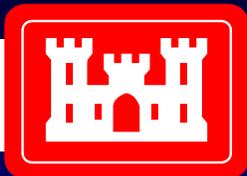




# BEACH FILL PERFORMANCE DESIGN AND MONITORING

Southern California Perspective



**Los Angeles District**

# Biggest Technical Problem



Ability to Predict  
Shoreline  
Response to  
Structures --

Confidently!

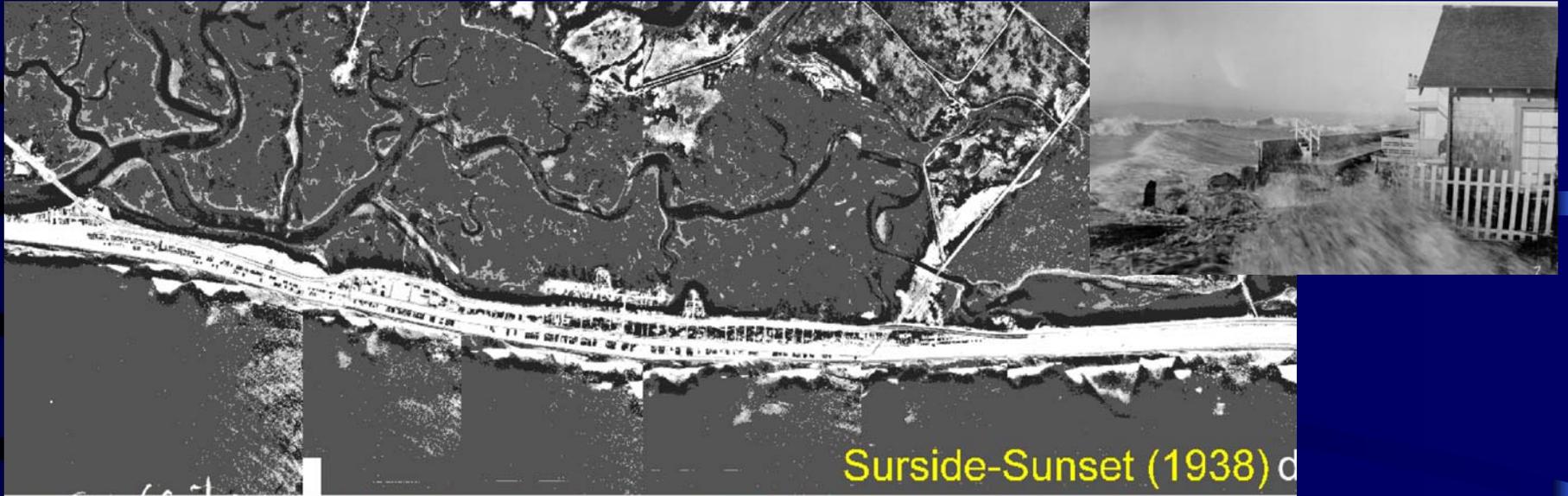


ARTIFICIAL FILL AREA  
3,000,000 CUBIC YARDS

PERIODIC NOURISHMENT  
1,750,000 CUBIC YARDS  
EVERY 5 YEARS

STONE BREAKWATER  
2,600 FT LONG

SAN GABRIEL RIVER TO NEWPORT BAY  
RECOMMENDED PLAN

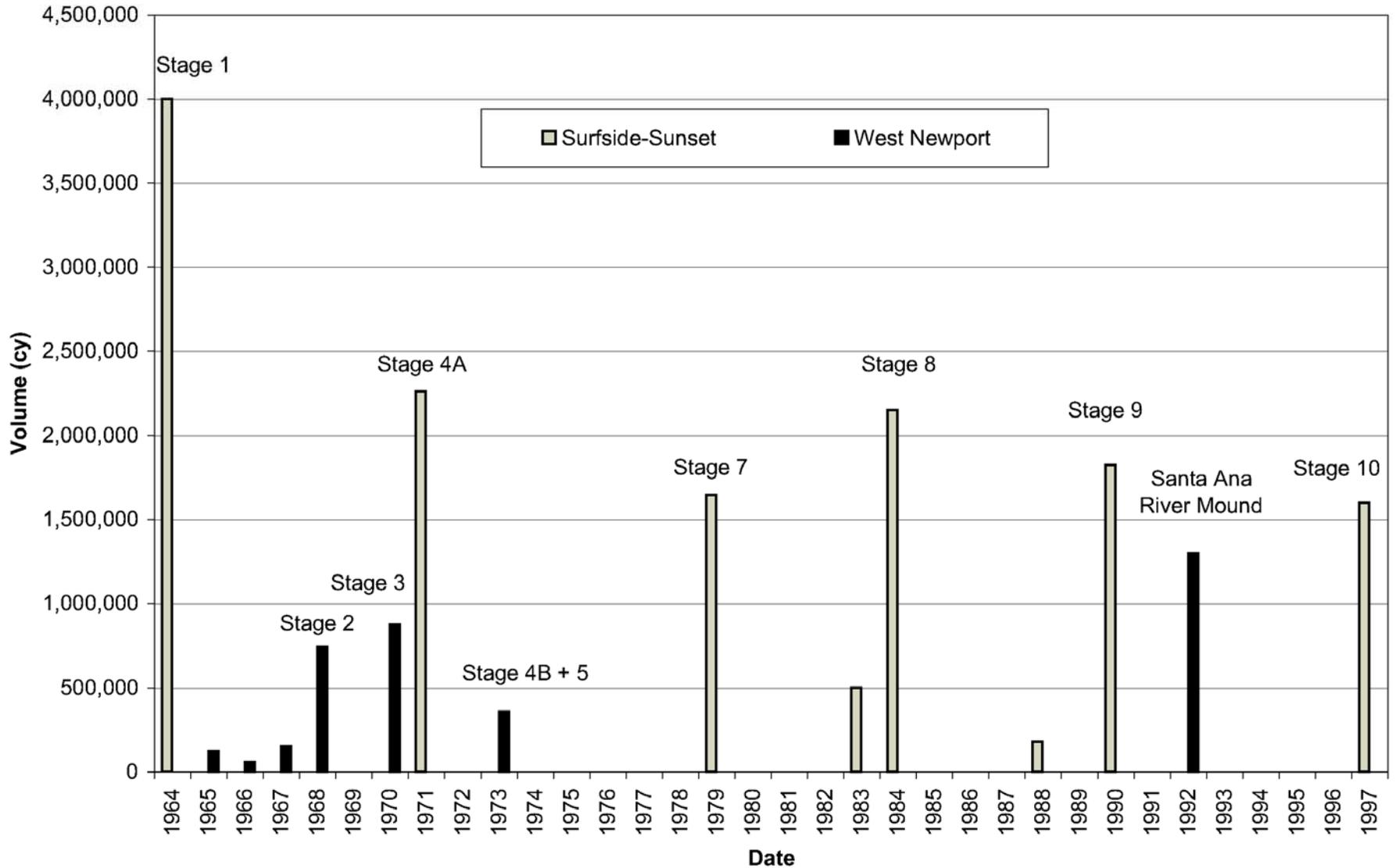


Surside-Sunset (1938) of



Surfside-Sunset (1994)

**Figure 2: Beach Nourishment Volumes  
Surfside-Sunset and West Newport Beach, 1964-1997**





01 Feb 2002

**Surfside Colony**

**Pre Stage 11  
Conditions**



17 Feb 2002

5 days into Stage 11

02 March 2002

19 days into Stage 11



3.2.2002

# Project Justification

- Annual Benefits

– Storm Damage Prevention	\$1,941,000
– Recreation	280,000
– TOTAL	\$2,221,000

- Costs

– 1st Costs	\$4,275,000
– Periodic Nourishment	450,000
– TOTAL ANNUAL	\$613,000

- BCR 3.6

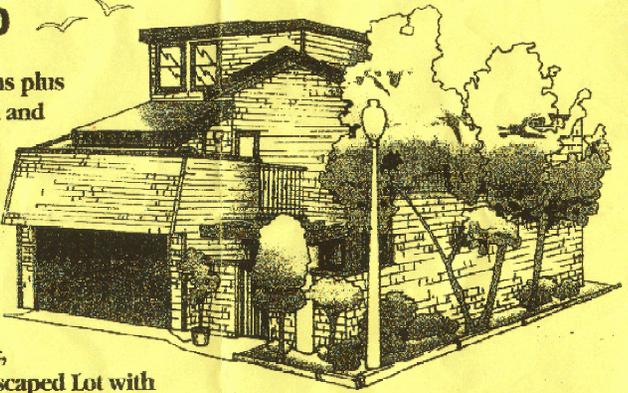
(1961 Price-levels)

# “Predicted vs Realized”

**B68 Surfside Colony**

**\$650,000**

2 Master Bedrooms plus another Bedroom and Bonus Room.  
2.5 Bathrooms,  
Wet Bar,  
2 Fireplaces,  
Skylights,  
High Ceilings,  
Entry Patio  
with Electric Gate,  
Extra Large Landscaped Lot with  
Sprinklers, each Bedroom has  
own Outdoor Deck.



See online @ [www.Surfsideprop.com](http://www.Surfsideprop.com)

**SURFSIDE PROPERTIES**

MARY ELLEN CLICK  
562•592•2677

## Home Valuation

- 1961 Avg Home + Land = \$13k + \$5k = \$18k
- 2002 Market Value of non-beachfront \$650k
- Equivalent Annual Rate 9.1%

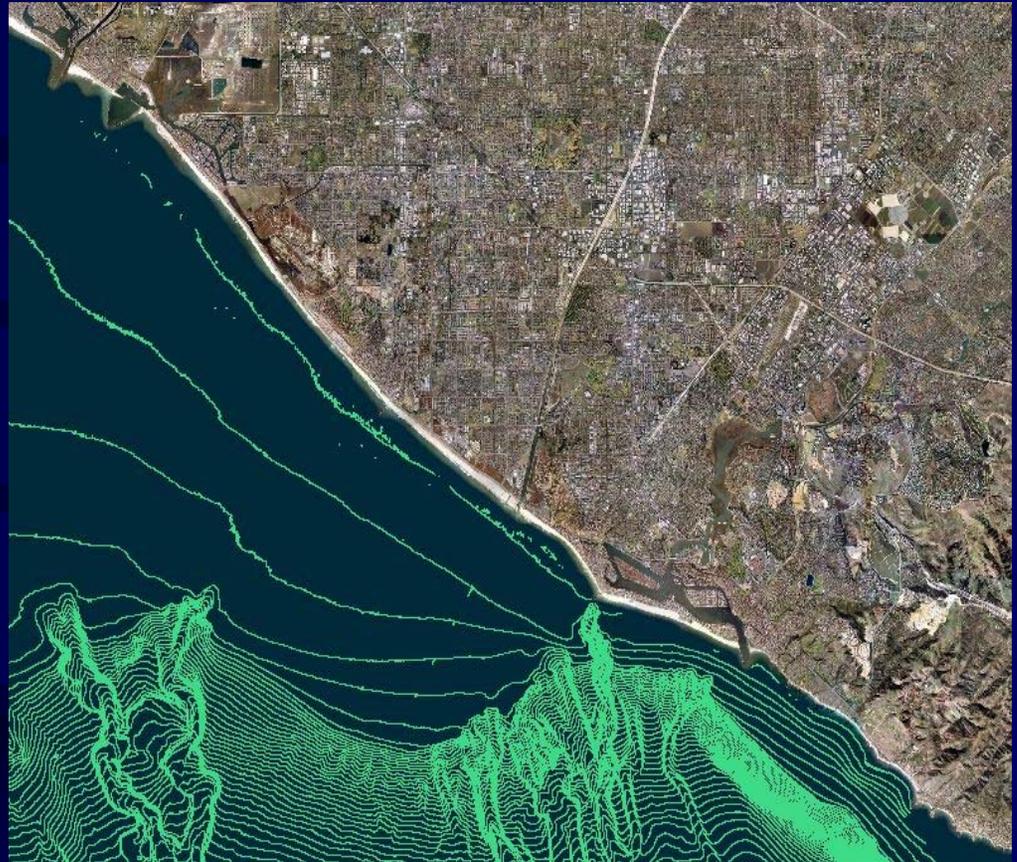
# “Predicted vs Realized”

## Periodic Nourishment

- 1961-Estimate of Back-passing 1.75 mcy  
\$2,250,000
- 2002 Stage 11 1.4 mcm (1.84 mcy)  
\$4,850,000
- Equivalent Annual Rate      1.9%
- EP1110-1-1 for 1967-2002 Marine Eq.  
4.5%

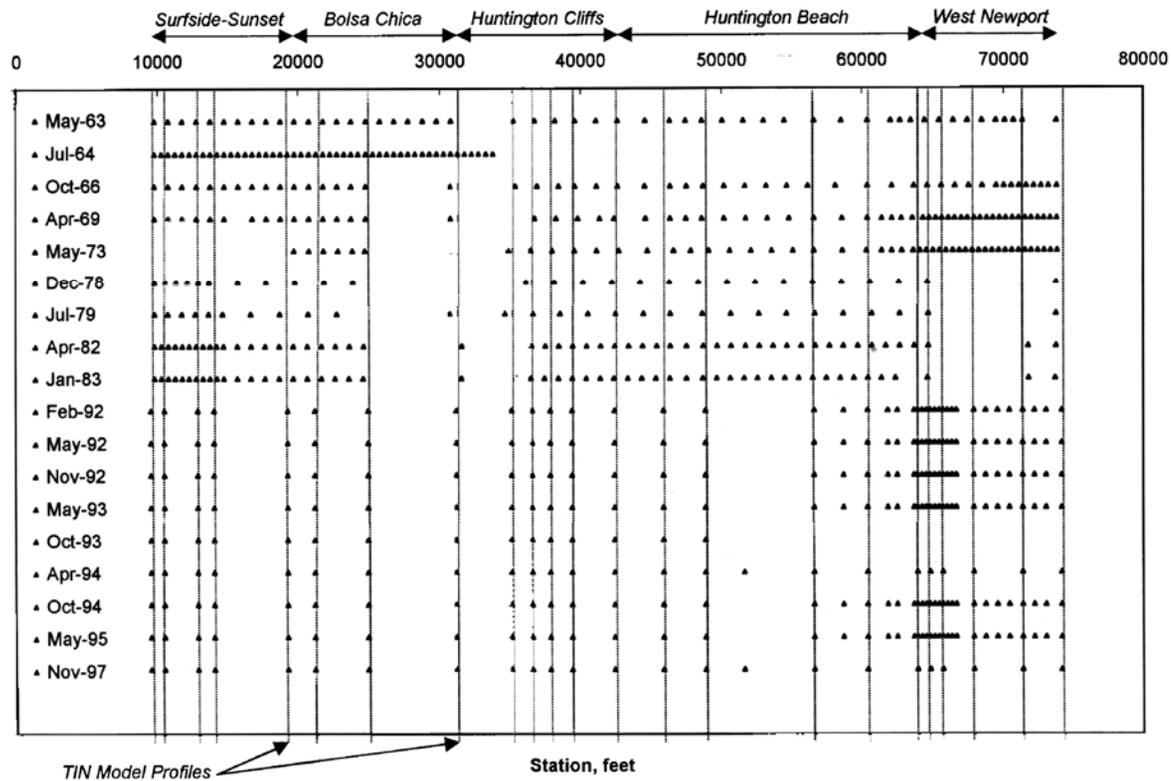
# Monitoring Methods

- Beach Widths
- Profiles
- Aerial Ortho Photo
- Lidar/SHOALS



# Monitoring Comparison

Figure 4: Profile Coverage for Each Survey, 1963-1997



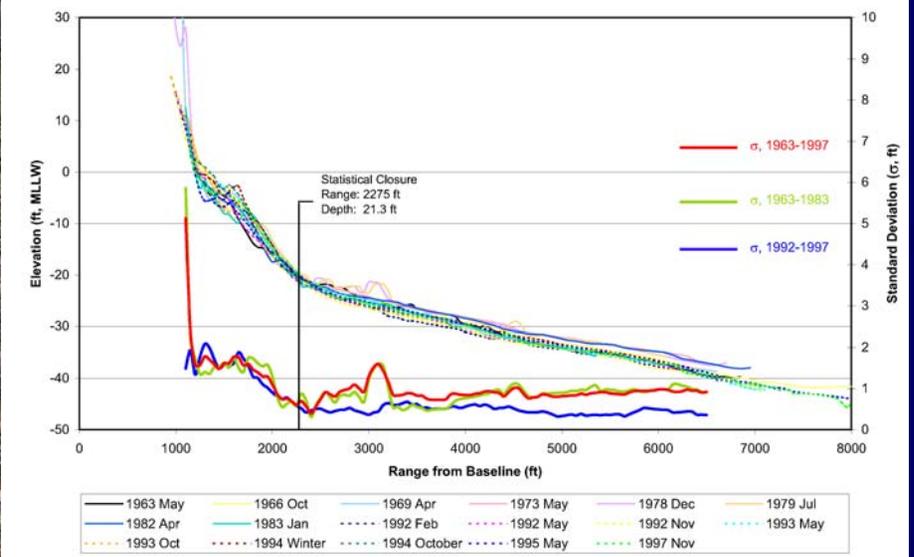
Profiles ~  
\$1k/line

Beach Widths ~  
\$1k/day (24 Sta.)

LIDAR ~ \$25k +  
\$20k mob

SHOALS ~

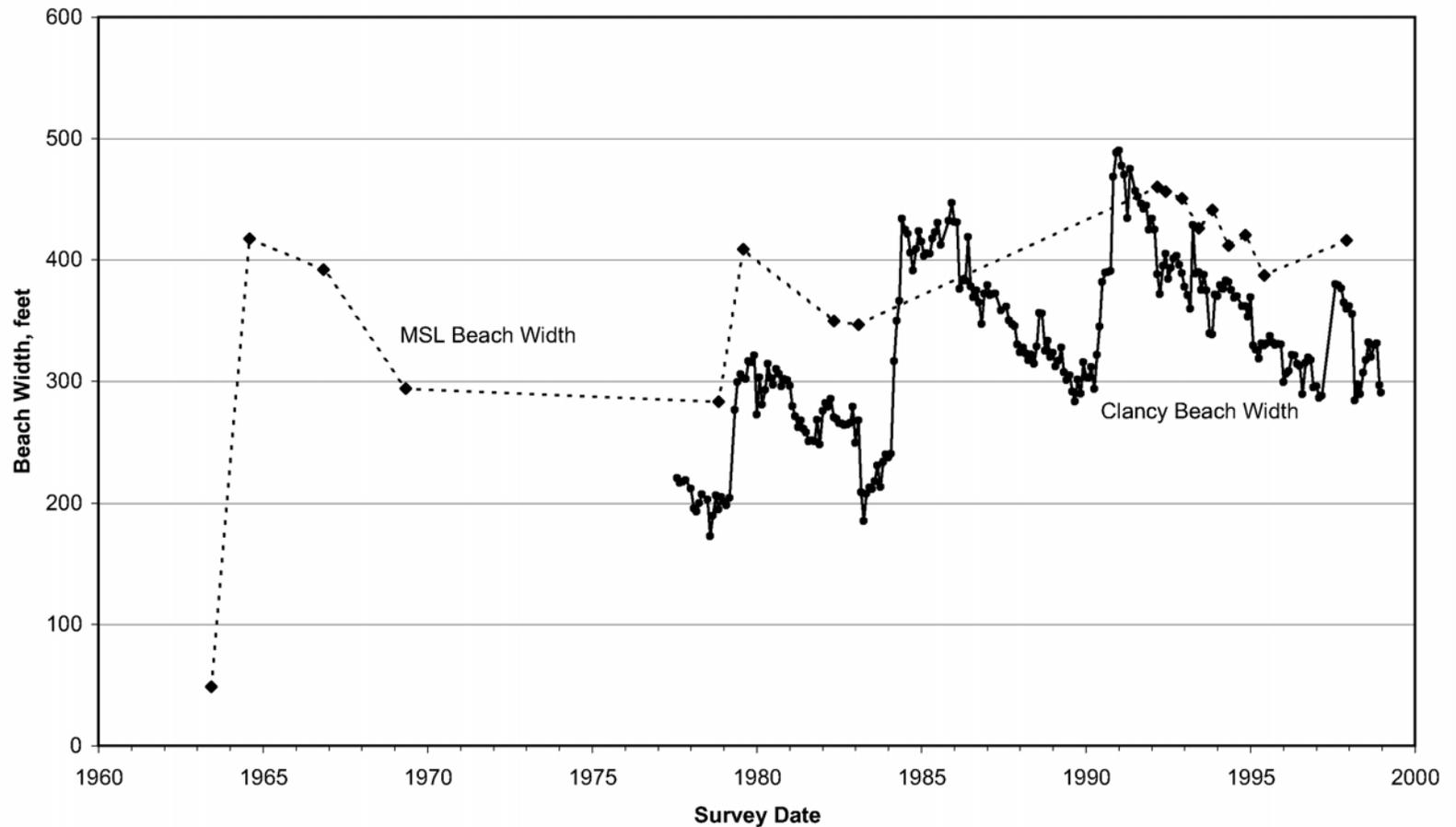
Figure 8: Survey Profiles at Station 393+92.45



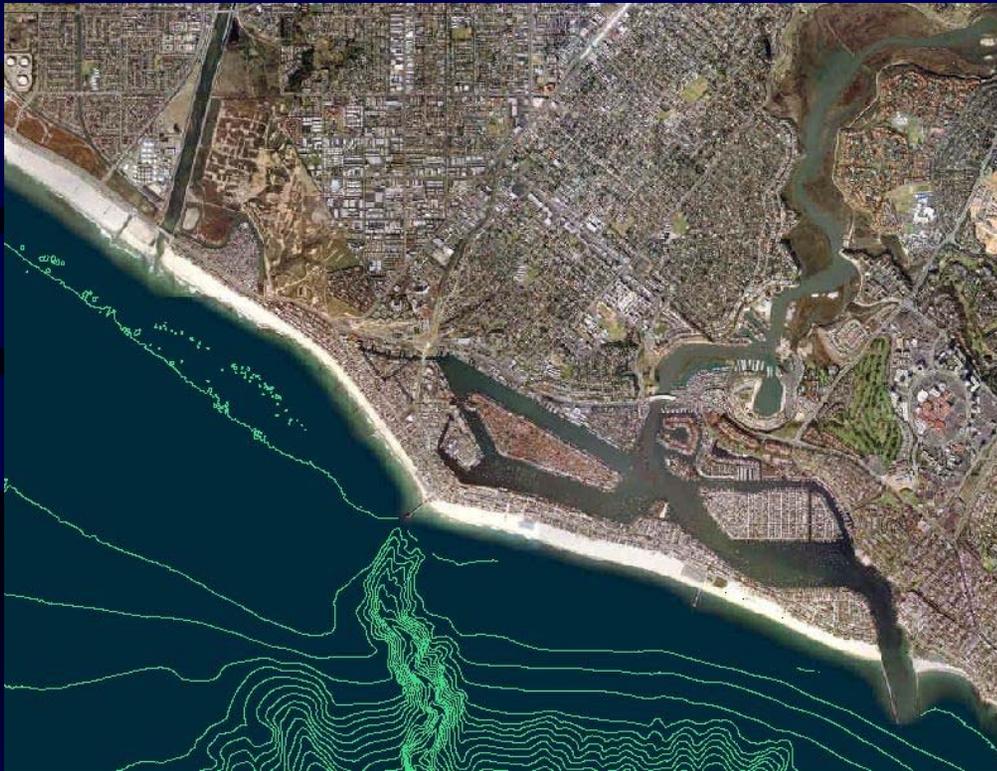
# 24 Profile Locations

# Beach Widths and Profiles

Figure 14: Beach Width Changes, 1963-1998  
Surfside-Sunset

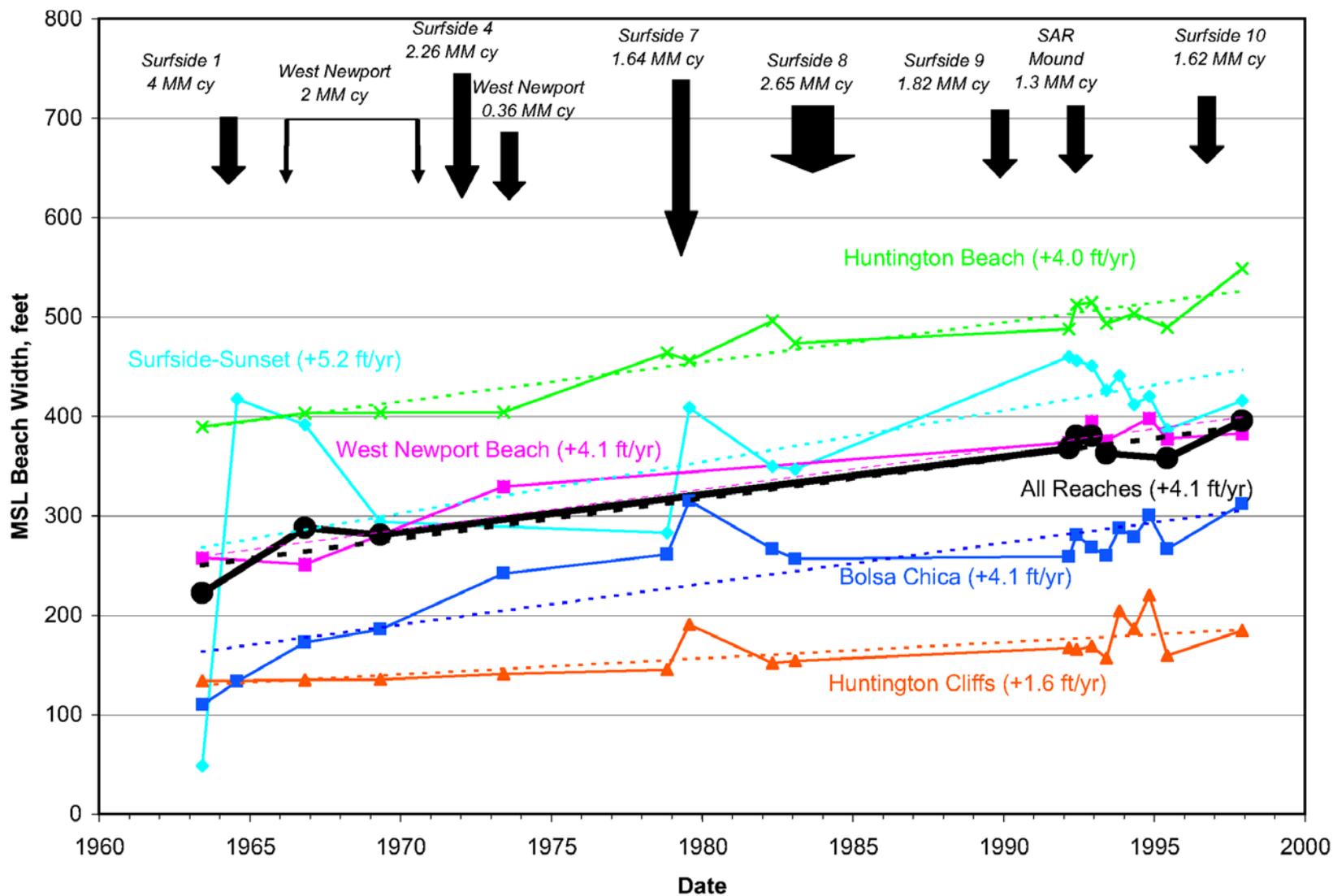


# Monitoring Issues



- Costs
- Resolution
  - Volumes or Widths
  - 2D vs 3D
- Sampling Frequency
  - Trends
  - Seasonal
  - Storm Events

**Figure 42: Average MSL Beach Width by Reach, 1963-1997**



**Figure 59: Cumulative Volume, 1963-1997**  
**Anaheim Bay to Santa Ana River**

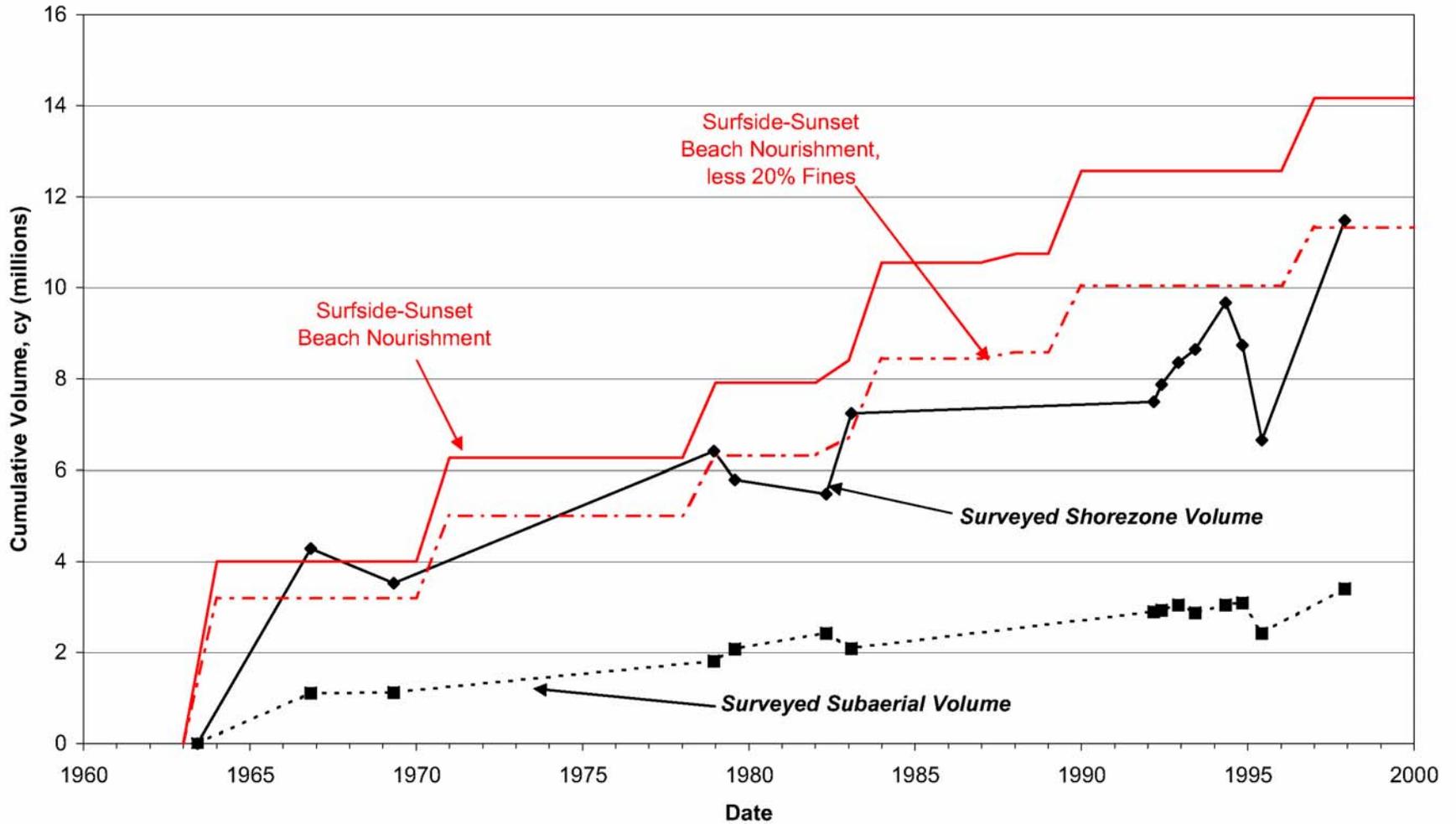
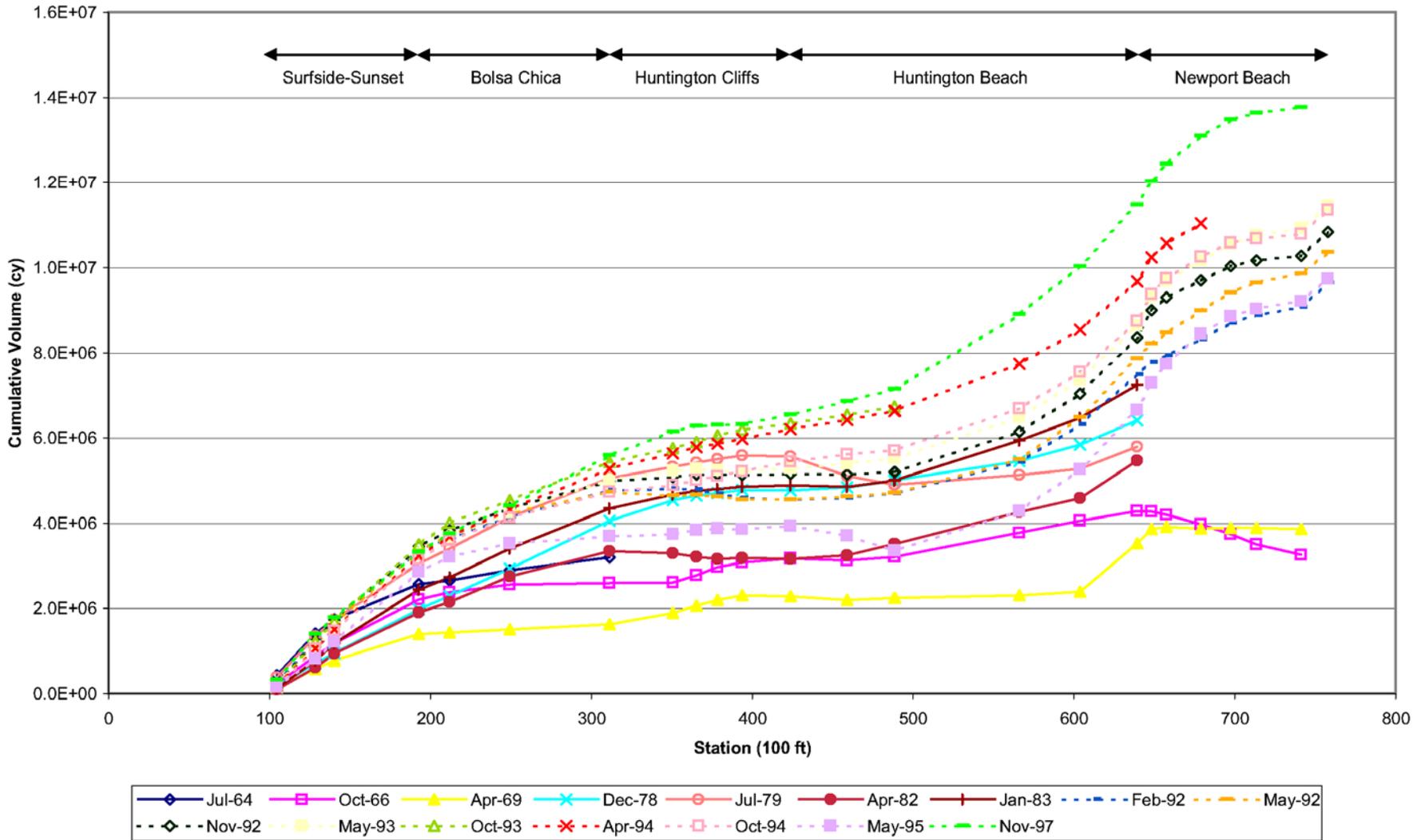


Figure 56: Cumulative Shorezone Volume Since 1963



Note: Shorezone Volume lies between the landward limit of profile data and the point of statistical closure, above an arbitrary basement of -45 ft MLLW (Figure 7).

# Biggest Technical Problem



Ability to Predict  
Shoreline  
Response to  
Structures --

Confidently!

