City of Newport Beach

Coastal/Bay Water Quality Citizens Advisory Committee Minutes

DATE: 11/12/09 **TIME:** 3:00 P.M. **LOCATION:** Fire Conference Room

1. Welcome/Self Introductions

Committee Members:
Chairwoman/Council Member Nancy Gardner
Dennis Baker
George Drayton
Tom Houston
Janet Rappaport
Randy Seton

Guests:
Steve Gruber, Weston Solutions
Alan Murphy, JWA, Director
David Pohl, Weston Solutions
Maria Pope, JWA, Environmental Engineer
Mark Sites
Jack & Nancy Skinner

City or County Staff:
Bob Stein, Assistant City Engineer
John Kappeler, Code & Water Quality Enforcement Manager
Shane Burckle, Water Conservation Coordinator
Shannon Levin, Harbor Resources Supervisor
Shirley Oborny, Administrative Assistant

2. Approval of Previous Meeting's Minutes

The minutes from the August 13 and September 10, 2009, meetings were approved.

3. Old Business

(a) Bay and Ocean Bacteriological Test Results

Mr. Kappeler reviewed the latest bacti reports.

4. New Business

(a) Areas of Biological Significance (ASBS) Program Update

Mr. Stein explained that in 2004 the State Water Resources Control Board (SWRCB) sent a letter to the City asking it to cease and desist any pollutant discharges into any ASBS's. We engaged in a program with Weston Solutions to determine whether the City really had a problem. The City requested the SWRCB set reasonable numerical

limitations.

Mr. Pohl provided a PowerPoint presentation (attached). He reviewed the results from studies done over the last three or four years. He said there are two ASBSs in Newport Beach, the Newport Beach Marine Life Refuge and the Irvine Coast Marine Life Refuge. In addition, Heisler Park in Laguna Beach was included in the study. He explained how the ASBS regulations are challenging because there are a lot of different types of usages, habitats and influences on the health of these areas. He discussed the results of the studies of various impacts. He said the good news is the results of the studies shows there wasn't a toxic effect on the species with the ASBS.

A discussion ensued about the Rockweed restoration project that was discussed at a previous meeting.

In summary, Mr. Pohl said when the data was collected from all the various studies: dry weather, wet weather, toxicity, bioaccumulation, biological surveys, and land use surveys, they were able to look at what the level of impact was into the ASBS. The approach made a significant influence on how the State is looking at ASBSs overall. Under Mr. Stein's leadership they are looking at not just water quality but also the biology. They are looking at not just inputs from the municipal storm sewer but also public access and public use as well.

Mr. Pohl said the impact metric summary shows a level of impact range. Public use is the biggest issue and the largest impact associated with the ASBS. Mr. Stein added that initially the State wanted the City to put funds into fixing the problems of contributions from the homes into the beach area. Instead, this analysis shows that the docent program needs to be expanded to keep people off the rocks because the water quality is not really the problem after all. The City is working with Ms. Levin to hopefully expand that program with grant funds.

Mr. Gruber talked about the next phase of the ASBS monitoring they did to comply with some regional sampling designed by SWRCB and SCCWRP. He said they looked at Buck Gully and at storm drain #18, which was 500' further south. The goal was to compare the ocean water quality before and after three storm events. In general, the results were that the ASBSs are fairly well-protected. The committee also talked about how the "natural water quality" standard was in the process of being defined by using various reference points along the coast.

Mr. Seton asked if it's a problem that some of the ASBS areas are on the 303(d) list. Mr. Pohl said the lists are different because there are different regulatory pathways. The 303(d) list was; however, considered in the studies.

(b) Sea Lions in Newport Harbor

Ms. Levin gave a PowerPoint presentation (attached). She talked about Harbor Resources' efforts to keep the sea lions out of the harbor which includes educating vessel owners on techniques to keep sea lions off their boats and reminding commercial

businesses to let their renters know they are not allowed to feed sea lions.

Mr. Houston said he doesn't like the idea that the boat owner has the responsibility of trying to prevent this kind of abuse to his or her vessel. The snow fencing is an eyesore.

Mr. Baker said he's seen some vessel owners place resin chairs on their boats, which is a simple and economical way to deter the sea lions. He also suggested raising the mooring charges to hire more staff to usher them out.

Mr. Sites said Tony Mellum, former Harbor Resources Manager, had the same problem several years ago and when the Harbor Patrol became involved, the sea lions disappeared.

Ms. Levin said she will find out whether cattle prods are an acceptable method of deterrence of the sea lions.

(c) <u>John Wayne Airport (JWA) Water Quality Report</u>

Mr. Murphy said they were invited to this meeting to talk about how the airport handles its water runoff. He said the water is discharged through the Delhi Channel and the airport is regulated by the Orange County's MS4 Permit as well as a general industrial permit. The general industrial permit covers the area where aircraft operate. He provided a PowerPoint presentation (attached). In response to Mr. Houston, Mr. Murphy said the high point of the airport is in the middle of the airport.

Mr. Murphy explained that under the general industrial permit, which is regulated by the SWRCB, the airport is not allowed to discharge any water from the airport unless it's storm water. He talked extensively about the two 25,000-gallon and two 50,000-gallon oil water separator tanks. They're in place in case of an emergency spill. He talked about the monitoring requirements, inspections, training of personnel, procedures for spills, ramp and runway cleaning, street sweeping, etc. The committee praised the airport for its efforts.

5. Public Comments on Non-Agenda Items

Mr. Skinner said Mr. Kappeler would be doing another gutter test to determine for how long a street sweeping reduces the bacterial levels.

6. Topics for Future Agendas

(a) Update on Integrated Watershed Planning Efforts
(b) NPDES Annual Water Quality Report
(c) Boats US – Not all Boat Suds are Created Equal
(d) Bacteriological Dry – Weather Runoff Gutter Study (Phase III)

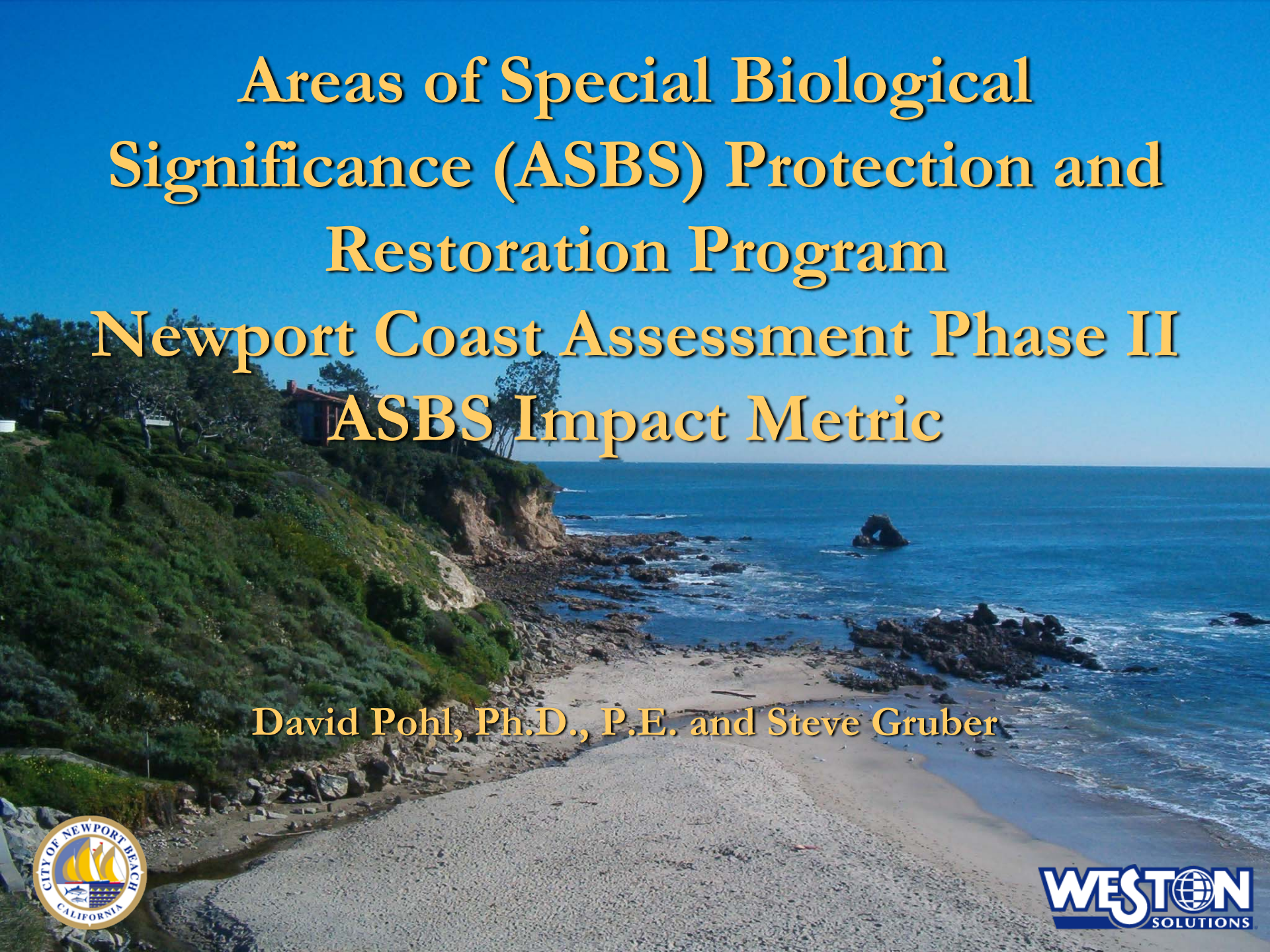
7. Set Next Meeting Date

The next meeting was set for December 10, 2009.

8. Adjournment - The meeting was adjourned at 5:00 p.m.

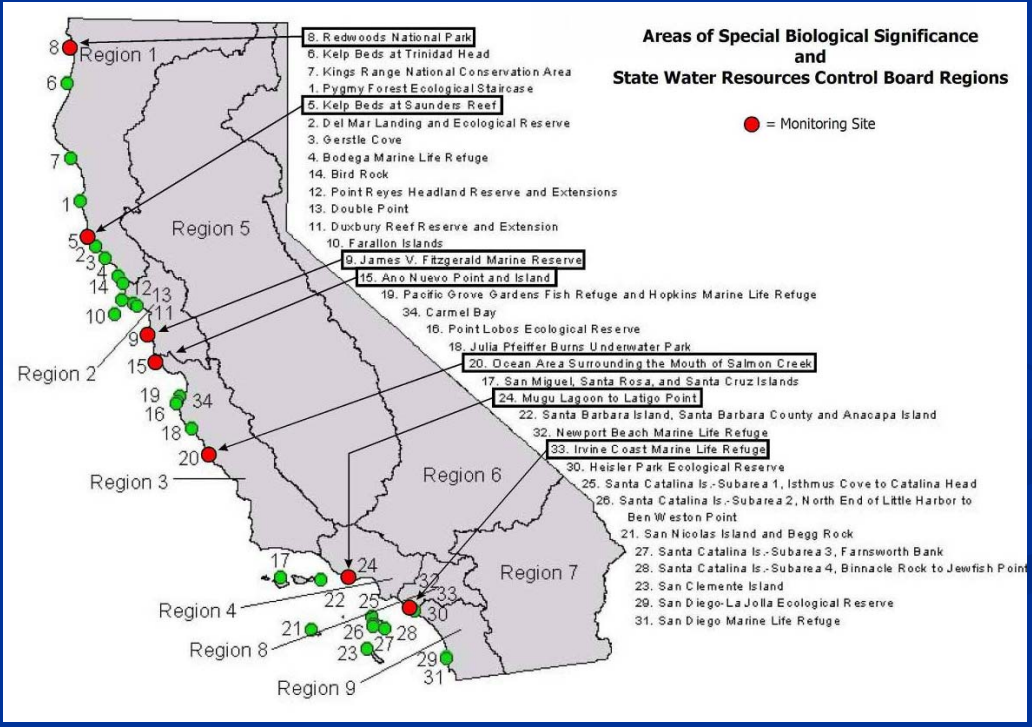
Areas of Special Biological Significance (ASBS) Protection and Restoration Program
Newport Coast Assessment Phase II
ASBS Impact Metric

David Pohl, Ph.D., P.E. and Steve Gruber

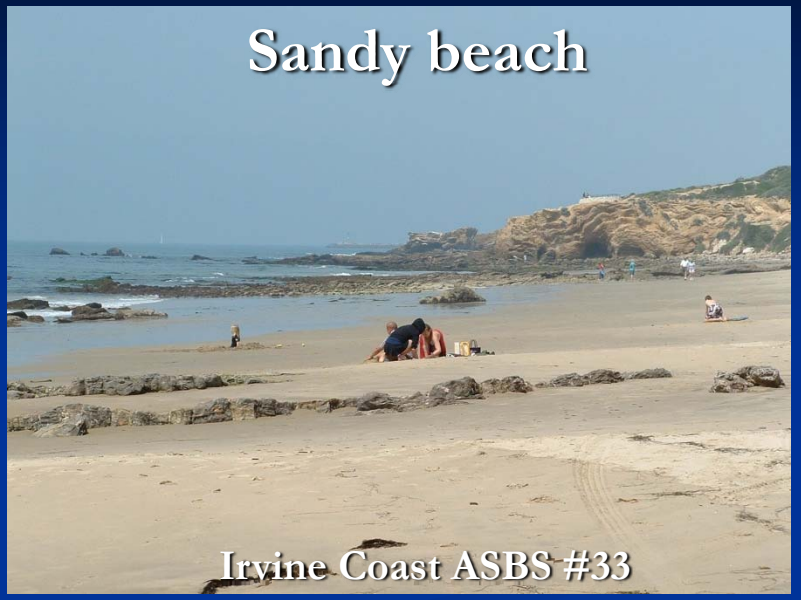


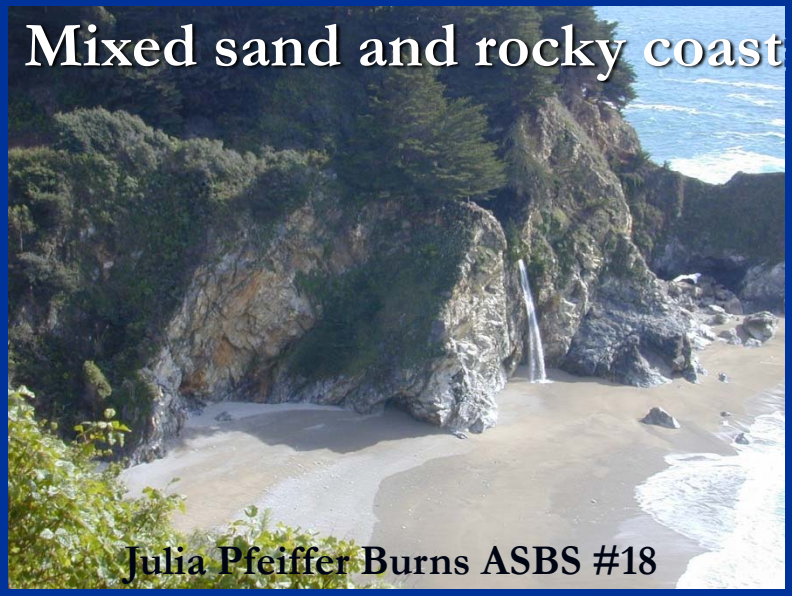
ASBS Overview

- 34 coastal areas designated as ASBS in mid-1970's
- "special biological significance" recognizes that certain biological communities, because of their value or fragility, deserve special protection that consists of preservation and maintenance of natural water quality conditions.



ASBS Habitats





Photos: www.swrcb.ca.gov

ASBS Regulatory Overview

- Both anthropogenic discharges and outlets (natural gullies, perennial and ephemeral streams) discharge to ASBS
- NPDES permits set numerical limits for effluent discharging from MS4 system to non-ASBS coastal areas
- California Ocean Plan (COP) prohibits waste discharge into ASBS to ensure maintenance of "*natural water quality conditions*"
- 1,172 discharges that empty directly into the 14 southern California ASBS have been identified[1]; 70% of which were anthropogenic discharges

[1] Southern California Coastal Research Project (SCCWRP) 2003

Anthropogenic Discharge Types

High Threat

- Municipal storm water
- Transportation
- Construction and industrial storm water

Medium Threat

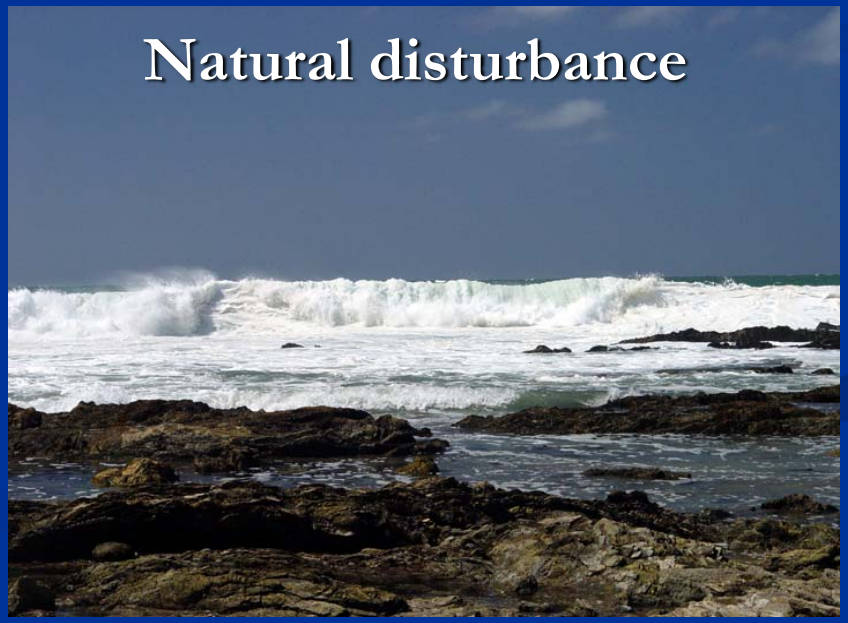
- Small storm drains
- Nonpoint sources from individual properties

Low Threat

- Sea wall weep holes
- Drainage from individual homes or neighborhoods
- Access stairways from individual homes

Other Sources of Impacts to ASBS Habitats and Marine Life

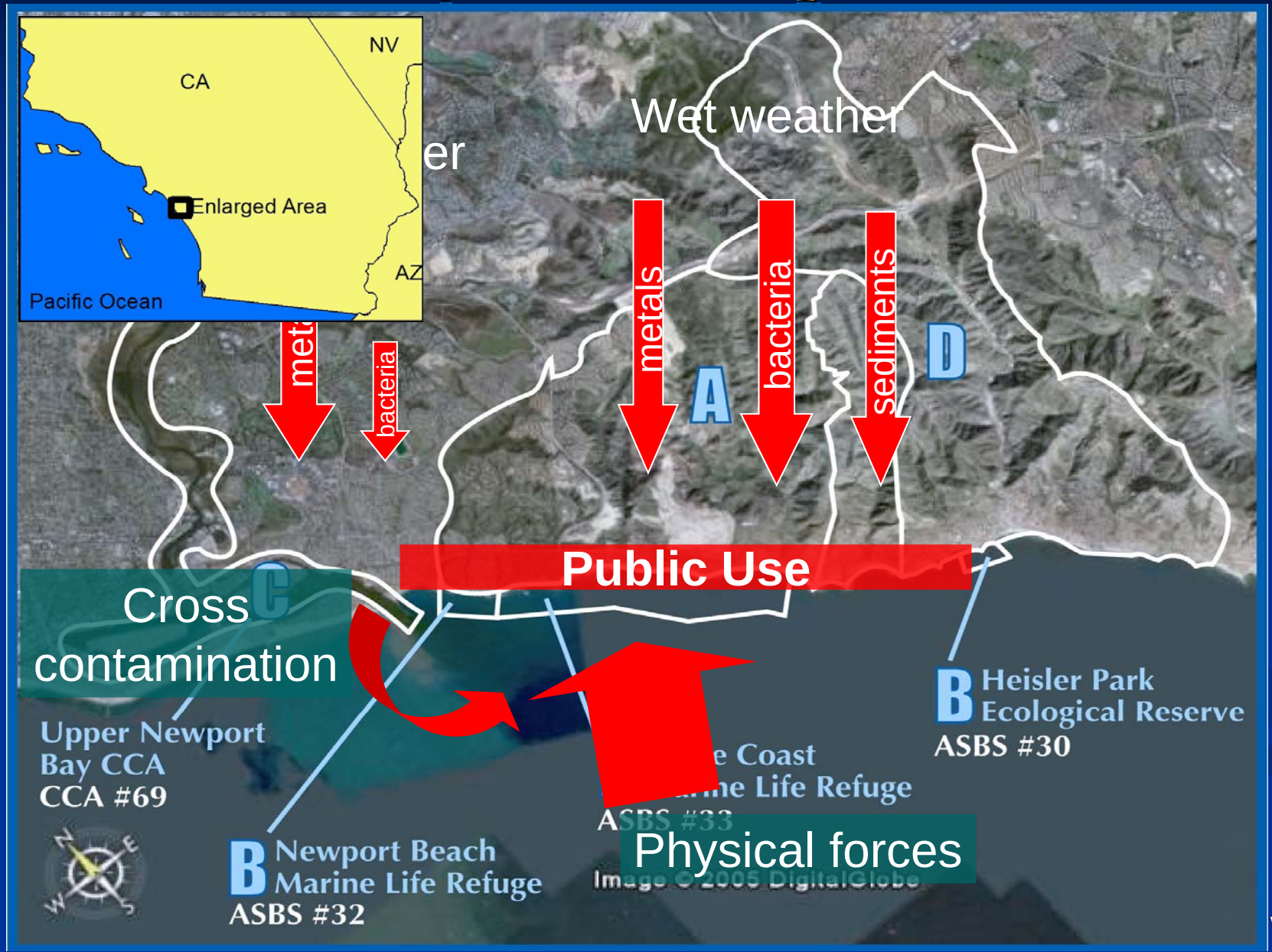
Photo: Indiana Geological Survey



City of Newport Beach ASBS Protection and Restoration Program

- Assessment of Water Quality and Pollutant Loading of Coastal Canyons to ASBS – Dry and Wet Weather – Phase I
- Development of Water Quality Model to assess Cross Contamination Impact
- Public Impact Study – Year long assessment
- Biological Studies – Bioaccumulation, Toxicity and Community Surveys
- Restoration Pilot Projects
- Development of Impact Metric using results of studies

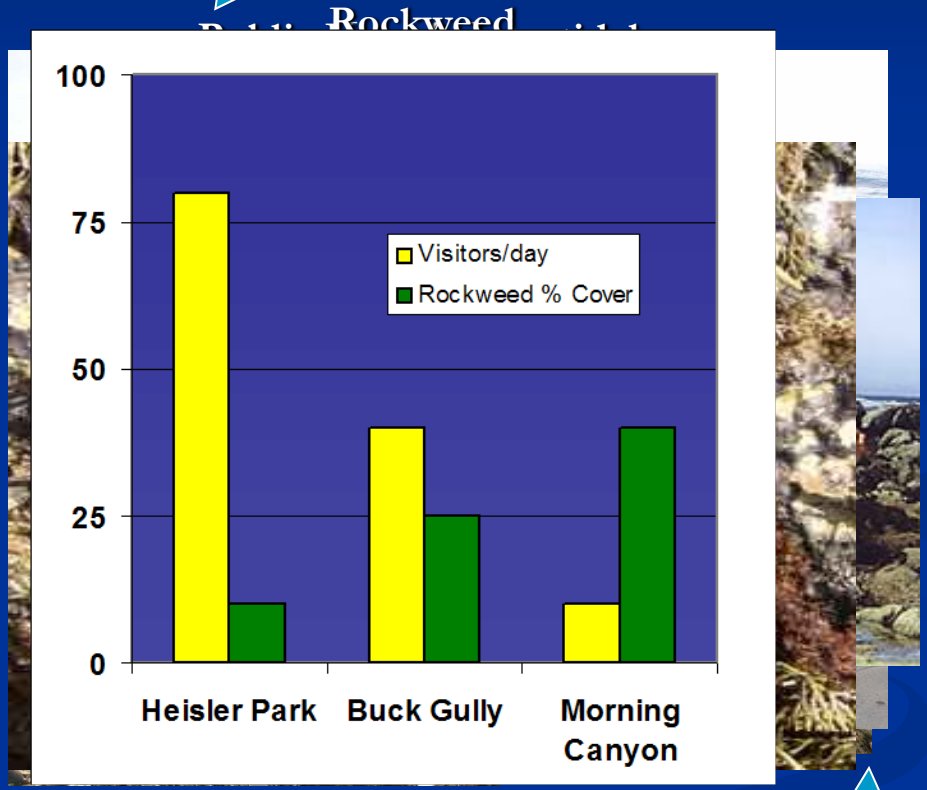
The Newport Coast...
A case study of ASBS impact sources



Impact Metric: Evaluating Impacts to ASBS

Identify Potential Impact

Choose Impact Indicator(s)

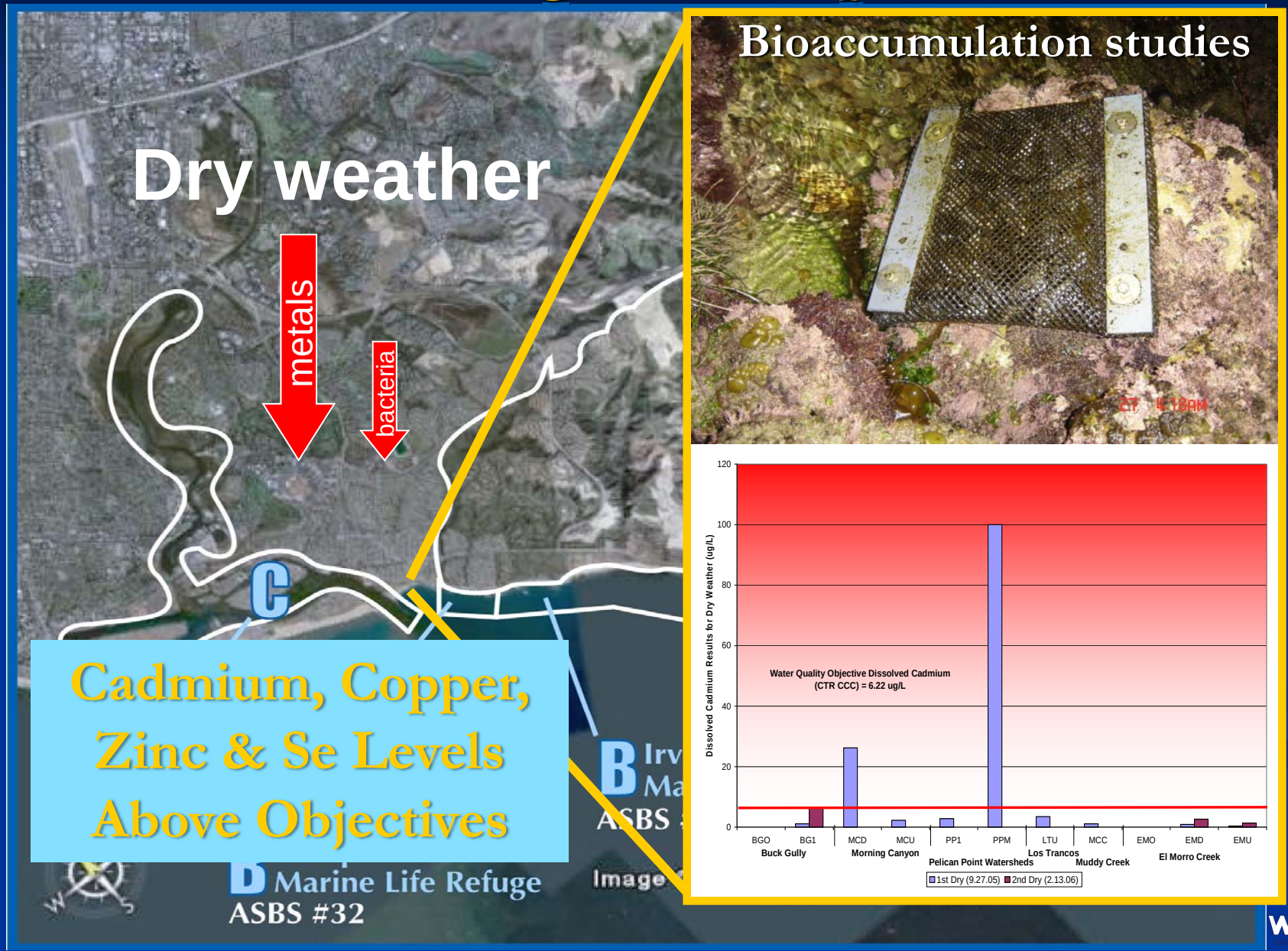


Measure Impact Effects

Calculate Ecological Relevance of Impact

Make Priority Recommendations

Newport Coast
Measuring ASBS Impacts

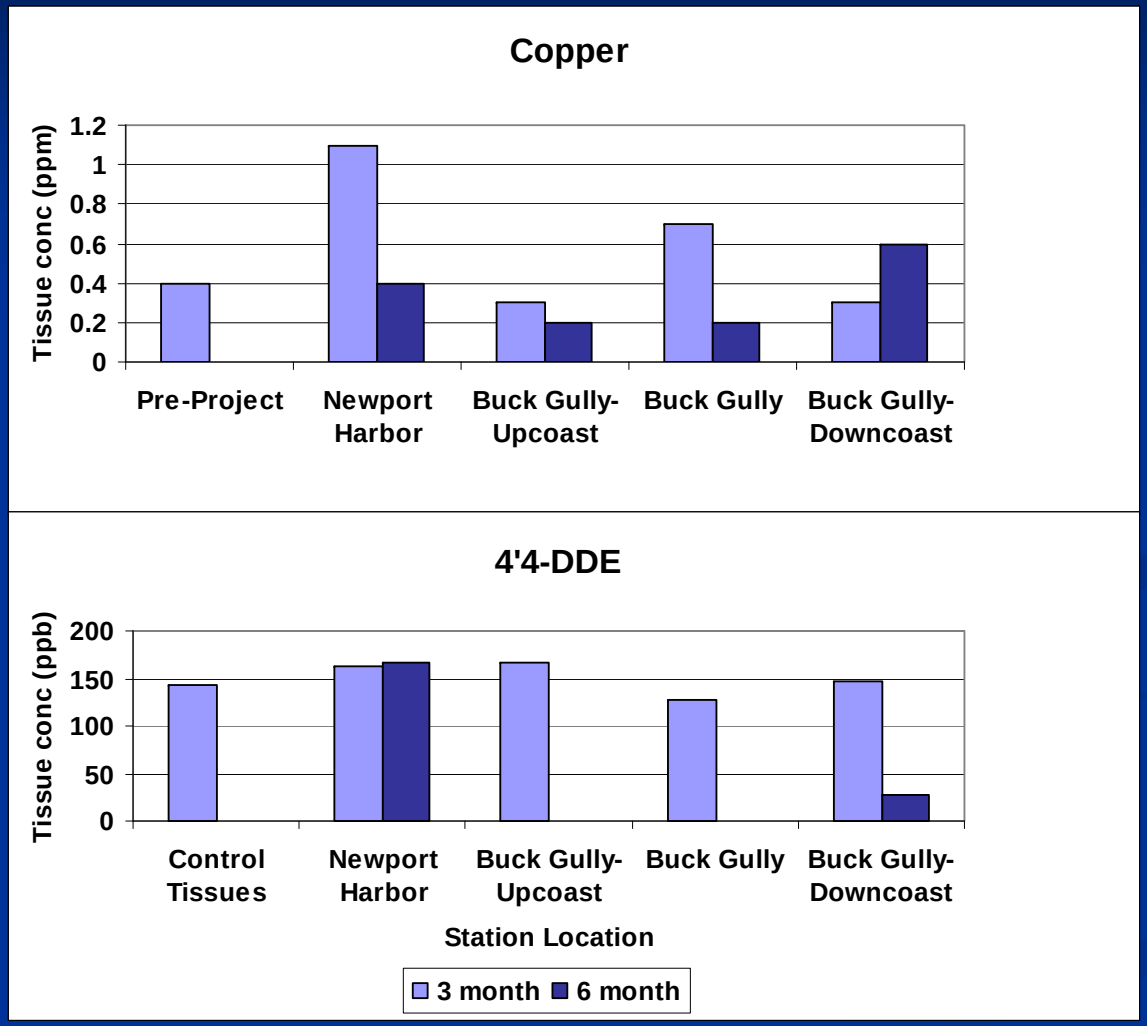


Bioaccumulation studies

Mussel Bioaccumulation Study

- Study to identify bioaccumulation of contaminants of concern in mussel tissue
- Mussels transplanted into 4 locations
- Exposed for 3 and 6 months

Bioaccumulation Results

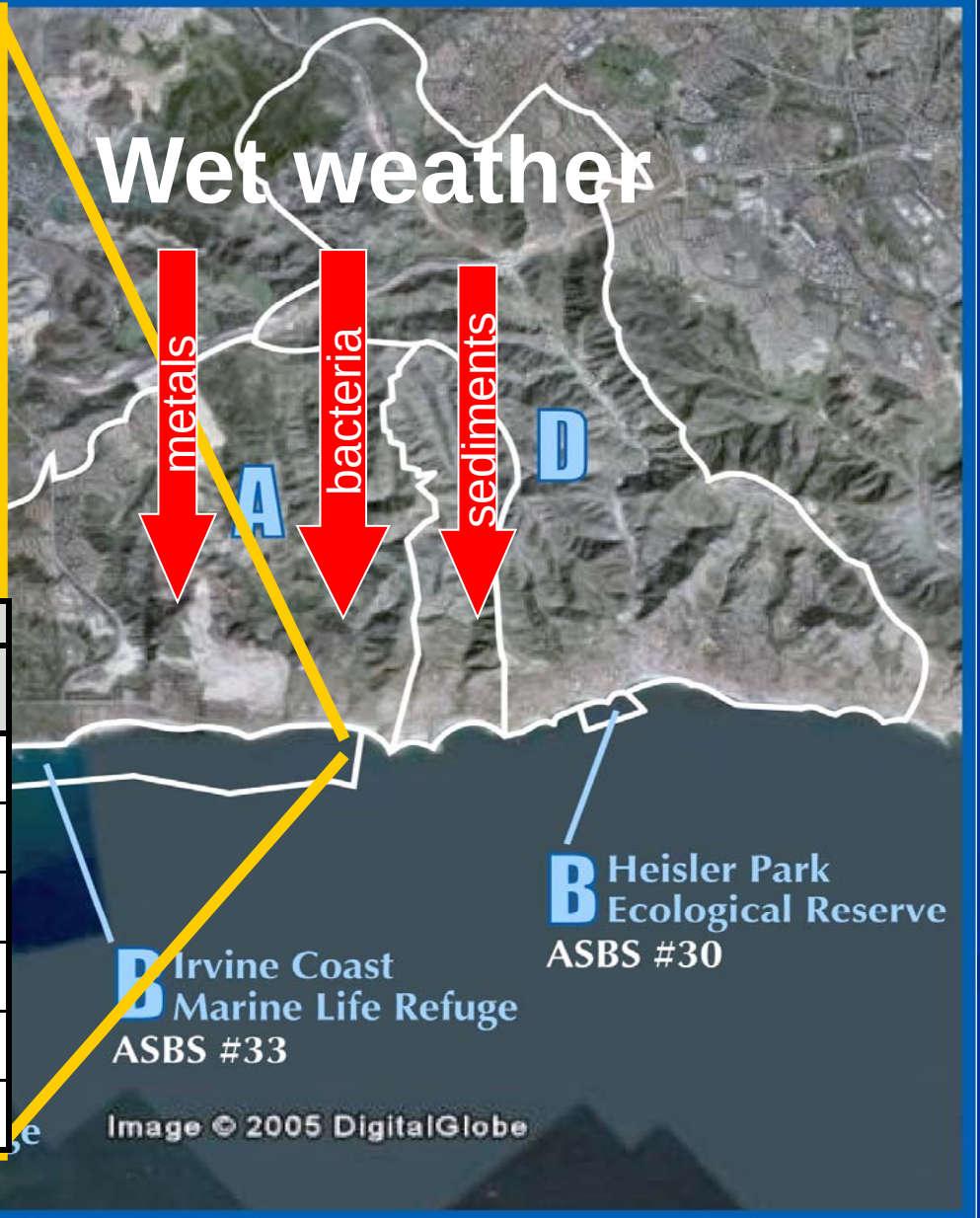


- PAHs, 4'4-DDE, metals detected
- No detectable PCBs, pyrethroids, mercury, or OP pesticides
- No evident patterns related to time or distance relative to Buck Gully or Newport Harbor
- Mussel development toxicity tests indicate similar sensitivity to copper exposure in lab experiments

Newport Coast
Measuring ASBS impacts

Chronic Toxicity Tests

Test	Sample	Endpoint	NOEC (%)	LOEC (%)	EC_{50} (%)	
Macrocystis pyrifera (Giant Kelp)	BG-Fresh	ermination	60	>60	>60	
		Growth	12.5	25	>60	
	BG-Mix	Germination	90	>90	>90	
		Growth	6.25	12.5	>90	
	BG-Edge	Germination	100	>100	>100	
		Growth	50	100	>100	

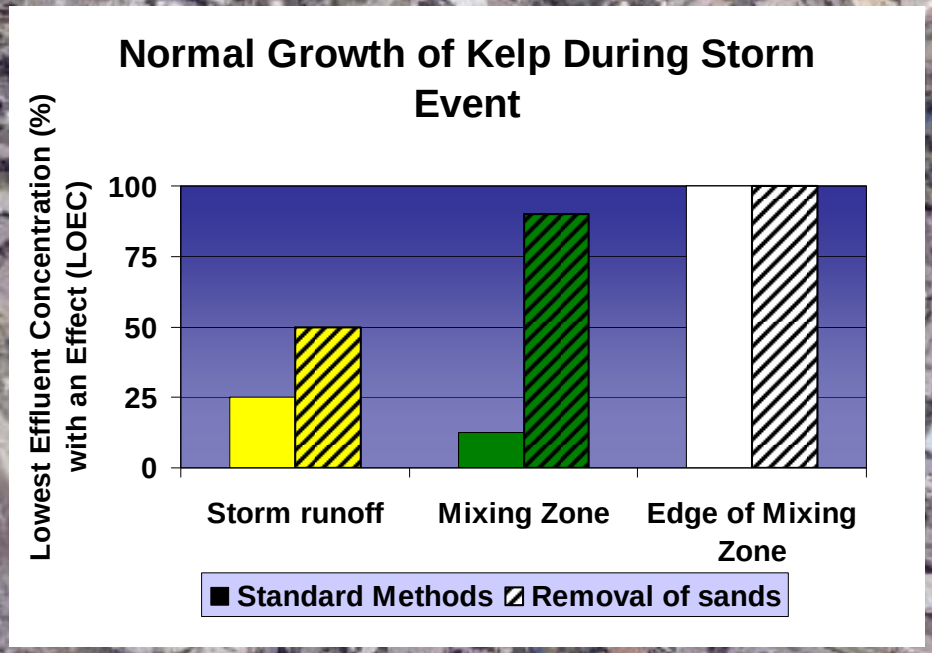


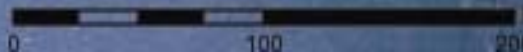
ASBS Toxicity Testing

- Phase I Results
  - No Toxicity for Mysid Shrimp and Sea Urchin
  - Kelp Germination Reduction
- Phase II Results
  - No Effect on Kelp Germination Modified Tests

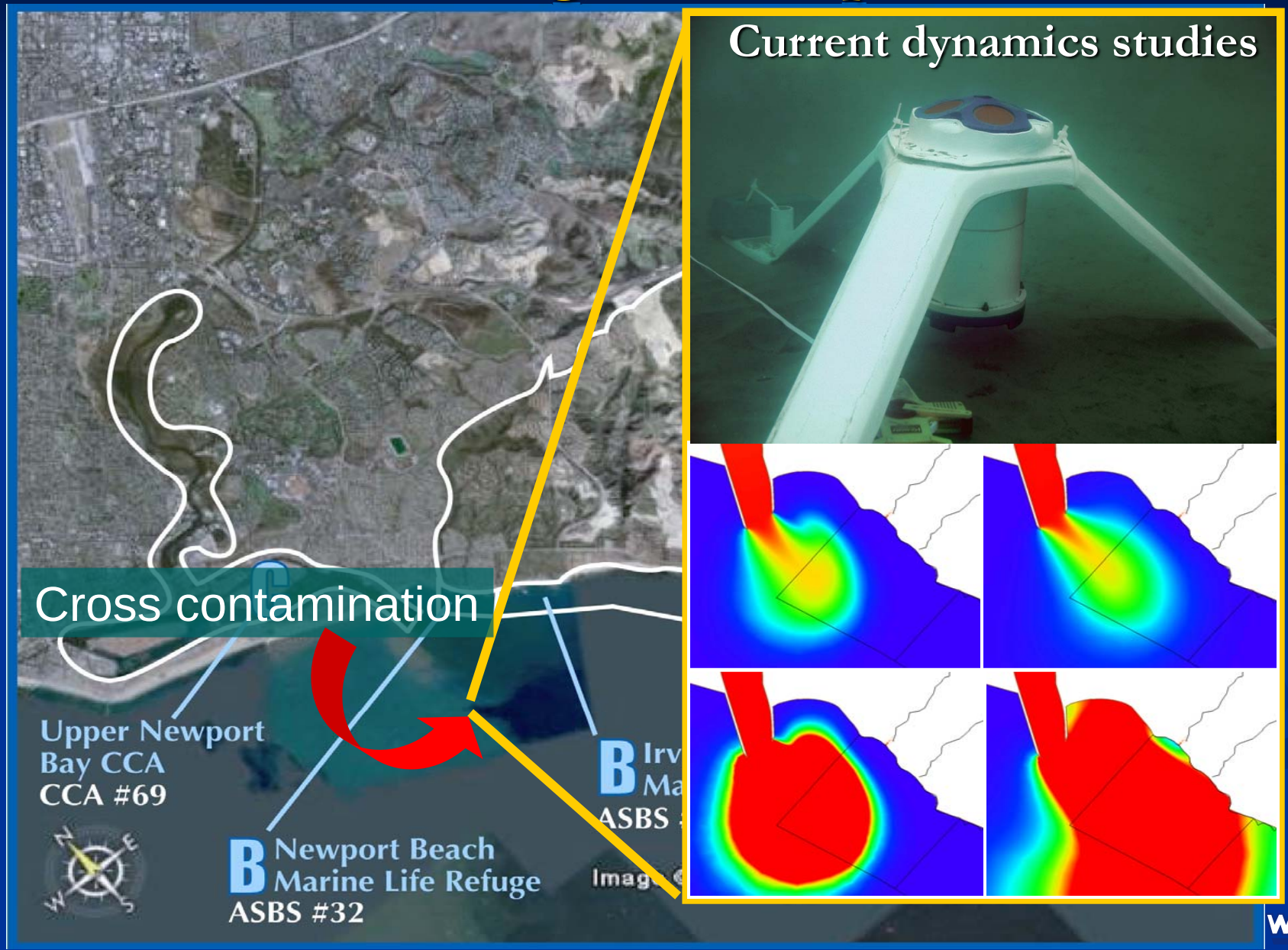
Stormwater Effluent: Kelp Toxicity

- *Kelp survival was not impacted by effluent*
- *Growth was largely impacted by sediments*
- *Protocol does not facilitate detection of chemical effects*

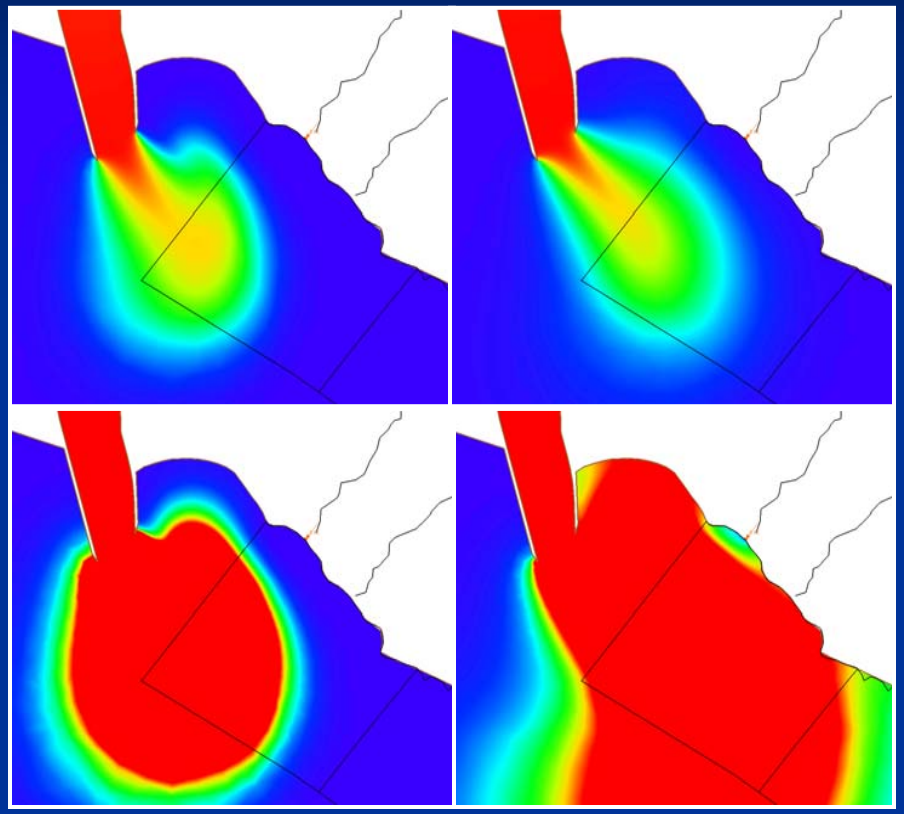




Newport Coast
Measuring ASBS impacts

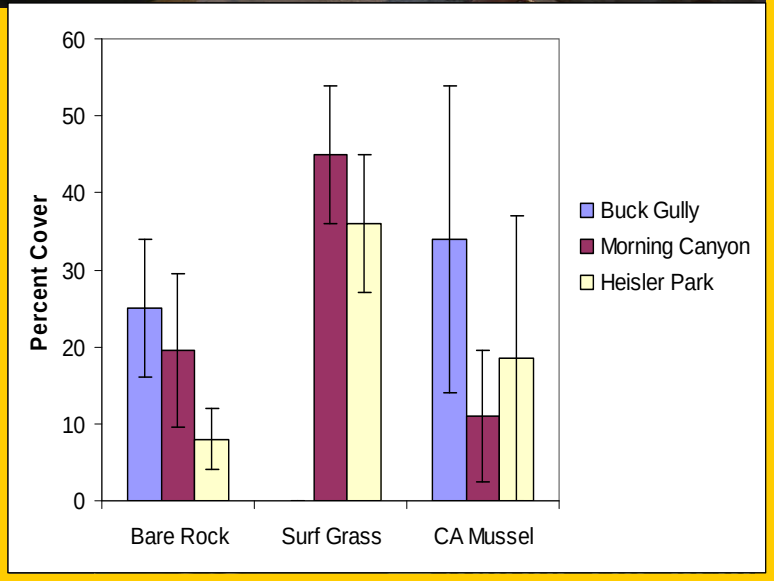


Development of Water Quality Model to assess Cross Contamination Impact



- Current Dynamics offshore of Newport Beach
- Harbor plumes extend throughout ASBS
- Verification of modeling assumptions for Newport Harbor discharges currently being evaluated

Intertidal Surveys



Intertidal Surveys

Heisler Park site in Laguna Beach

Corona Del Mar site in Newport Beach

Morning Canyon site in Newport Beach

Restoration Pilot Projects

- Current trend for ASBS:

  Large to mid-sized, fleshy algae are decreasing while smaller turf-forming macrophytes are increasing





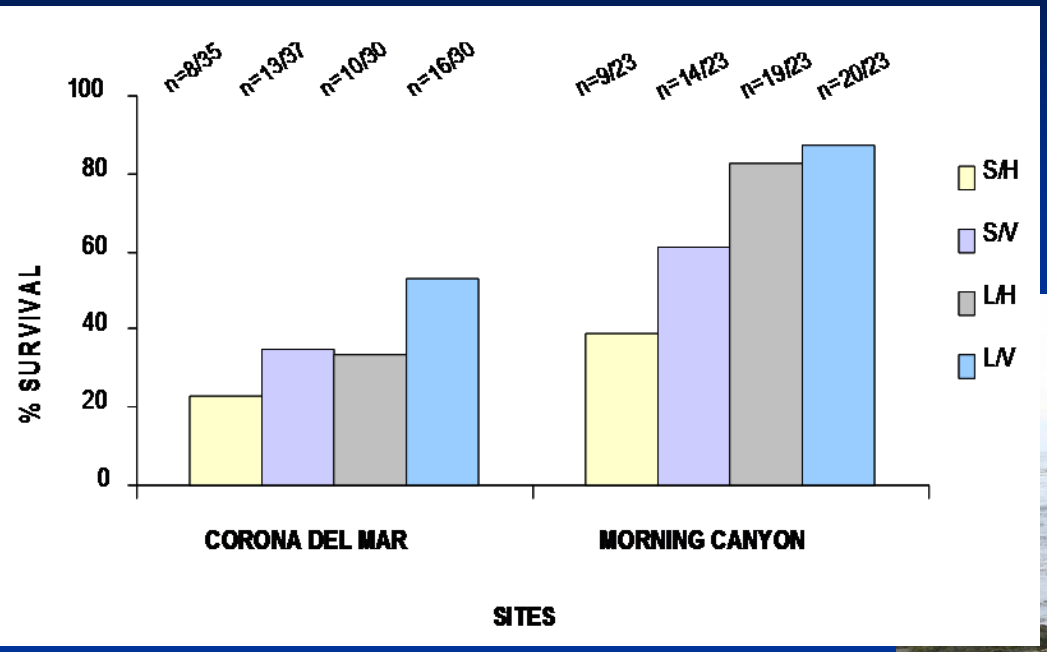



Pilot Restoration: *Silvetia compressa*

- Two restoration techniques attempted:
  - Seeding
  - Juvenile transplantation
- Treatments:
  - Herbivore exclusion
  - Simulated canopies
- Large storms in 2007 wiped out restoration experiments

Restoration Site

Intertidal Restoration Program



Percentage Survival of *Silvetia* thalli

Morning Canyon

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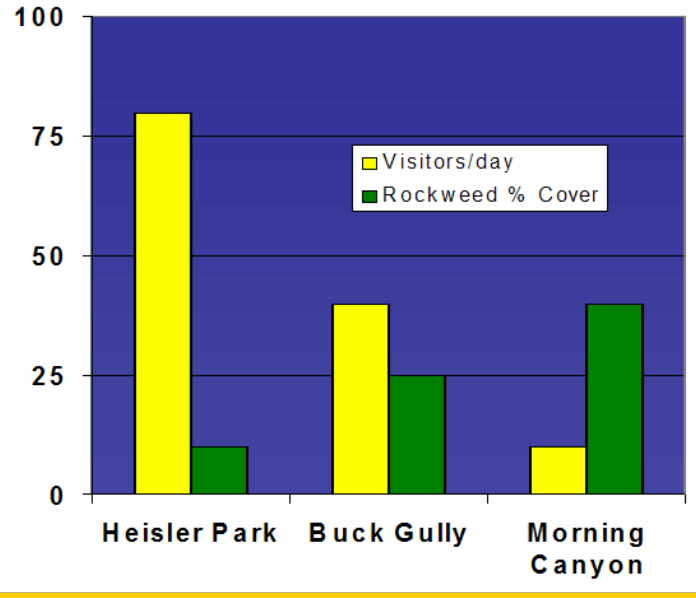
Newport Coast
Measuring ASBS impacts



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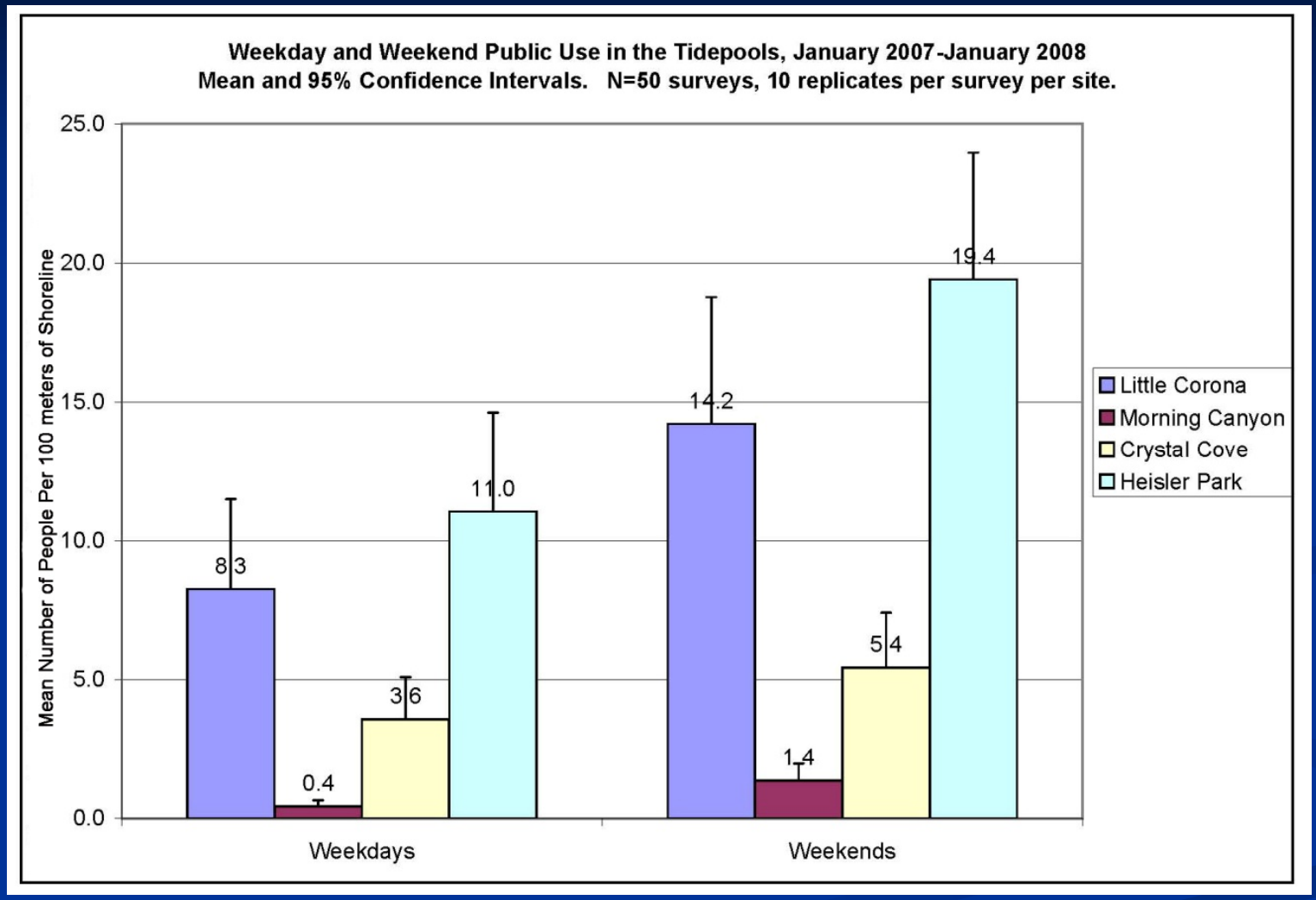
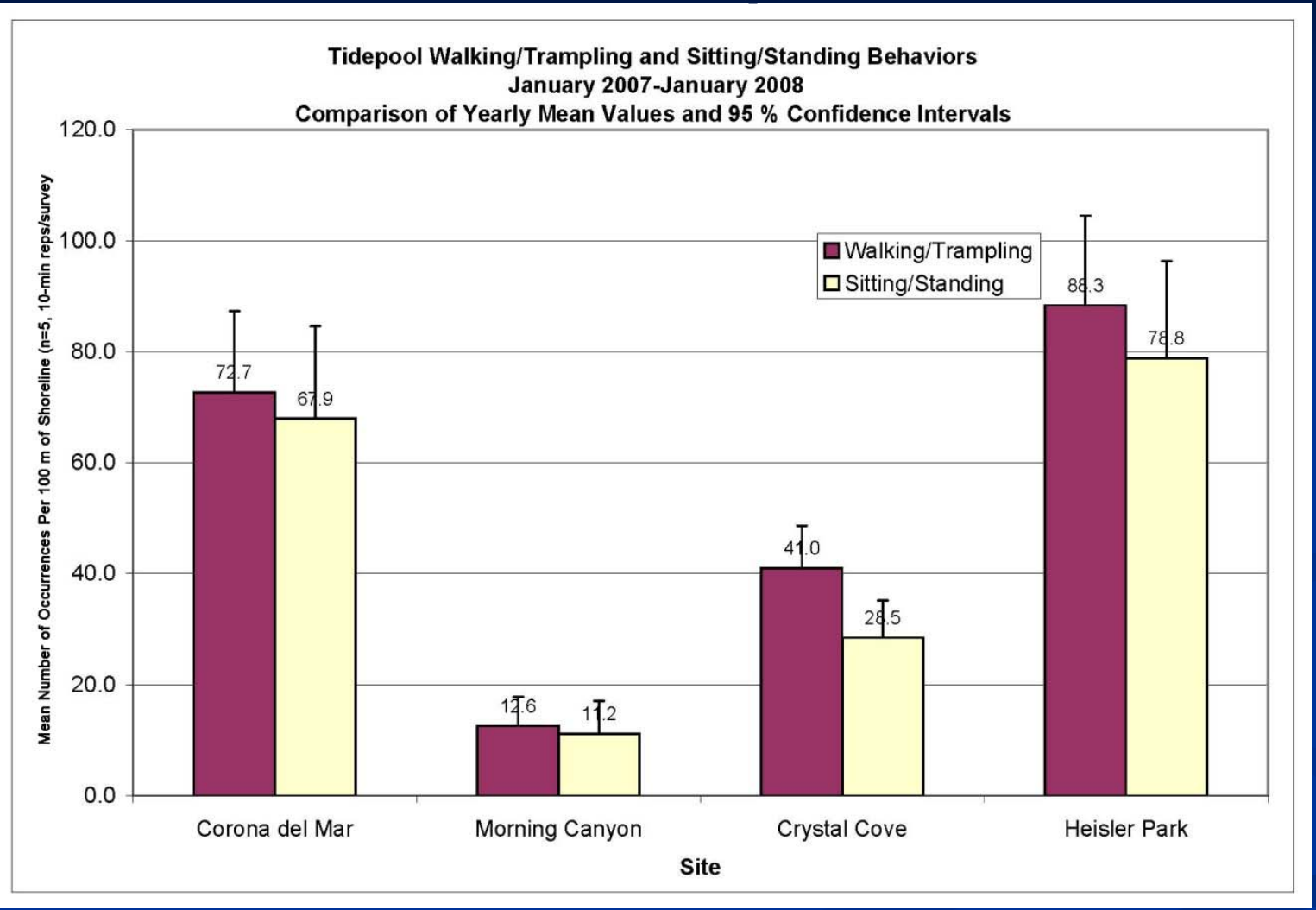
Public Use Impact Study



Public Use Intensity (PUI) in the Rocky Intertidal Zone During Weekdays and Weekends

WESTON SOLUTIONS

Public Use Impact Study



Walking/Trampling and Sitting/Standing Behaviors in the Rocky Intertidal Zone

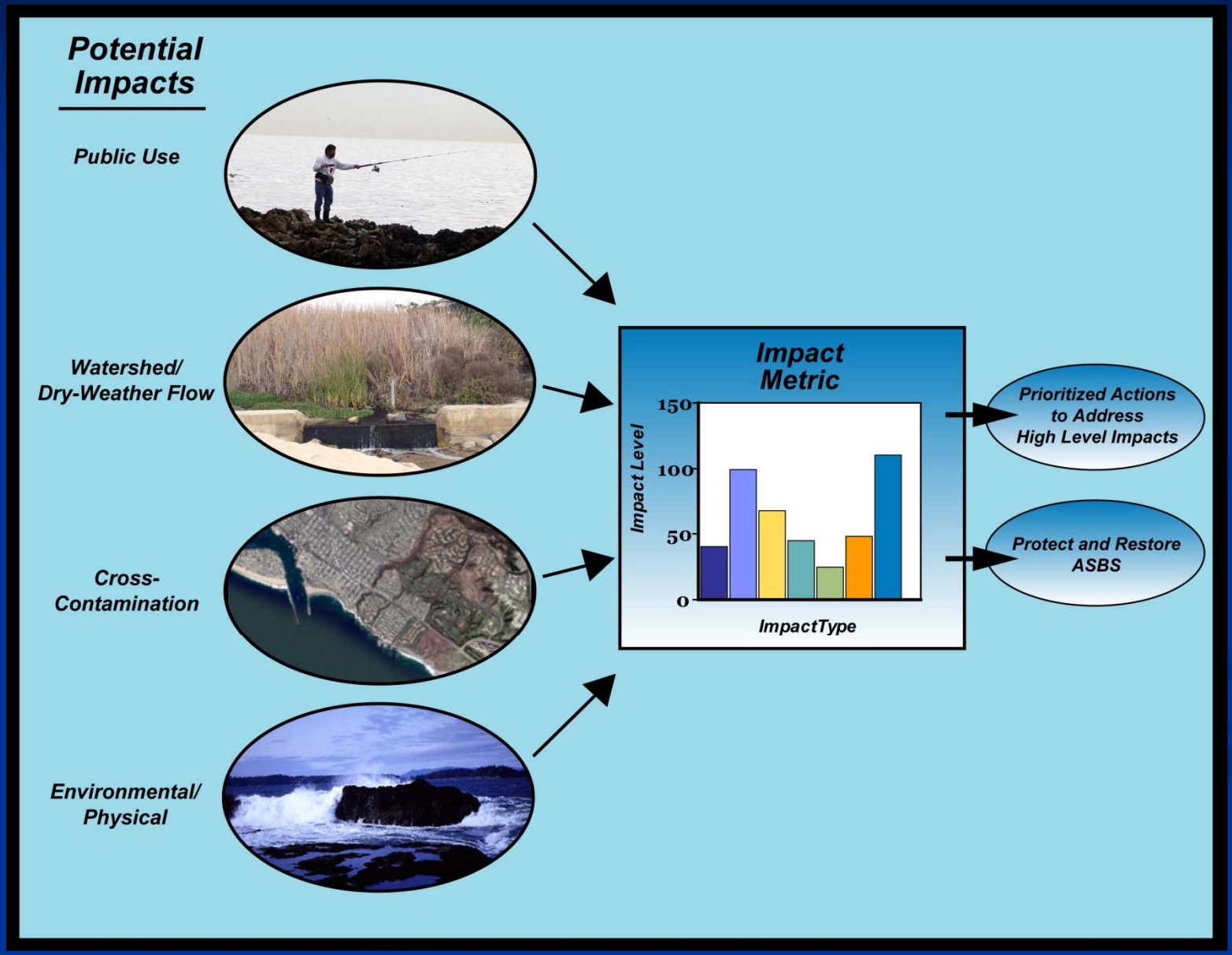
WESTON SOLUTIONS

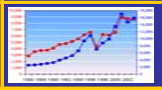
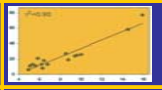
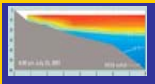
Purpose of an Impact Metric

- Develop measures to assess the magnitude of effect for all types of impacts to ASBS
- Use indicator species to detect effects of different impact types
- Utilize species-specific metrics to assess the biological effect of impact types
- Develop a prioritized list of impacts that affect organisms or habitats in ASBS
- Construct a scale to measure effects of management actions on impacts to ASBS

Comparative Assessment of Impacts in ASBS

The Impact Metric



Indicator		Water Quality		Cross Contamination	Public Use	Seasonal/ Environmental Effects
		Wet	Dry			
Mussel *Mytilus* spp.						
Kelp *Macrocystis*						
Rockweed *Silvetia* spp.						
Sea stars *Asteroidea*						
Limpet *Lottia* spp.						
Green algae *Ulva* spp.						
Brown algae Endocladia						
Species abundance						
Species diversity						
Trophic transfer potential						
Temperature						
Beach wrack						
Overall Grade						

Priority Impact Recommendations

Impact Category	Impact Type	Indicator Effect	Current Grade	Recommendation	Improvement Effect	Potential Grade Improvement	Estimated Cost
Water Quality (WQ)							
Wet Weather Flow	Elevated sediment loads originating from Buck Gully	Reduced recruitment of key algae species and reduction in habitat quality		Employ Tier I and Tier II pollution prevention measures to reduce sediment loads	Increase key species abundance and habitat complexity		**$200k**
Dry Weather Flow	Chronic dry weather freshwater flows	Increased abundance of green algae species		Employ Tier I runoff reduction programs to reduce flow	Increased local intertidal species diversity		**$900k**
Dry Weather Flow	Chronic dry weather freshwater flows	Increased background bacterial concentrations		Employ Tier II detention basin	Reduction in bacterial loading		**$300k**
Public Use							
Trampling	Mechanical damage to Silvetia compressa	Reduction in percent cover (compared to reference site)		Increase tidepool enforcement program	Increased cover of *Silvetia compressa*		**$100k**
Cross Contamination							
Tidal Flow from Lower Newport Bay	Metals accumulation sig. higher at offshore site when compared to Buck Gulley	Reduction in fitness (evaluated against ERED database)		Employ Tier I, II, III upstream pollution prevention/treatment programs	Reduced metal bioaccumulation and increased fitness of indicator species		**$600k+**
Dry Weather Flow	Metals accumulation sig. higher at Buck Gulley when compared to offshore site	Reduction in fitness (evaluated against ERED database)		Treatment BMP to reduce copper loads by 50%	Reduced metal bioaccumulation and increased fitness of indicator species		**$500K**

Impact Metric Summary

- Metric incorporates various types of impacts and assigns indicator(s) to assess each impact
- Indicator performance studied using ecologically relevant and sound scientific data collection methods
- 'Grades' based on experimental controls and/or established scientific literature
- Priority recommendations based on weight-of-evidence for all indicators

Impact Metric

INDICATORS	Water Quality		Cross Contamination	Public Use	Environmental/Physical
	Wet	Dry			
Water Chemistry	X	X	X		
Bioaccumulation	X	X	X		
Toxicity		X			
Ulva (green alga)		X			
Open Substrate	X	X		X	X
Surf Grass	X	X		X	X
Fleshy Algae				X	X
Sea Stars				X	X
Mussel Beds				X	X
Limpets				X	X
Species Diversity	X	X	X	X	X

Impact Metric Ranking System

Index Result	Test Score Range	Color Code
No Observed Impact OR Positive Effect	< 1	
	> 1 < 2	
Impact Present but Extent Unclear	> 1 < 2	
	> 3 < 4	
Suspected Negative Impact	> 4	

Impact Metric for Little Corona Del Mar

WET WEATHER	Code	Overall
Water Quality		
Bioaccumulation		
Toxicity		
DRY WEATHER	**Code**	**Overall**
Water Quality		
Bioaccumulation		
Toxicity		
REGIONAL INPUTS	**Code**	**Overall**
Harbor Cross Contamination		
PUBLIC USE	**Code**	**Overall**
Shoreline Fishing/Consumption		
Treading		
Capture/Handling		
RESTORATION	**Code**	**Overall**
Habitat Restoration		

ASBS Regional Program Preliminary Results – SCCWRP

- 33 Samples Collected at ASBS throughout CA
- Samples Collected Pre-Storm and Post Storm (24 hrs)
- Approximately half of the ASBS Shoreline Represented
- 7 Samples in SoCal
- Samples Collected Near and Outside (500m) Outfalls

ASBS Regional Program Preliminary Results – SCCWRP

- 50% of Shoreline Exceeded Ocean Plan Objective for Chromium
  - 61% of samples near discharge exceeded
  - 35% non-discharge exceeded
- 87% of Shoreline Exceeded for PAHs
  - 85% near discharge exceeded
  - 89% non-discharge exceeded
- 24% of Shoreline near Discharge – Nickel

ASBS Regional Program Preliminary Results – SCCWRP

- Toxicity Testing for Sea Urchin Conducted at Sampling Point
- >5% Indicated Toxicity

Next Phase is Defining "Natural Water Quality"

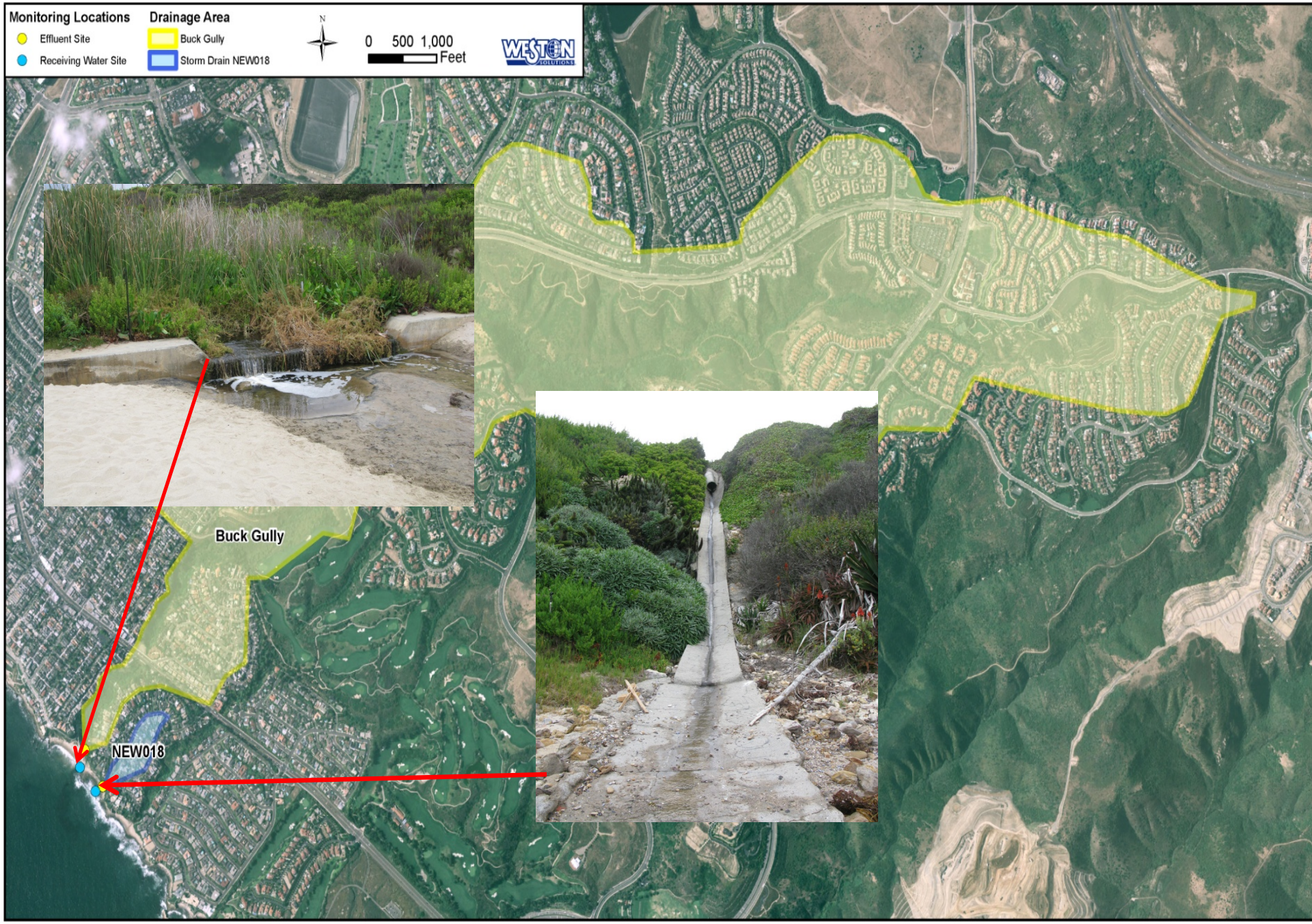
Newport Coast ASBS Regional Monitoring

Objective: Compare concentrations of constituents in ocean receiving water to "natural water quality"

Two Discharges to Little Corona Del Mar Tide Pools:

1. Buck Gully and
2. Storm Drain NEW018

- Compare ocean water quality before and after three storm events
- Compare toxicity after three storm events


Monitoring Locations
Effluent Site
Receiving Water Site
Drainage Area
Buck Gully
Storm Drain NEW018
N
0 500 1,000
Feet
WESTON SOLUTIONS
Buck Gully
NEW018

Results

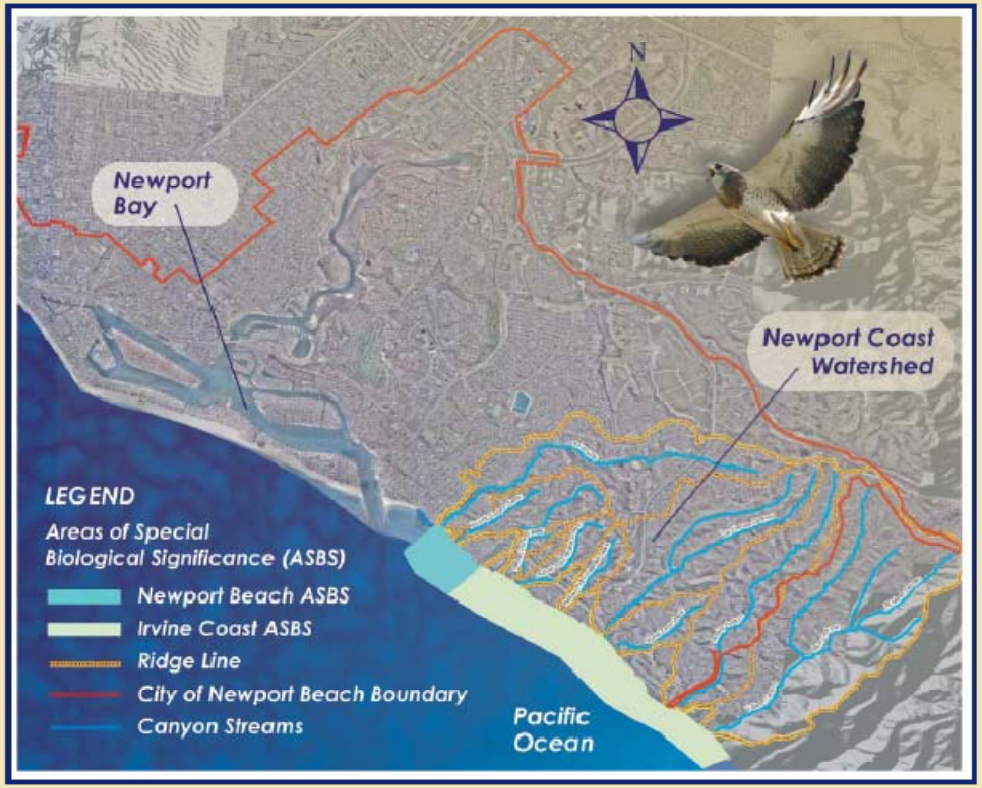
"Natural Water Quality" not yet defined by SWRCB, California Ocean Plan (COP) standards were used for comparison

1. Analyzed for sediments (TSS and turbidity), nutrients, metals, pesticides, PCBs, PAHs, and Toxicity
2. Concentrations in Pre-storm and Post-storm samples fro both sites were below COP standards (except for chromium at NEW018 during one storm).
3. No toxicity found in any sample

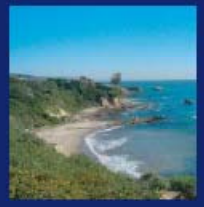
City of Newport Beach

Newport Coast Watershed Management Plan

PLAN HIGHLIGHTS







City of Newport Beach
3300 Newport Blvd.
Newport Beach, CA 92663
October 2007

WESTON SOLUTIONS

Implementation of the ICWMP Prioritized to Address Impacts

What are we doing right now?

- Erosion Controls and Habitat Enhancement in Buck Gully
- Runoff Reduction Program
- Public Outreach – Expanded Docent Program
- Pilot Rocky Inter-tidal Restoration Project – Cal State Fullerton

WESTON SOLUTIONS

Implementation of the ICWMP Prioritized to Address Impacts

What do we plan to do in the near future?

- Acquiring Resources for Completing Metric and Fill in Data Gaps – Coordination with Bight08
- Public Impact Reduction Program
- Natural Treatment System and Habitat Restoration in Lower Buck Gully
- Low Impact Development Project
- Expand Runoff Reduction Program

WESTON SOLUTIONS

QUESTIONS?

David Pohl, Ph.D., P.E. and Steve Gruber