



ASSESSING THE EFFECTIVENESS OF 17 CLEAN BEACH INITIATIVE PROJECTS

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THE CLEAN BEACH INITIATIVE

**GOAL -- NO CLOSED OR POSTED BEACHES DURING DRY SEASON
(APRIL-OCTOBER)**

- **FOCUS ON AB411 BEACHES (>50,000 VISITORS/YR)**
- **MEET BATHING WATER STANDARDS FOR FECAL INDICATOR BACTERIA**

FUNDING

- **PROP'S 13, 40**
- **\$64,163,968 MILLION TO DATE**
- **72 PROJECTS**

THIS PRESENTATION

- **REPORT ON THE EFFECTIVENESS OF 17 COMPLETED PROJECTS**
- **WHAT WORKED, WHAT DIDN'T**



CATEGORIES OF PROJECTS

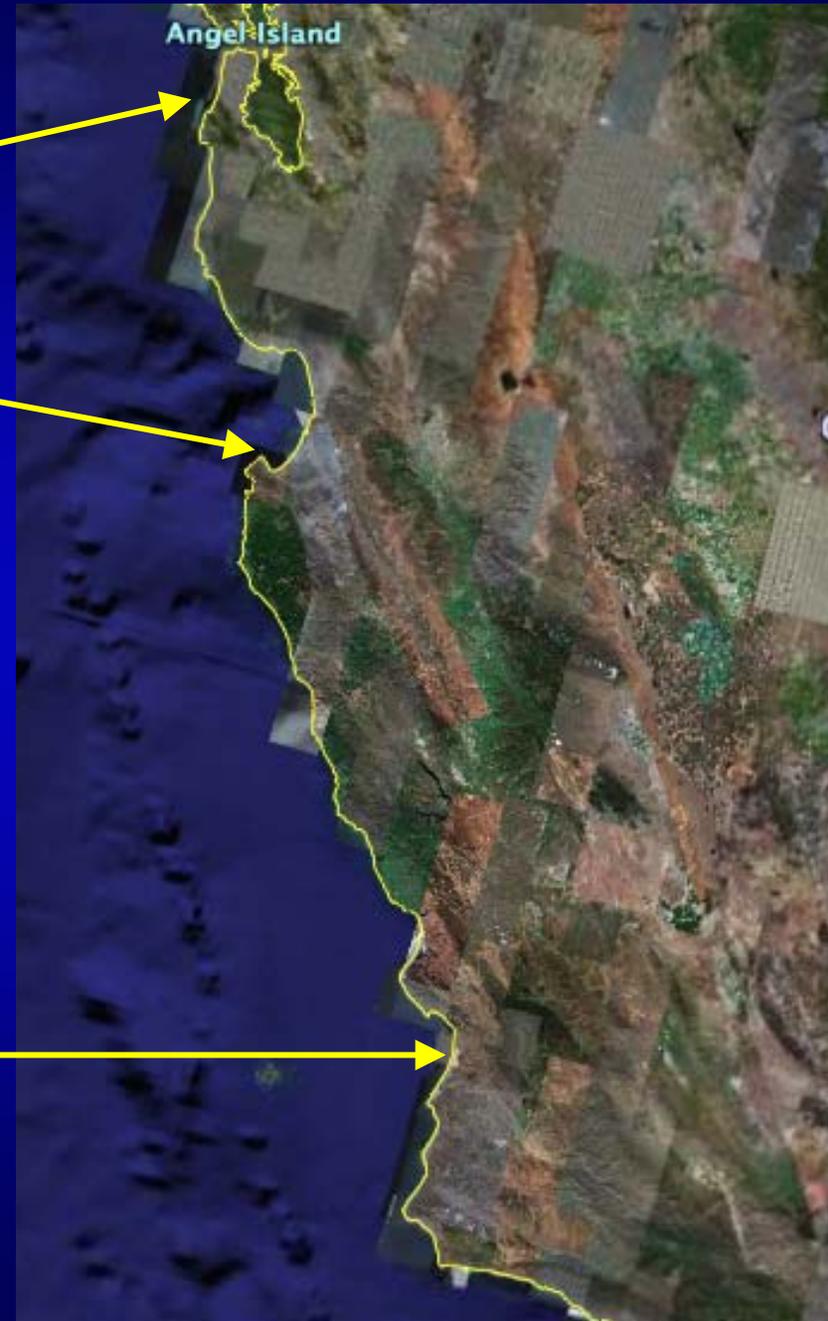
PROJECT CATEGORY (NUMBER)	STRATEGY
DIVERSIONS (9)	DIVERT RUNOFF TO SANITARY SEWERS
STERILIZATION FACILITIES (3)	DIVERT CHANNEL FLOW THROUGH ULTRA-VIOLET (UV) SYSTEM, EFFLUENT BACK TO CHANNEL
WETLAND SWALES (1)	DIVERT RUNOFF INTO WETLAND SWALES
SEWER IMPROVEMENTS (2)	REPLACE AND/OR SLIP-LINE LEAKY SEWERS
PIER IMPROVEMENTS (2)	MIXED BMPs TO DEAL WITH PIER RUNOFF, BIRD AND RODENT FECES, LEAKY SEWERS
ENCLOSED BEACH (1)	MIXED BMPs TO DEAL WITH RUNOFF, BIRD FECES, POOR HARBOR CIRCULATION

COMPLETED CBI PROJECTS: CENTRAL CALIFORNIA

**PACIFICA: LINDA MAR STATE BEACH
(WETLAND SWALES)**

**PACIFIC GROVE: LOVER'S POINT
(DIVERSIONS)**

**PISMO BEACH: PISMO STATE BEACH
(SEWER IMPROVEMENT)**



COMPLETED CBI PROJECTS: SOUTHERN CALIFORNIA



DIVERSIONS

DIVERTING RUNOFF TO SEWERS WORKED:

- 5 OUT OF 8 PROJECTS SUCCESSFULLY REDUCED BACTERIA
- MILLIONS OF GALLONS OF CONTAMINATED RUNOFF DIVERTED

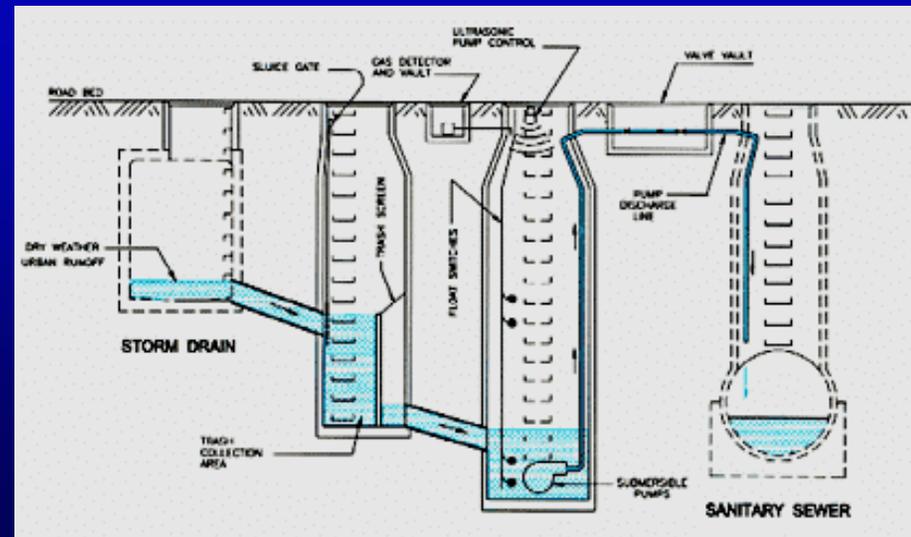
DIVERSIONS NOT SUCCESSFUL IF:

- RUNOFF FROM OTHER SOURCES CONTAMINATES BEACH
- RUNOFF IS BYPASSED THROUGH THE DIVERSION SYSTEM DUE TO RAIN, OPERATING PROBLEMS



DIVERSION DAM IN THE GREENVILLE BANNING CHANNEL, HUNTINGTON BEACH

SCHEMATIC OF A LOW-FLOW DIVERSION STRUCTURE



UV FACILITIES

LIMITED SUCCESS WITH UV STEIRLIZATION FACILITIES:

- UV TREATMENT COMBINED WITH FILTRATION VERY EFFECTIVE
- >95% REDUCTION OF BACTERIA
- CLEANED EFFLUENT RECONTAMINATED WHEN DISCHARGED BACK INTO WATERWAY CHANNEL
- ONLY 1 OF 3 PROJECTS SUCCESSFUL
- TREATMENT FACILITY MUST BE AT OR NEAR BEACH
- THE FURTHER UPSTREAM THE FACILITY, THE GREATER THE CHANCE FOR RECONTAMINATION OF TREATED EFFLUENT



UV CABINET IN POCHE CK.
STORM DRAIN



MOONLIGHT BEACH FACILITY:
FILTERS, UV UNITS

PIER IMPROVEMENTS (MIXED BMPs)

PIERS ARE A PROBLEM! PROJECTS NOT SUCCESSFUL IN REDUCING BACTERIA ALONG ADJACENT BEACHES

- **MANY BMPs ADOPTED -- e.g. FISH CLEANING STATIONS, BIRD EXCLUSION NETS, BIRD-PROOF TRASH CANS, SPECIAL DUMPSTER AREAS, FIXING LEAKY SEWERS**
- **DESPITE BMPs, RUNOFF FROM PIER, OTHER SOURCES, IMPACTS SURROUNDING WATER QUALITY**
- **NO CHANGE IN BACTERIAL DENSITIES**



FISH CLEANING STATIONS: SM PIER



REDONDO BEACH PIER, SOUTH SIDE

WETLAND SWALES

WETLAND SWALE AT PACIFICA SUCCESSFUL

- ALL DRY SEASON RUNOFF DIVERTED INTO SWALE SYSTEM
- BACTERIAL COUNTS REDUCED ALONG ADJACENT BEACH



VEGETATED WETLAND SWALES RUNNING BETWEEN RUNOFF PUMPING STATIONS, PACIFICA

INNER HARBOR MIXED BMPs

BABY BEACH PROJECT SUCCESSFUL:

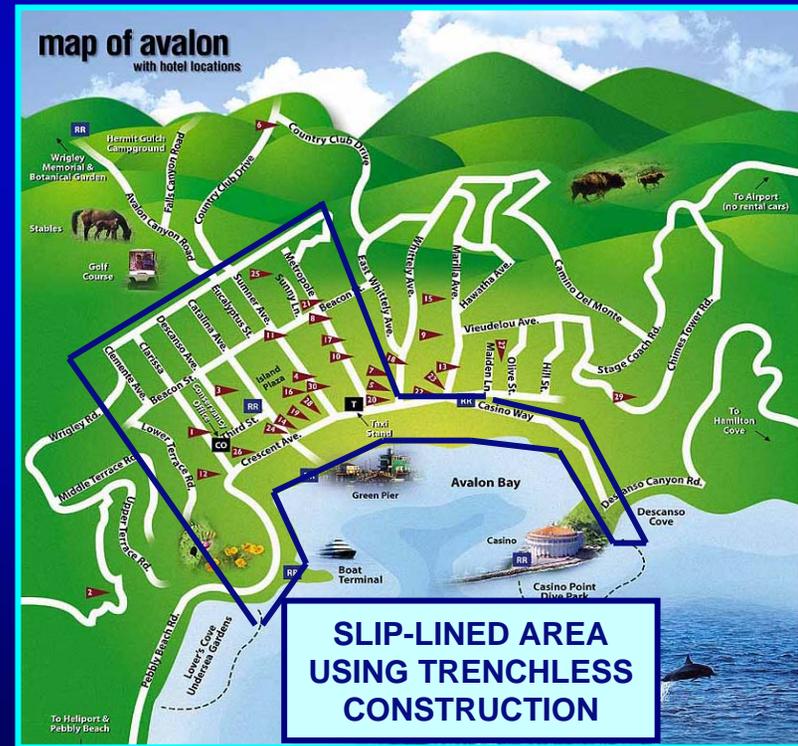
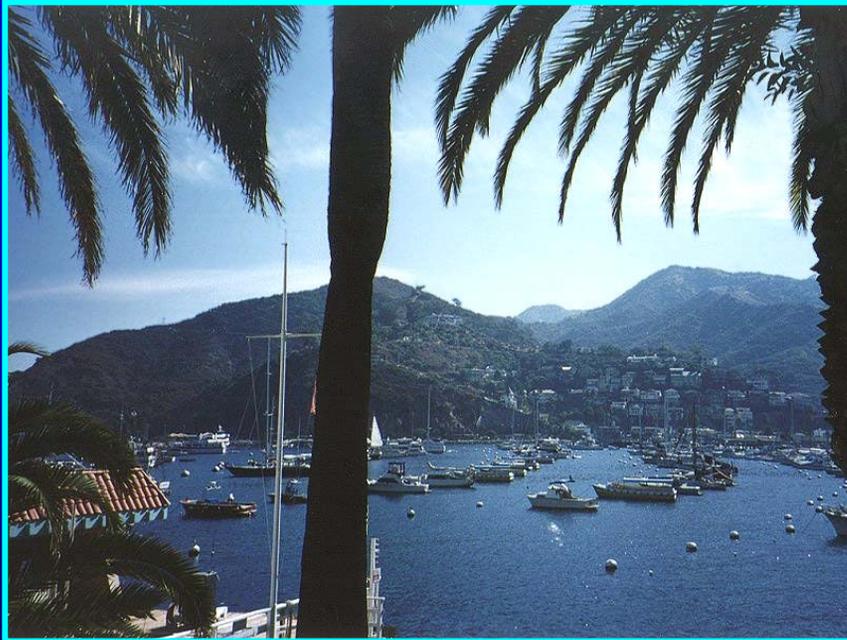
- PARKING LOT DIVERSION SYSTEM MOST EFFECTIVE
- STORMCEPTOR SYSTEM LEAST EFFECTIVE
- OLOIDS NOW BEING EVALUATED



SEWER IMPROVEMENTS

THE TWO PROJECTS FAILED TO REDUCE SHORELINE BACTERIAL DENSITIES:

- **BEACHES STILL IMPACTED BY OTHER CONTAMINANT SOURCES (e.g. RUNOFF, NEARBY PIERS)**
- **GROUNDWATER STILL MAY BE IMPACTED BY LEAKY SEWERS**



GENERAL CONCLUSIONS

- **SUCCESSFUL PROJECTS ELIMINATED RUNOFF FROM BEACH**
- **MANY BEACHES CONTINUE TO BE CHALLENGING**
 - **DIFFICULT TO DEFINE SOURCES OF BACTERIA (e.g. CONTAMINATED SANDS?)**
 - **DIFFICULT TO CONTROL SOURCES (e.g. BIRDS)**
- **SCIENCE MUST BE PART OF THE FUNDING PROCESS**
 - **NEED MORE RESEARCH ON DEFINING SOURCES, THREATS TO HUMAN HEALTH**
 - **ALLOW SUFFICIENT TIME TO DEFINE PROBLEM**
 - **USE PAST LESSONS TO HELP DESIGN FUTURE PROJECTS**

FINAL THOUGHTS

**MILLIONS OF GALLONS
OF CONTAMINATED
RUNOFF REMOVED
FROM BEACHES
ANNUALLY
REGARDLESS OF
BACTERIAL REDUCTION**



HAMMERLAND, EL SEGUNDO



EL PORTO, MANHATTAN BEACH

**SWIMMERS AND
SURFERS ARE SAFER
THANKS TO THE CBI
PROGRAM**