

US EPA ARCHIVE DOCUMENT



Heal the Bay's Beach Report Card®

Communicating Complex Water Quality Issues and Improving Public Health Notification

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What is the BRC?

The Beach Report Card (BRC) was first published in 1991 as a resource for beach-goers to better understand local water quality at their favorite ocean beaches.

The BRC is based on the routine monitoring of beaches conducted by local health agencies and dischargers.



The Need for a BRC

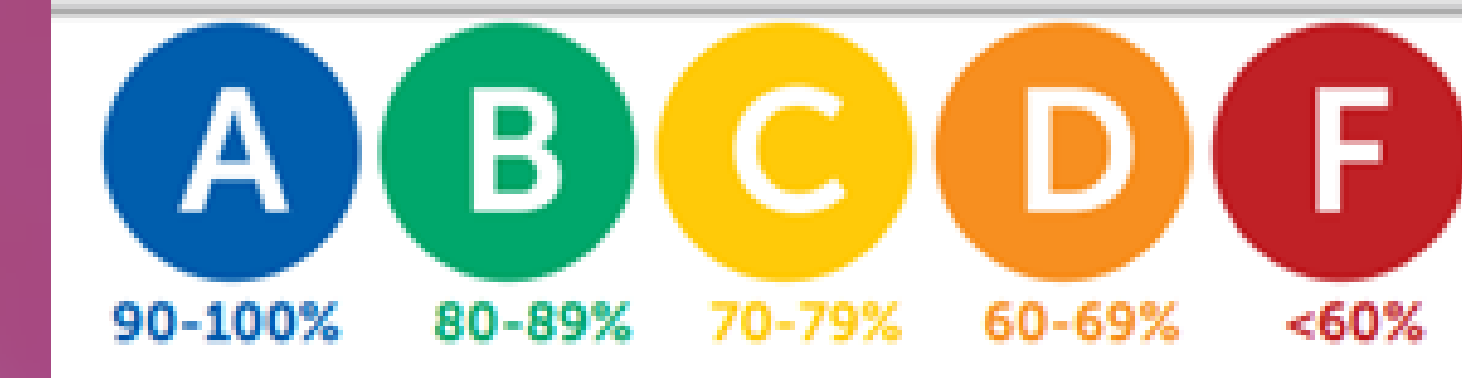
Historically, shoreline water quality data was simply collected for regulatory compliance.

When ambient monitoring and public notification was required, the data was used to merely determine sign posting.



| Date | Time | Source | T. COLI MPN/100 ml | E. COLI MPN/100ml | ENTERO MPN/100 ml |
|----------|------|--------|--------------------|-------------------|-------------------|
| 03/28/16 | 0845 | OCEAN | 10 | <10 | <10 |
| 03/28/16 | **** | OCEAN | NO | SAMPLE | COLLECTED |
| 03/28/16 | 0908 | OCEAN | <10 | <10 | <10 |
| 03/28/16 | 0921 | OCEAN | 10 | 10 | <10 |
| 03/28/16 | 0930 | OCEAN | 10 | <10 | <10 |
| 03/28/16 | 0943 | OCEAN | 41 | <10 | <10 |
| 03/28/16 | 0953 | OCEAN | 10 | <10 | <10 |
| 03/28/16 | 1003 | OCEAN | 52 | 20 | <10 |
| 03/28/16 | 1015 | OCEAN | 5,172 | <10 | <10 |
| 03/28/16 | 1041 | OCEAN | 2,481 | <10 | <10 |
| 03/28/16 | 1100 | OCEAN | 2,613 | 2,014 | <10 |
| 03/28/16 | 1102 | OCEAN | 134 | <10 | 31 |
| 03/28/16 | 1106 | OCEAN | 880 | <10 | <10 |
| 03/28/16 | 1111 | OCEAN | 816 | <10 | <10 |
| 03/28/16 | 1148 | OCEAN | 388 | <10 | <10 |
| 03/28/16 | 1217 | OCEAN | 160 | 63 | <10 |
| 03/28/16 | 1223 | OCEAN | 62 | 30 | <10 |
| 03/28/16 | 1227 | OCEAN | <10 | <10 | <10 |
| 03/28/16 | 1247 | OCEAN | 31 | <10 | <10 |
| 03/28/16 | 1300 | OCEAN | <10 | <10 | <10 |

Lost in this process was any effort to understand trends, source identification or abatement, or public notification efficacy.



single sample and geometric mean results.

Our methodology has been approved by our partner agencies, SCCWRP, and CA SWRCB as an effective tool for public notification.

Public agency monitoring data is cleaned and classified by location type, rain influenced, and season.

Methodology and Data

The BRC uses an 'A—F' grading system. Grades are solely based on fecal indicator bacteria sampling results. Grades consider the magnitude and frequency of exceedances, single sample and geometric mean results.

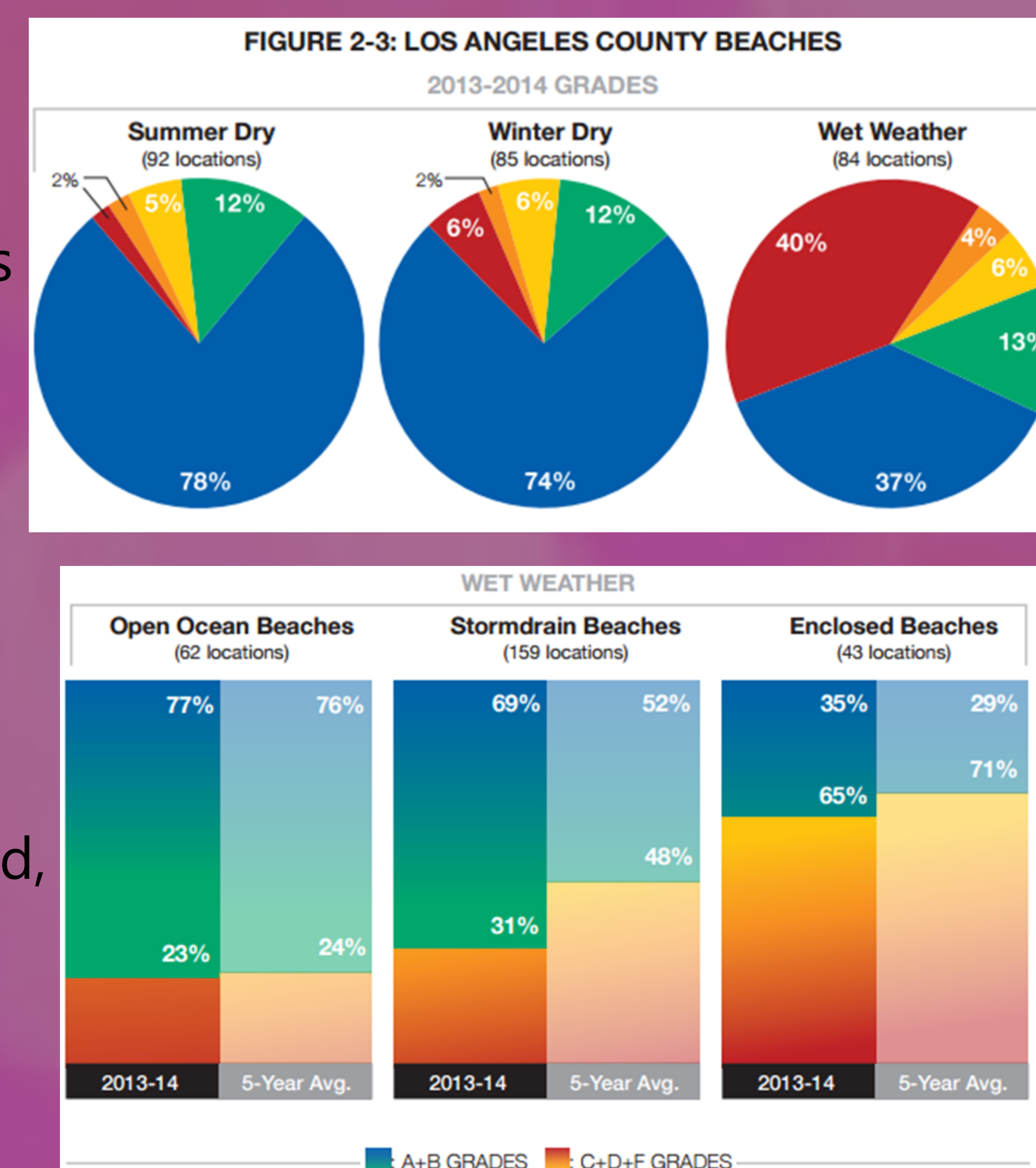
| TABLE 4-2: CALCULATING THE TOTAL POINTS LOST FOR THE GEOMETRIC MEAN COMPONENT | | | |
|---|-------------------------------------|---|------------------------|
| Indicator Exceeded | Calif. Beach Bathing Water Standard | % of Total Available Points Lost* Due to Exceedance | Total Available Points |
| Enterococcus | 35 | 80% | 50 |
| Fecal Coliform | 200 | 40% | |
| Total Coliform | 1,000 | 20% | |
| * Colony forming units per 100 milliliters of ocean water | | | |

| TABLE 4-3: SINGLE SAMPLE GRADIENT THRESHOLDS IN CFU/100ML* | | | | |
|--|--------------------|----------------------|--------------------|---------------------------|
| Indicator Bacteria | SLIGHT T + 1 SD | MODERATE T + 1 SD | HIGH > T + 1 SD | EXTREME Very High Risk |
| Total Coliform | 6,711-9,999 | 10,000-14,900 | > 14,900 | N/A |
| Fecal Coliform | 268-399 | 400-596 | > 596 | N/A |
| Enterococcus | 70-103 | 104-155 | > 155 | N/A |
| Total Fecal Ratio (when total ≥ 1,000) | 10:1-13 | 7:1-10 | 2:1-7 | < 2: |

Analysis of Classifications

Heal the Bay produces grades for monitored beaches by:

- Season (Summer Dry, Winter Dry, and Wet)
- Weather (Dry vs. Wet)
- Beach Type (Open, Enclosed, and Storm Drain)
- Time (Weekly or Annual)



Benefits of the BRC

For the past 25 years, the BRC has:

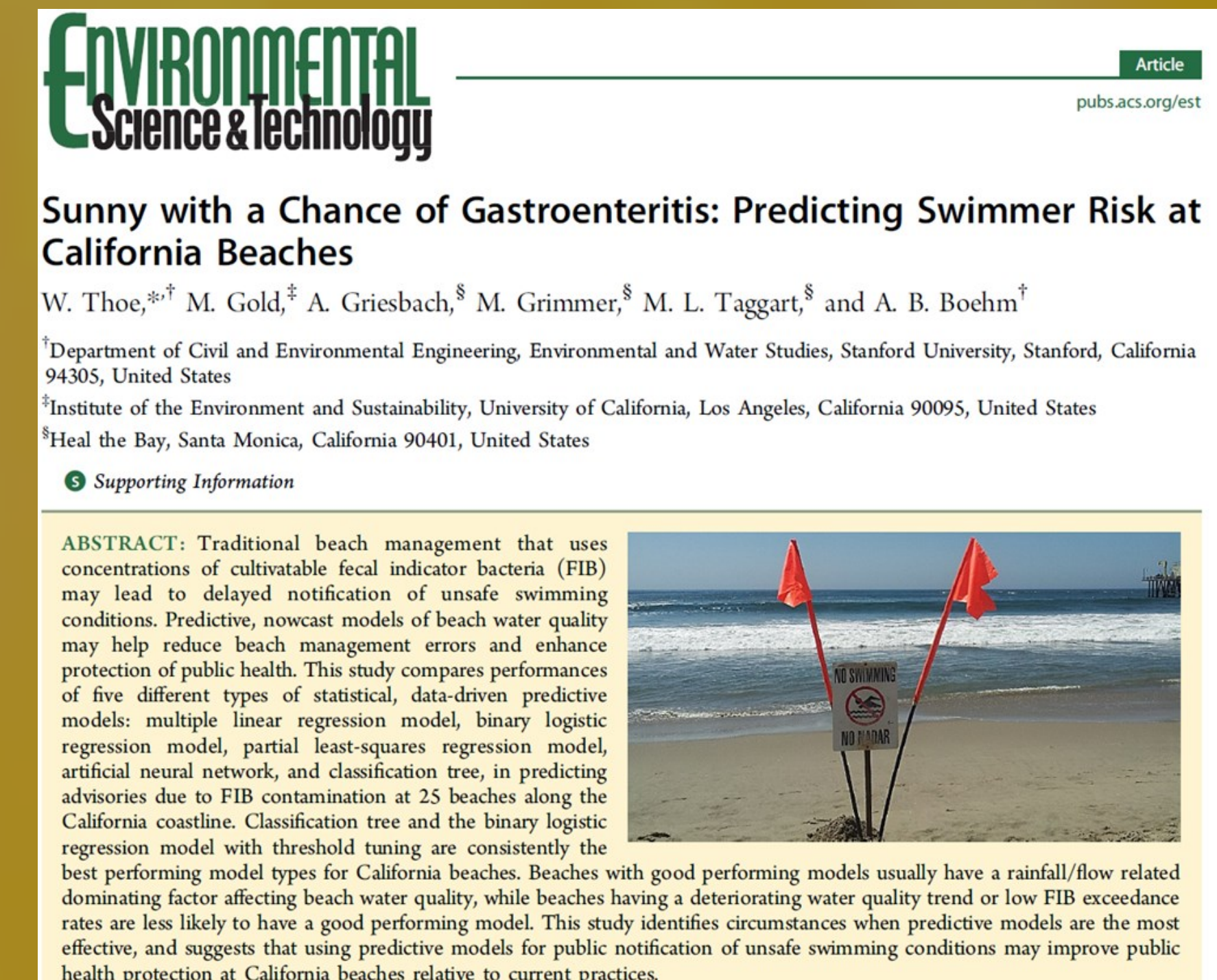
- Increased public notification and awareness
- Identified water quality trends and problem locations
- Led to 303(d) listings and policy elements like BMPs, Source ID, and special studies.
- Been utilized by public agencies for grant / funding opportunities
- Celebrated 'great' beaches.

Predictive Modeling Phase I and II

Over the last three years, Heal the Bay, Stanford and UCLA determined the feasibility of implementing predictive models in California.*

Phase I: Proof of concept (2012-2014)

Could models be developed for CA marine beaches?



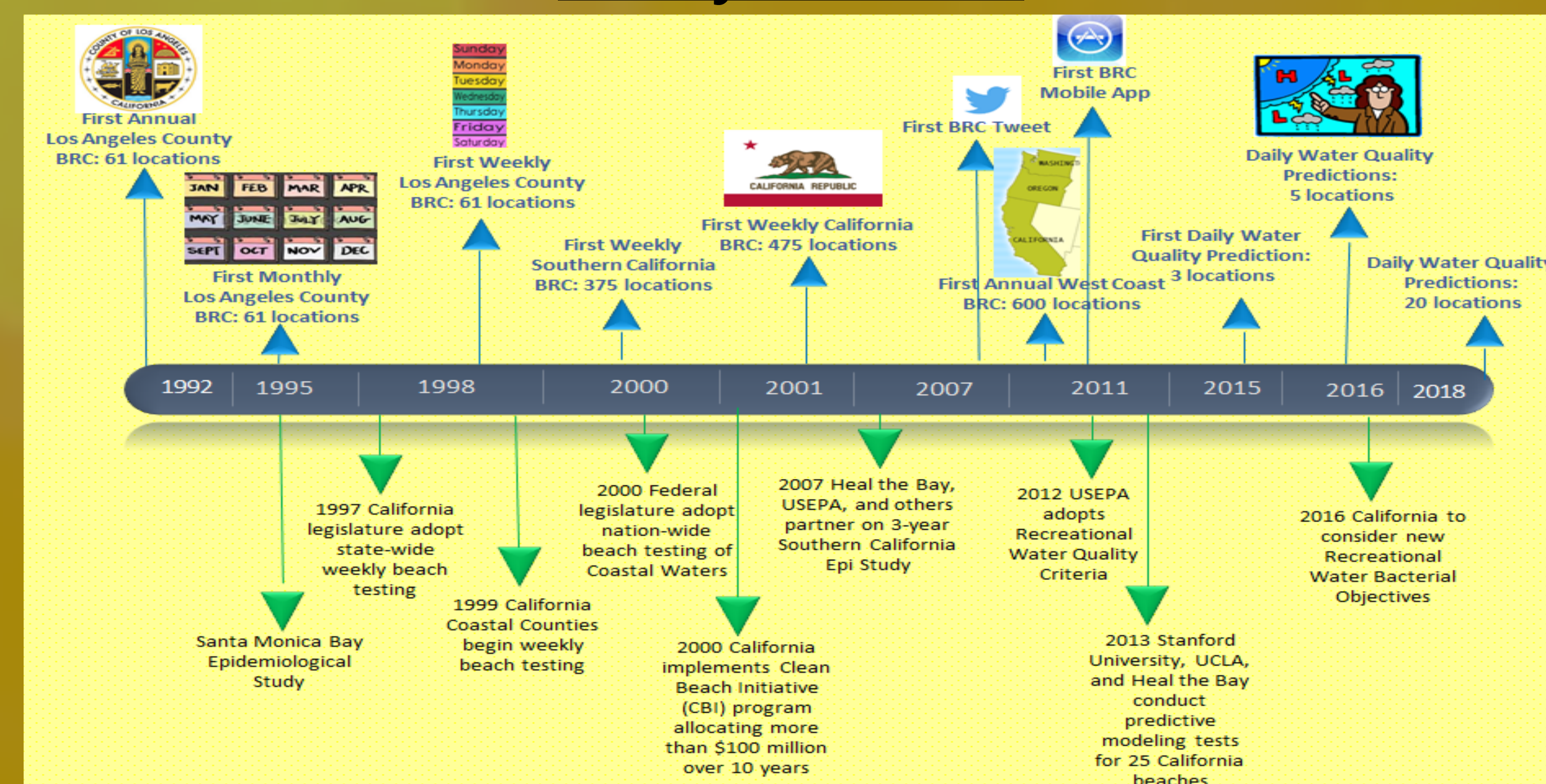
Phase II: Pilot test at 3 beaches (2015)

Could a model be readily integrated into an existing M&PN programs?

Promising Results:

- Improved accuracy in public notification over current method;
- Daily notification to beach-goers in the morning everyday including weekends;
- Improved understanding of FIB pollution at the beach and how to mitigate sources; and
- Models can be successfully integrated into existing M&PN programs.

History of the BRC



Public Notification

Heal the Bay produces weekly, summer, and Annual grades for beach locations when data is available.

The grades are made available free to local press, partner organizations, and the general public via email, twitter, mobile app, and our web page.

For more information on the Beach Report Card Program, please visit:

www.brc.healthebay.org



Partnerships: The BRC would not be possible without the cooperation of the various State and County public agencies that conduct beach water quality monitoring programs.

Program Sponsored by: Surf Industry Manufacturers Association and Swain Barber Foundation