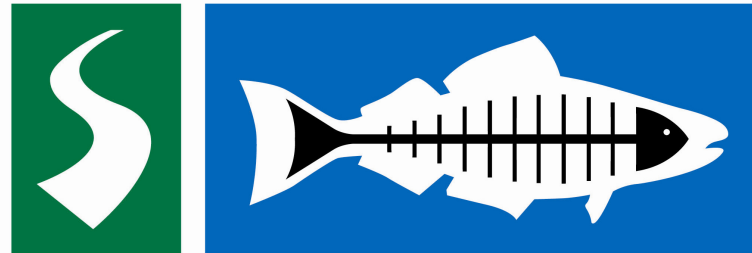


Outline

- Heal the Bay's Stream Team
- Citizen Monitoring
- Stream Team "Wins"
- Bioassessment Program
- Bioassessment Informs Legislation

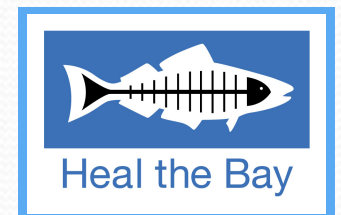


STREAM TEAM

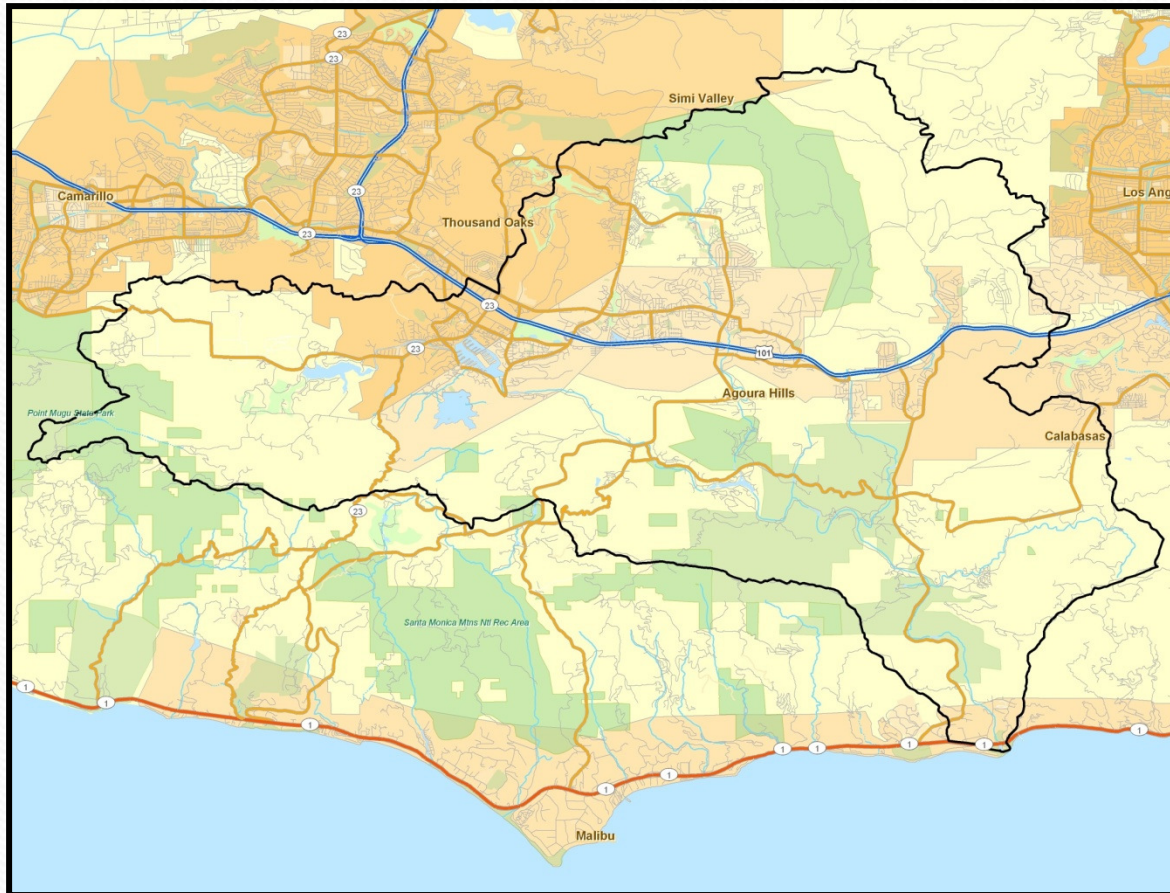


Heal the Bay's Stream Team is a citizen based program that works in the Santa Monica Bay (focusing on the Malibu Creek) watershed. Its objectives are to determine and promote the environmental health of the watershed :

- collect high quality useable data.
- monitor stream and water quality conditions.
- restore stream and riparian habitats.
- inform local and state-wide legislation related to water and stream quality.

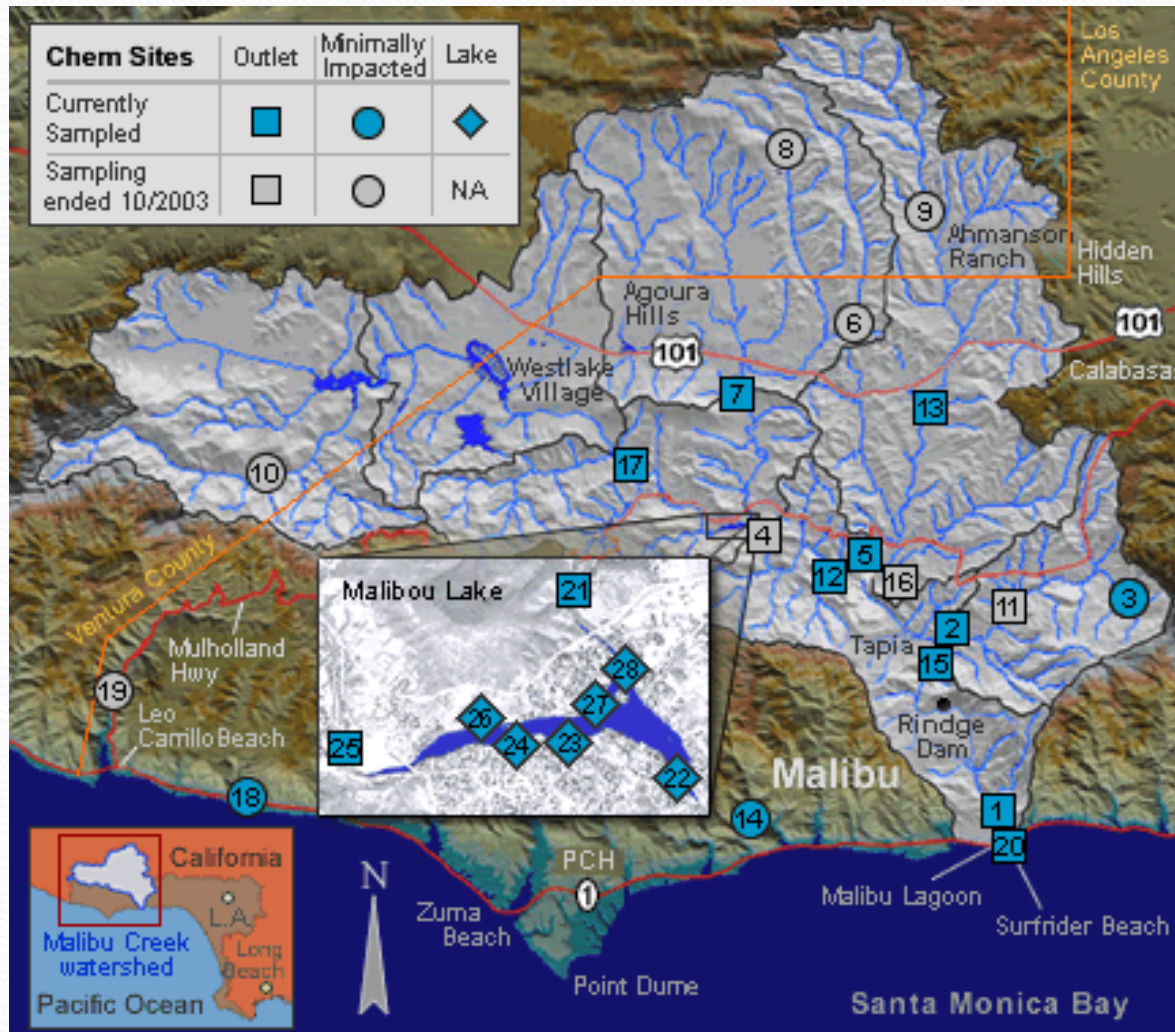


Malibu Creek Watershed



Malibu Creek Watershed

Monitoring Sites



Stream Team Programs

❖ Stream Walk

❖ Citizen Monitoring

1. Water Quality Testing
2. Stream Watch
3. **Bioassessment**

❖ Habitat Restoration

❖ Public comment/advisory committees



Stream Walk

(1999 – 2003)

Stream Team mapped:

- Discharge Points and Outfalls
- Unstable Bank Conditions
- Artificial Streambank Modifications
- Impacting Land Uses
- Large Patches of Invasive Vegetation
- Barriers to Fish Passage
- Illegal Dump Sites



Citizen Monitoring

Water Quality Testing

- **High Quality Data**
 - Bacteria (total coliform, *E. coli*, *Enterococcus*)
 - Nutrients ($\text{NO}_3 + \text{NO}_2\text{-N}$, $\text{NH}_3\text{-N}$, PO_4)
 - pH
 - Dissolved Oxygen
 - Turbidity
 - Conductivity
 - Air & water temperature
 - Algae
- **Inform the Public**
- **Regulation**



Citizen Monitoring

Water Quality Testing - Stream Team “Wins”

- Influenced provisions in The City of Malibu Local Coastal Program (LCP)
 - stronger plan with adequate setbacks
- Malibu bacteria TMDL
- Malibu trash TMDL
- Malibu nutrient TMDL



Bioassessment Sampling



2000-2006 (California Stream Bioassessment Protocol - CSBP)
2008-2009 (SWAMP, 2007 SOP)

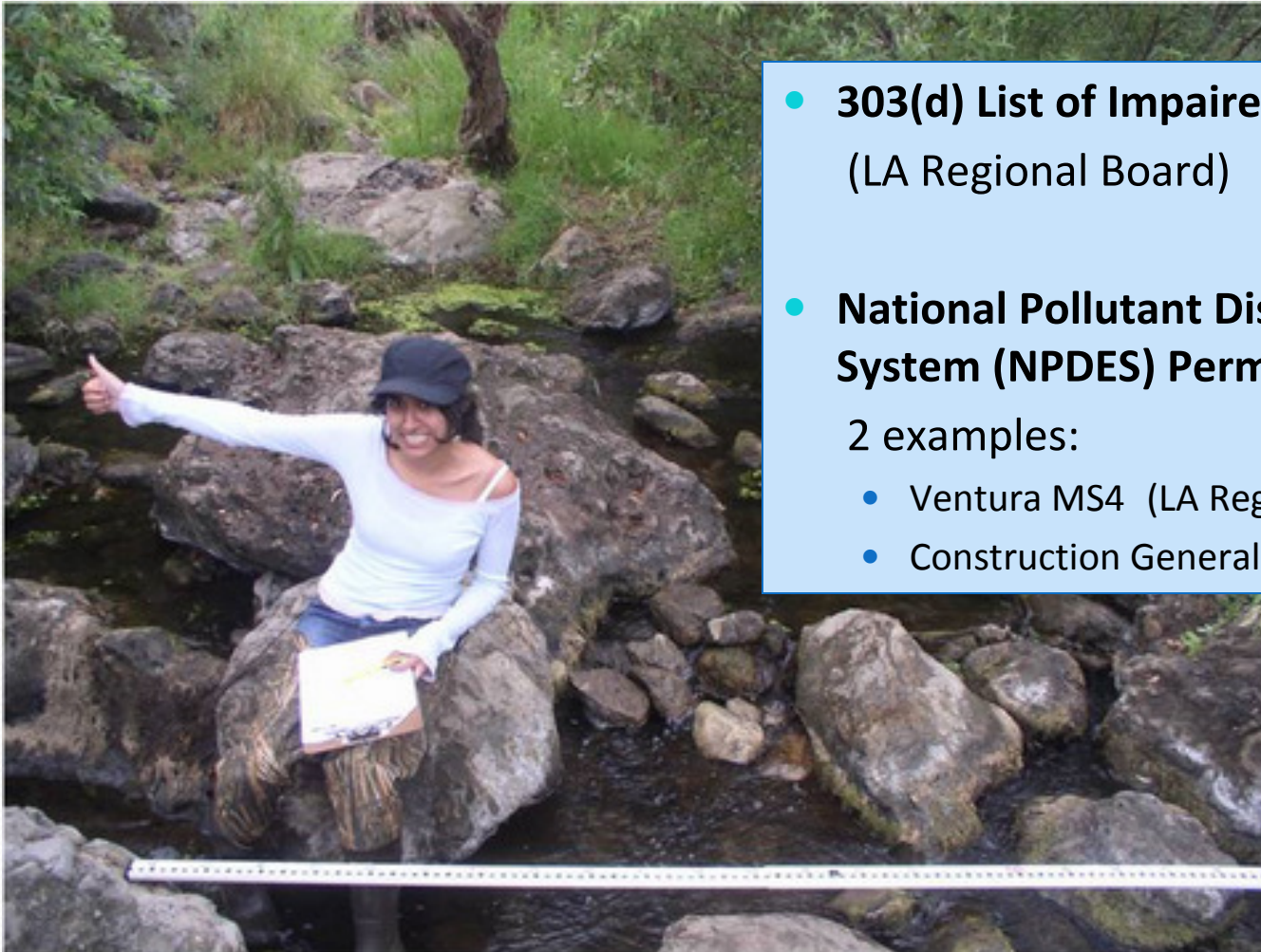
- **Benthic macroinvertebrate (BMI) data: IBI Score**
- **Physical habitat data**
 - High quality data, inform the public, legislation



Site	Spring 2000	Fall 2000	Spring 2001	Fall 2001	Spring 2002	Fall 2002	Spring 2003	Fall 2003	Winter 2005	Spring 2006	Fall 2006	Spring 2008	Winter 2008	Spring 2009
Arroyo Sequit														
AS19				70	72	66	72	70	64		57	49		
Cheeseboro Creek														
CH6			59	57	64		49		54		43			
Cold Creek														
CC11	54	46		54	49		40				47			
CC11A			56											
CC2	36		46	73	53		44		27		31			
CC2 dup									36		41			
CC3	80	76	92	76	83	80	84	64	60		73	74		
Lachusa Creek														
LCH18				73	72	76	54	61	54		11			
Las Virgenes Creek														
LV13					26	24	21	27	11		19			
LV17			72	53										
LV5	29	34	33	33	39	26	20	29	17		14			
LV5A			21						19		17			
LV5A2				40										
LV9					59	26	46		34		34			
LV26											54		RW= 24, TR= 21	
Malibu Creek														
MC1	16	24		39	19		26	23	26		26	21		
MC1B			26											
MC12		23			33	27	21	31	20		17			
MC12A			20	37										
MC13		39	23											
MC15					40	24	34	23			17			
MC8	36	37												
MC8B		23												
MC9	33	17	24	43										
MC20										3				
MC21										4		29		
Medea Creek														
MD7	23	26	19	34	23	17	9	9	14		16			
MDC21											16			
Palo Comado Canyon														
PC16			60						40					
Solstice Creek														
SC14				87	76	76	67	70	63		60	44		
SC22										64				
SC23										71				
Stokes Creek														
STC16					34				34		51			
Triunfo Creek														
TR17					19		4		0		20			
TR10	20		19											
West Carlsle Creek														
WC15			57											
WC10							51							
Stone Creek														
STN 24											9			

0-19 = "very poor"
 20-39 = "poor"
 40-59 = "fair"
 60-79 = "good"
 80-100 = "very good"

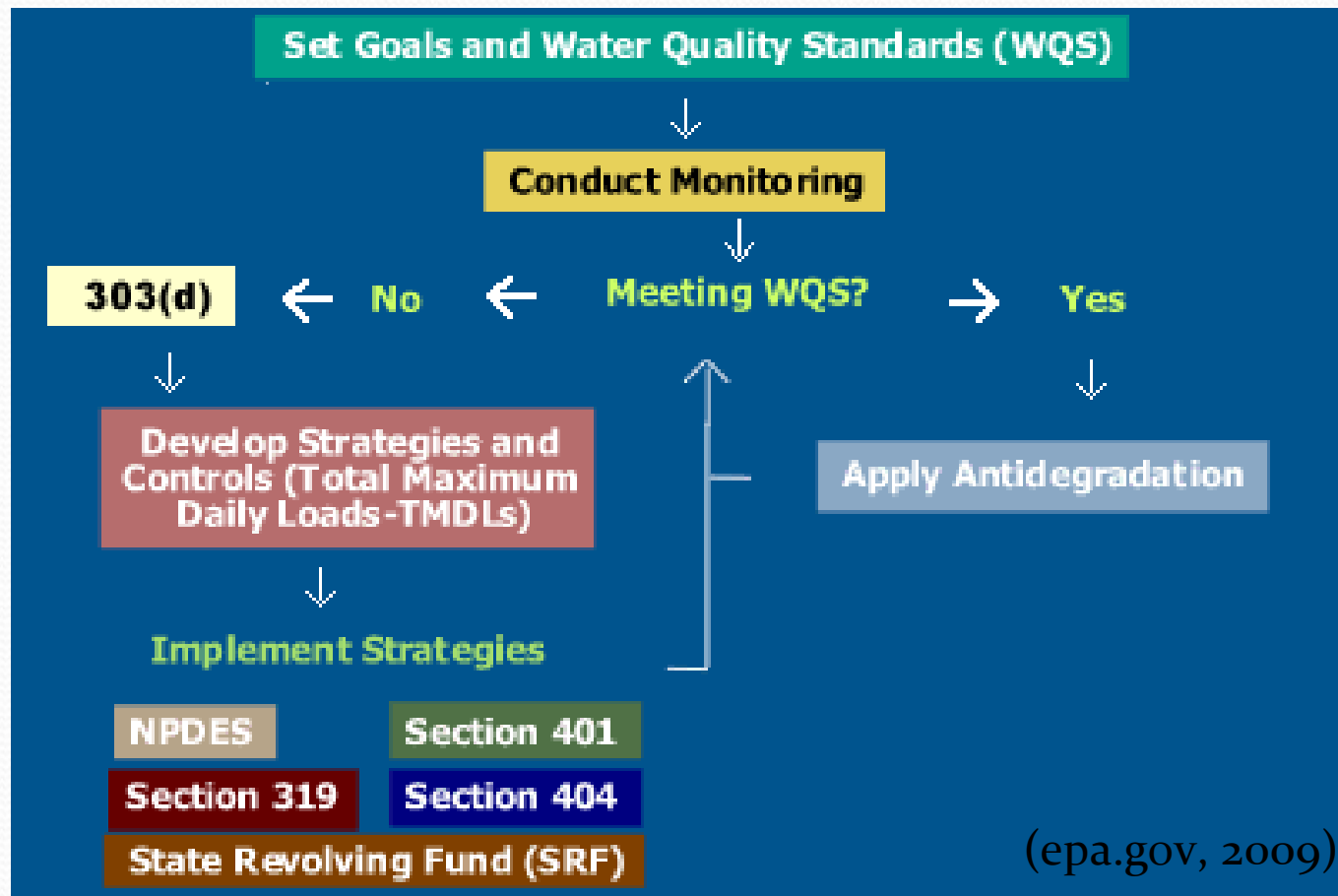
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- **303(d) List of Impaired Water Bodies**
(LA Regional Board)
- **National Pollutant Discharge Elimination System (NPDES) Permits**
2 examples:
 - Ventura MS4 (LA Regional Board)
 - Construction General Permits (CA State Board)



Clean Water Act (CWA)



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303(d) List of Impaired Water Bodies – Background

(EPA Watershed Academy Web: Introduction to the Clean Water Act , epa.gov/watertrain/cwa, 2009)

- “If monitoring and assessment indicate that for some uses and/or parameters, a **waterbody or segment is not meeting WQS, then that water is considered "impaired" and goes on a special list called the "303(d) list,"** named after the section of the CWA that calls upon states, approved tribes, and territories to create such lists.”
- “Current EPA regulations call for 303(d) lists **to include only waters impaired by "pollutants,"** not those impaired by other types of "pollution" (altered flow and/or channel modification).”
- “If, however, **biological monitoring** indicates there is **impairment of aquatic life uses,** but it is not clear whether a pollutant is at least one of the reasons, the **waters should be on the 303(d) list,** and **further analysis to identify the causes** are needed.”



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303(d) List – Listings based on Bioassessment Data

- Los Angeles Regional Water Quality Control Board (Region 4) approved 303(d) List, posted Sep 21, 2009
- Now in review at State Board then EPA
- Listing would not have occurred without Heal the Bay solicitation (letters, comments, meetings, presentation) and submittal of IBI data (2007)
- Data collected by Heal the Bay and other stakeholders



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303(d) List – Listings based on Bioassessment Data

TMDL Required List

- Arroyo Seco Reach 1 (BMI)
- Compton Creek (BMI)
- Las Virgenes Creek (BMI & Invasive spp.)
- Lindero Creek Reach 1 (BMI & Invasive spp.)
- Malibu Creek (BMI & Invasive spp.)
- Medea Creek Reach 2 (BMI & Invasive spp.)
- Santa Clara River Reach 6 (BMI, Copper, Iron)
- Triunfo Canyon Creek Reach 2 (BMI)
- Walnut Creek Wash (BMI, Indicator Bacteria)



Do not Delist from 303(d) List

- Malibu Lagoon (Benthic community effects)



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303(d) List – Heal the Bay Solicitation

IBI scores should be considered in the listing/delisting process.

- They qualify as applicable listing factors in sections 3.9 and 3.11 of the Listing Policy (Water Quality Control Policy For Developing California's CWA Section 303(d) List).
- IBI scores are the best available data to make listing decisions for biological community impairment in streams and rivers (required in section 3.9).
- Water segments with IBI data in the poor and very poor ranges (below 39) meet the listing factors in sections 3.9 and 3.11.
- Inherently, the IBI scoring system compares monitoring site conditions to reference sites (baseline conditions required in section 3.10).
- Many reaches in CA have poor IBI scores.



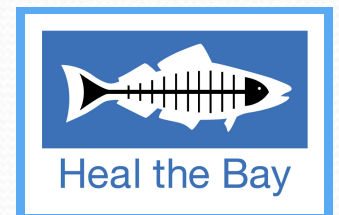
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303(d) List – Heal the Bay Solicitation

	Malibu Creek 1	Malibu Creek 12	Malibu Creek 15	Las Virgenes 5	Las Virgenes 9	Medea 7	Triunfo 17	Cold Creek 3 (reference)
Spring 2000	16			29		23		80
Fall 2001	24	23		34		26		76
Spring 2001	26	20		33		19		92
Fall 2001	39	37		33		34		76
Spring 2002	19	33	40	39	59	23	19	83
Fall 2002		27	24	26	26			80
Spring 2003	26	21	34	20	46	9	4	84
Fall 2003	23	31	23	29		9		64
Winter 2005	26	20		17	34	14	0	60
Spring 2006								
Fall 2006	26	17	17	14	34	16	20	73

Malibu Creek Watershed IBI Scores. Source: Heal the Bay.

0–19 = “very poor”
 20–39 = “poor”
 40–59 = “fair”
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 80–100 = “very good”

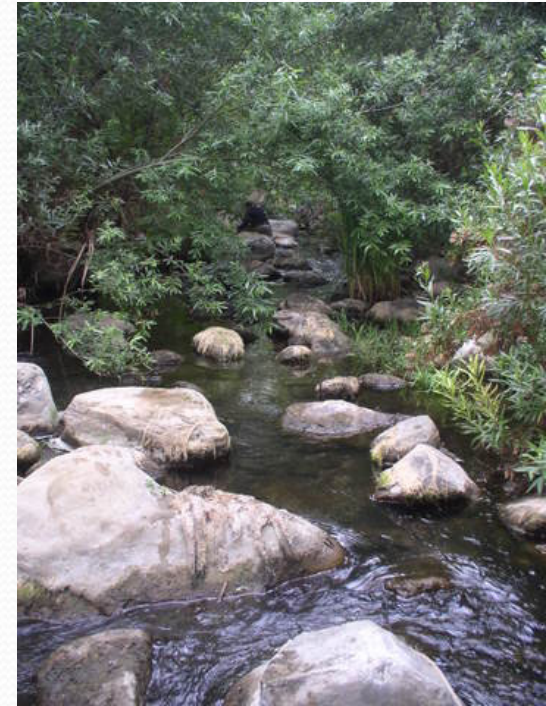


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303(d) List – Conclusion

Process

- Passed by LA Regional Board
- Needs to be approved by State Board and EPA
- Special studies or analysis of existing data to determine pollutant
- Create TMDLs
- In conjunction with TMDLs, there will need to be an IBI goal
 - What will this look like??



We need YOUR help to get these listings approved!

- We need support letters when this comes before the State Board.
- If interested please see me after, and I will collect a list of contacts to email with action items.



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NPDES Stormwater Program - Background

Regulation of Point Sources

- The CWA makes it illegal to discharge pollutants from a point source to waters of the US
- Section 402 of the CWA creates the NPDES regulatory program
- Dischargers must obtain a discharge permit from proper authority
- Dischargers include: MS4s, Construction Activities, and Industrial Activities
- Permits set limits on various pollutants that can be discharged per given time
- Most states are authorized to implement NPDES program



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NPDES Permits – Bioassessment Requirements

- Bioassessment monitoring requirements
 - To determine if discharge contributes to exceedances
 - Will hopefully lead to more 303(d) listings
- Last couple of years more permits are incorporating bioassessment monitoring, at least in the Los Angeles region.
- Heal the Bay advocacy has increased the frequency and # of locations where bioassessment is required.
- **Ventura MS4 permit**
- **Construction General Permits**



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Ventura County 2008 MS4 Permits - Background

- Municipal Separate Storm Sewer Systems (MS4)
- California Regional Water Quality Control Board, Los Angeles Region
- Updates approved May 2009, expires May, 2014
- Permittees: Ventura County Watershed Protection District (principal permittee), County of Ventura, and the incorporated cities therein
- Regulates stormwater (wet weather) and non-stormwater (dry weather) from the MS4



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Ventura County MS4 Permit – Bioassessment Requirements

- Principal permittee is a member of the Southern California Coastal Water Research Project (SCCWRP) Commission.
- Consents to participate in the Southern California Storm Water Monitoring Coalition (SMC) Southern California Regional Bioassessment Monitoring Program and the Bioassessment Working Group



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Ventura County MS4 Permit – Bioassessment Requirements

SMC Regional Monitoring Programs

- Southern California Regional Bioassessment
 - (i) Probabilistic sites per watershed
 - (I) Ventura River - 6
 - (II) Santa Clara River - 3
 - (III) Calleguas Creek - 6
 - (ii) Integrator sites per watershed
 - (I) Ventura River - 1
 - (II) Santa Clara River - 1
 - (III) Calleguas Creek - 1
 - (iii) Fixed bioassessment sites
 - (I) Fixed urban site per major watershed - 1
 - Site selection shall be determined by the results of the first year SMC results, as approved by the Executive Officer.

Southern California Bight Projects

- Regional Monitoring Survey - 2008 and successive years



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Construction General Permits

- Approved by CA State Board, 2009
- Bioassessment monitoring requirements for individual projects
- Heal the Bay advocacy (letters, testimony, conversations with staff)



Conclusions

- Nonprofit/citizen-based monitoring makes a difference and can inform legislation!
- Bioassessment is now part of CWA legislation and permitting
 - 303(d) listings
 - Monitoring in NPDES permits
 - IBI standards?



The End



Heal the Bay Contacts

Alison Lipman (bioassessment)

Stream Team Manager

alipman@healthebay.org

310 451-1500 x130

Kirsten James (legislative questions)

Water Quality Director

kjames@healthebay.org

310 451-1500 x162

