

Bacterial Quality Improvements at Baby Beach, Dana Point Harbor

H2O Conference
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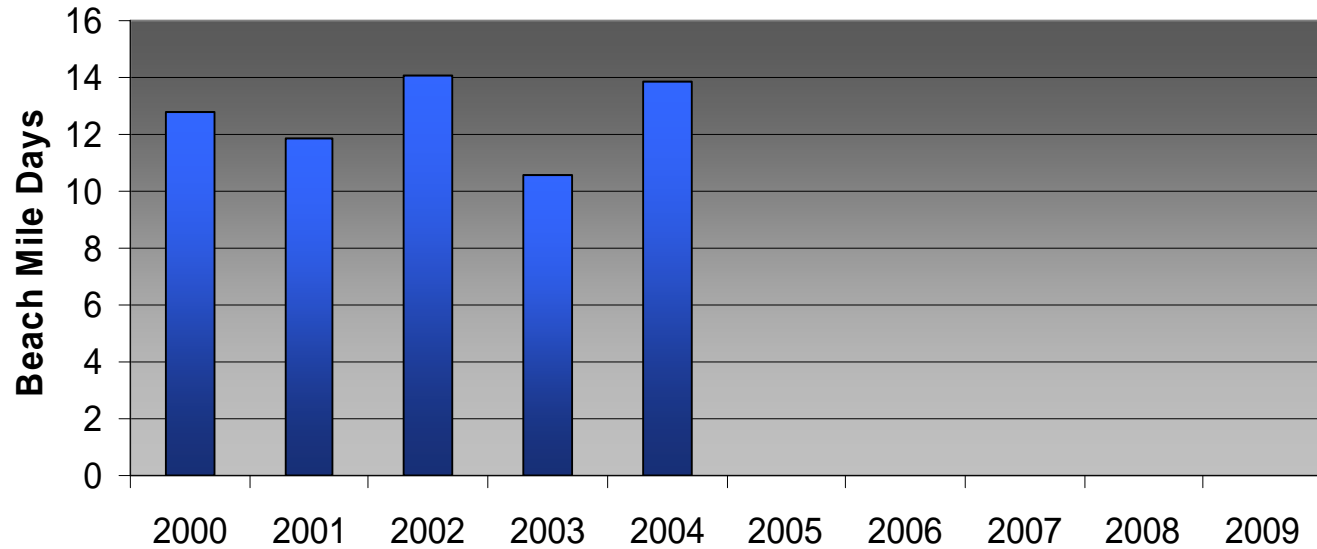
Baby Beach – Dana Point Harbor



- Beach and environs administered jointly by OC Dana Point Harbor and OC Parks
- Great potential for water contact recreation



**Baby Beach Annual Water Quality Advisory History
in Beach Mile Days, 2000 - 2004 (OCHCA, 2008)**

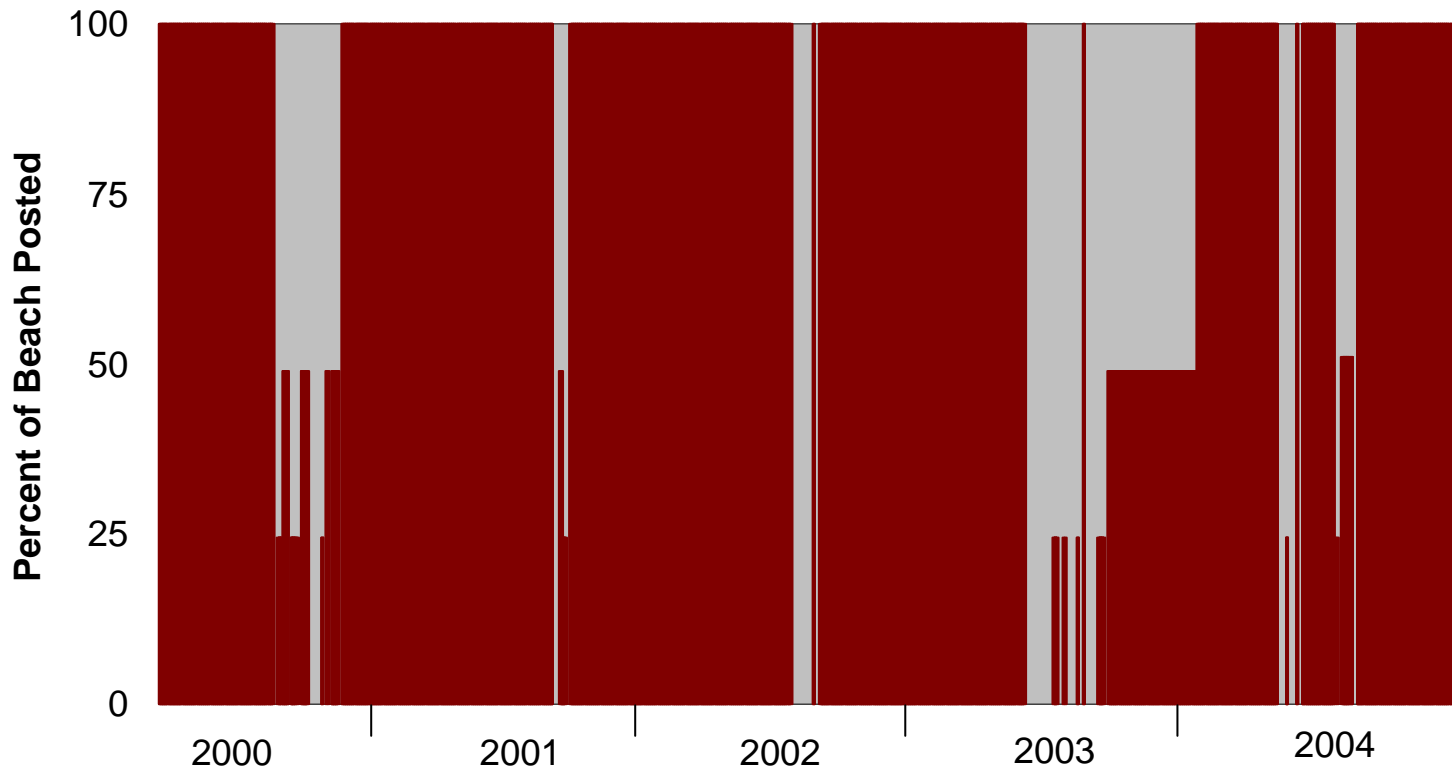


- Historically persistent exceedence of AB411 bacteria standards and extended Health Care Agency water quality advisory postings
- Beach Mile Days equivalent to entire beach posted between 240 – 320 days per year
- Consistent “F” grade from Heal the Bay Beach Report Card



Progressive Baby Beach Water Quality Advisory History Percent of Beach Posted, 2000 - 2004

■ Percent of Beach Posted



Baby Beach Water Quality BMPs 1999 - 2008

- Initial source investigations and BMP efforts, 1999 – 2001
- State Clean Beach Initiatives Program Grant supported BMPs, 2002 – 2005
- Additional BMP activities, 2005 - present

Initial Source Investigations and BMP Efforts 1999 -2001

- TV and dye surveys of sanitary sewer
- Dye testing of boat sewage holding tanks
- Reduced landscape irrigation
- Preliminary summer runoff diversion
- Bird disincentive BMPs

Bird Disincentive BMPs



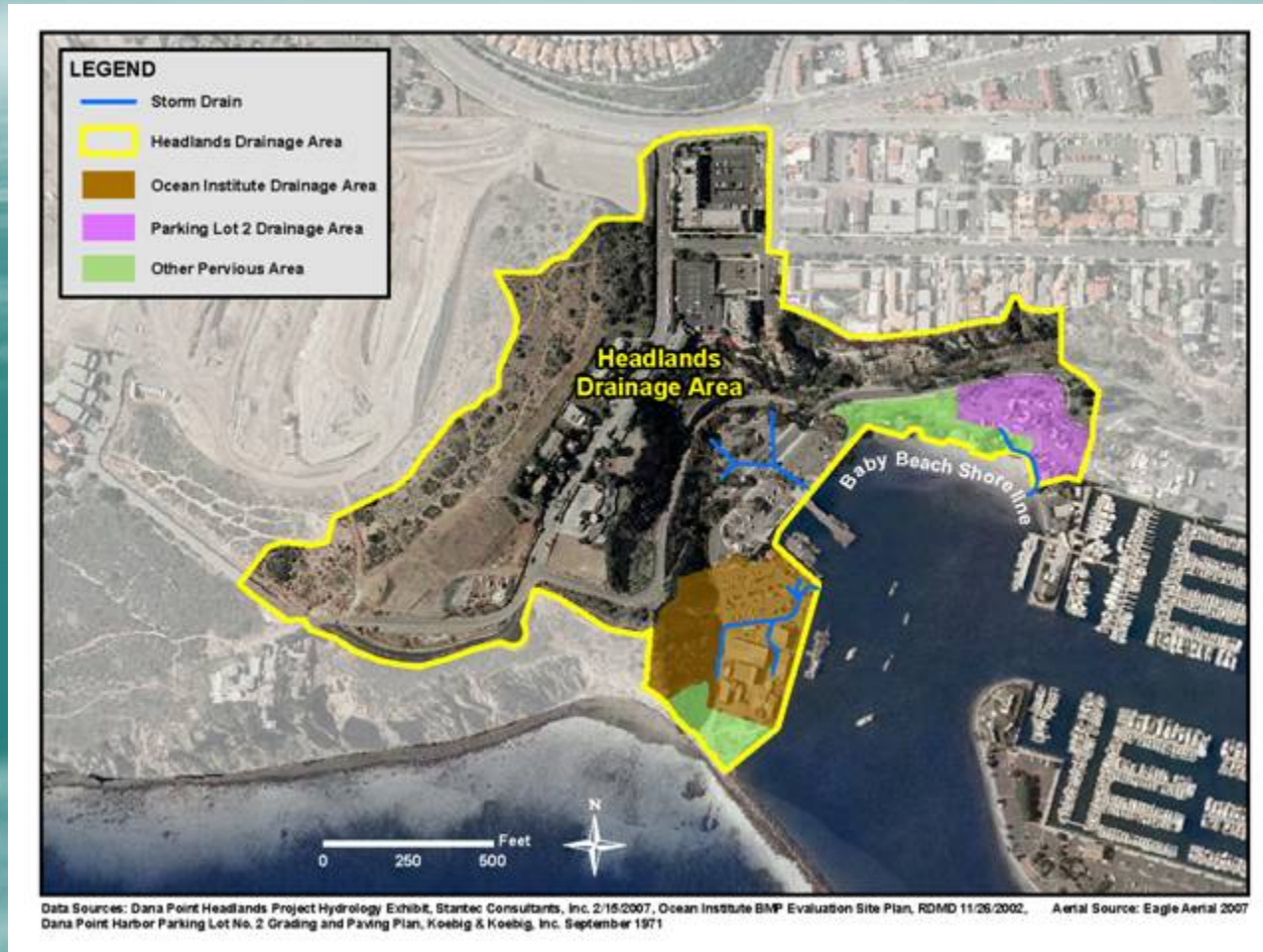
State Water Resources Control Board Clean Beach Initiatives Program Grant-supported BMPs, 2002-2005

- Upgrade pier underscreening
- Develop storm drain runoff controls
 - Ocean Institute Site Runoff BMPs
 - Headlands Runoff Diversion/Treatment BMP

Pier Underscreening Upgrade

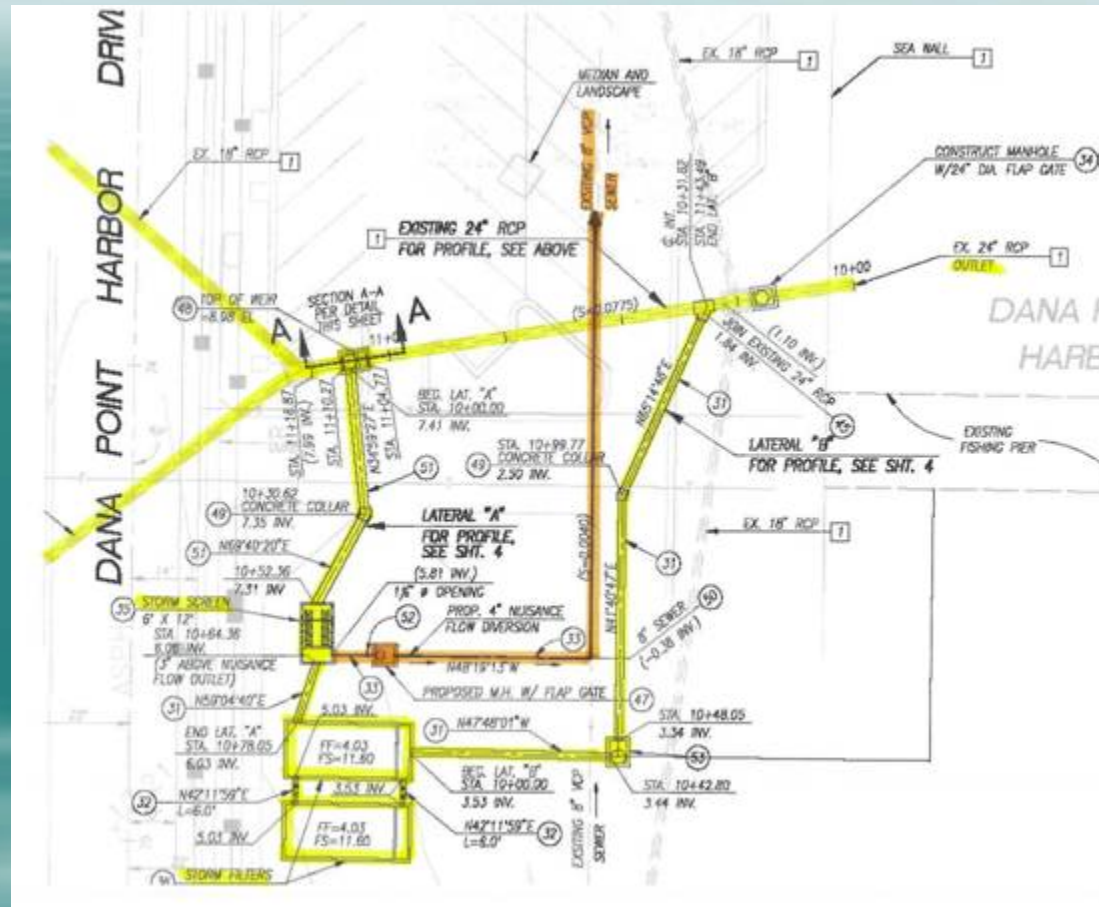


Urban Runoff BMPs



- Ocean Institute – site design and treatment BMPs, 2002
- Headlands Area – City Urban Runoff BMPs
- Headlands Area – major Diversion/Treatment BMP, 2005 funded by CBI program grant and Headlands Reserve LLC

Headlands Diversion/Treatment BMP



- Summer diversion of runoff to sanitary sewer
- Winter Stormfilter treatment of dry weather runoff and first flush storm flows prior to harbor discharge

Headlands Diversion/Treatment BMP



Headlands Diversion/Treatment BMP



Headlands Diversion/Treatment BMP



Headlands Diversion/Treatment BMP



Additional BMP Initiatives 2005 - 2008

- Mechanical circulation pilot project
- Beach sweeping program
- Beach sand replacement

Baby Beach

Mechanical Circulation Pilot Test



- Intended to improve circulation, minimize surfzone bacteria
- County conducted a pilot test during summer-fall 2005
- Pilot study results were inconclusive
- County decided not to proceed with fullscale implementation



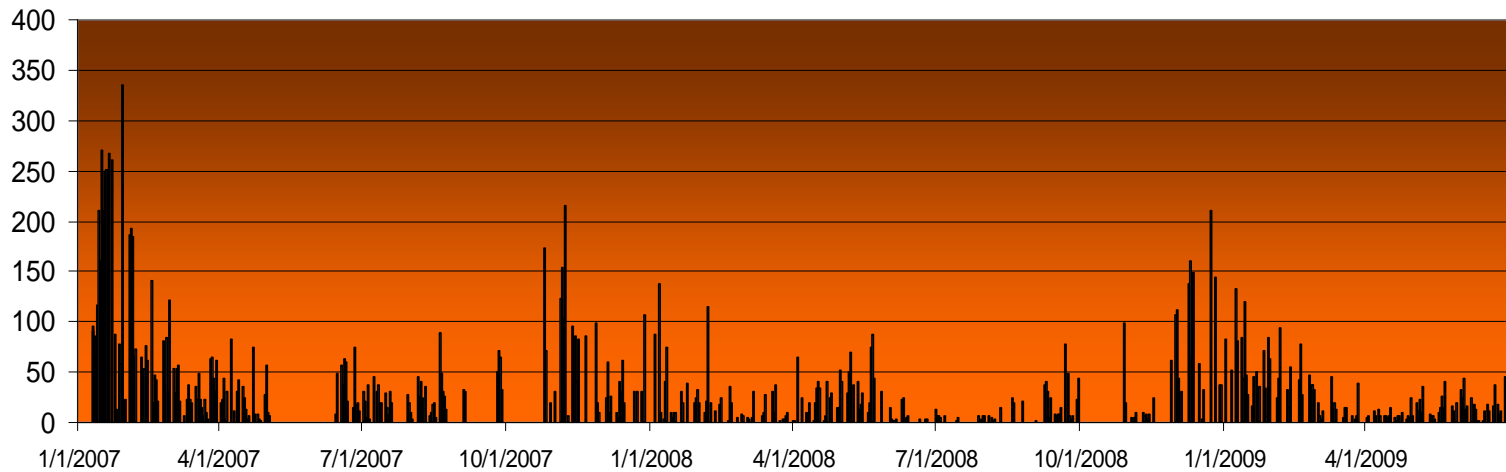
- High maintenance costs projected to keep operational
- 20 year operational commitment as part of State grant award for circulator procurement
- Uncertain water quality benefits due to spatially random sources
- Dispersive, not source control or treatment BMP

Baby Beach - Beach Sweeping Program

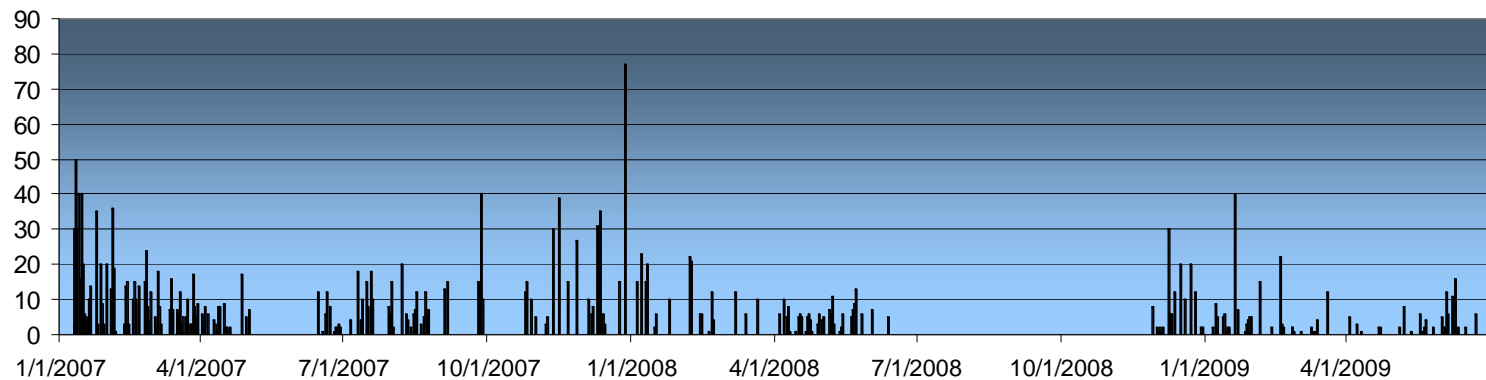


- Shorebird droppings collected along exposed intertidal
- Ongoing program initiated in January 2007

Baby Beach Sweeping- Bird Droppings Collected



Baby Beach Sweeping - Birds Observed



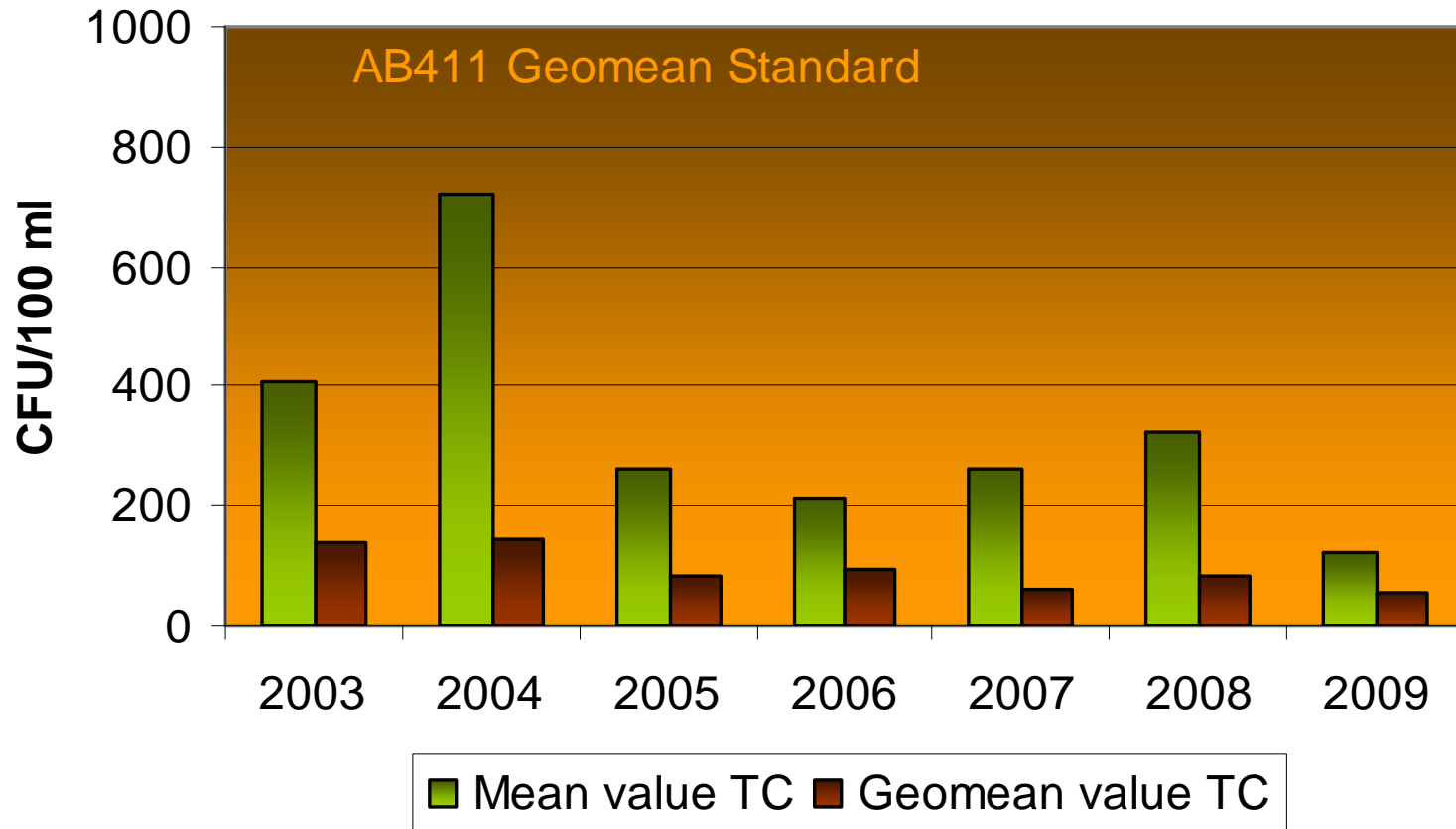
- Droppings collected generally correlated to number of birds observed
- Birds and droppings are higher during winter months
- Droppings collected per sweep: 10 – 300+

Baby Beach Sand Replacement October 2008

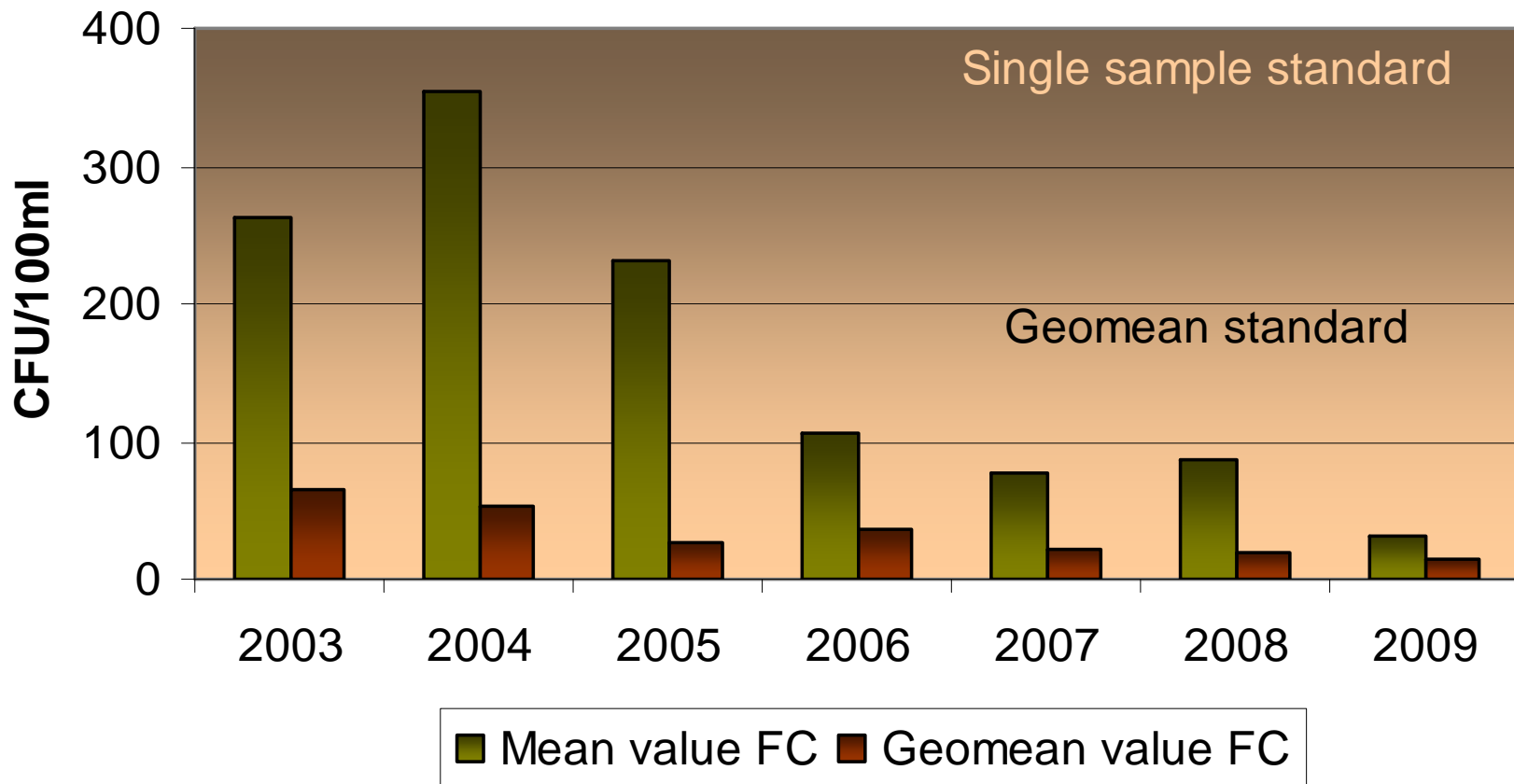


- Beach sand a potential source of enterococcus
- Beach sand replacement as part of Harbor Maintenance Dredging project in fall 2008
- 2,500 cubic yards of silty sand excavated and removed
- Replaced with cleaner, coarser sand from breakwater area sand via hydraulic dredge and 2000 foot pipeline

Baby Beach Total Coliform by Calendar Year 2003 - 2009

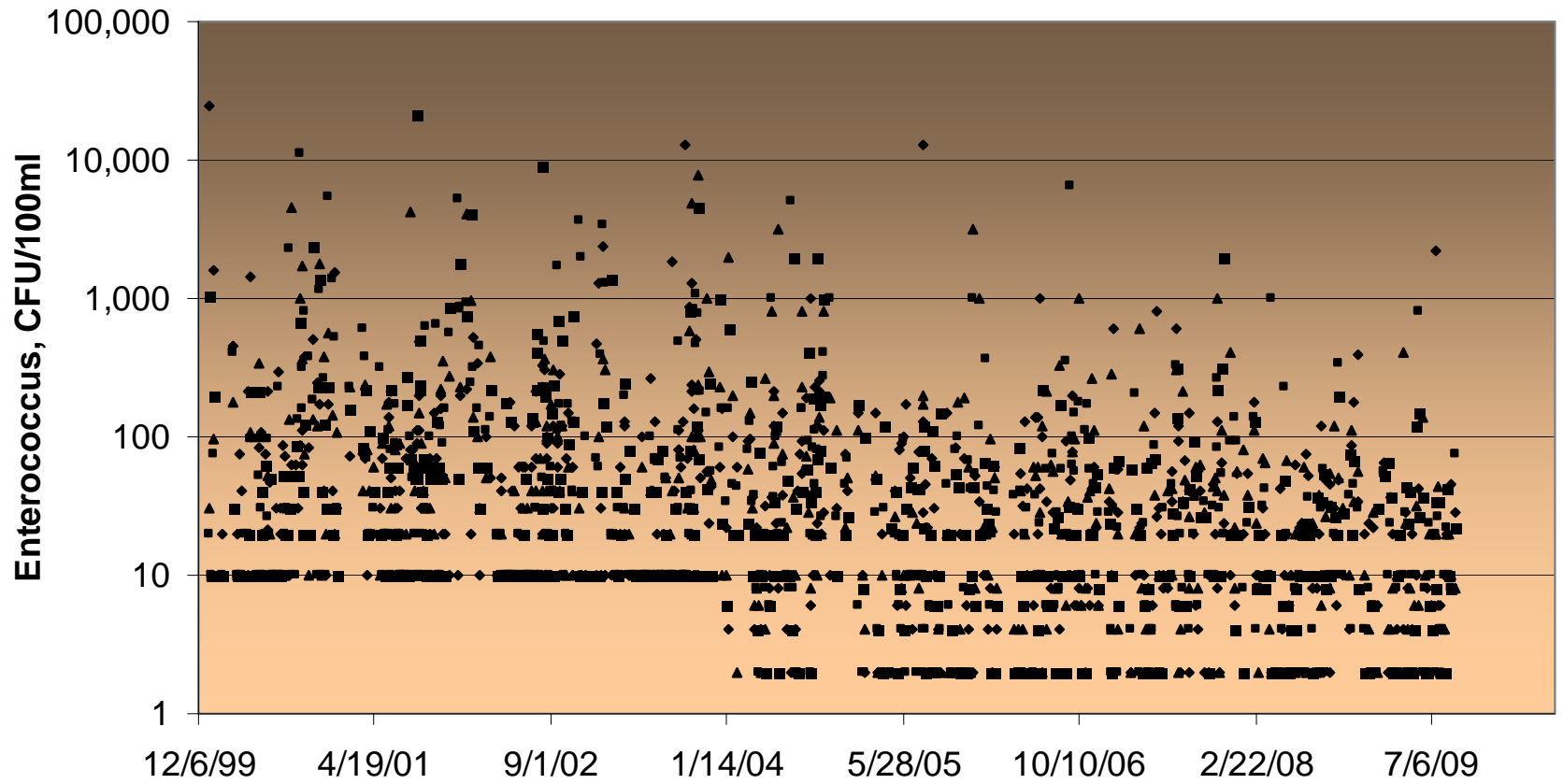


Baby Beach Fecal Coliform by Calendar Year 2003 - 2009

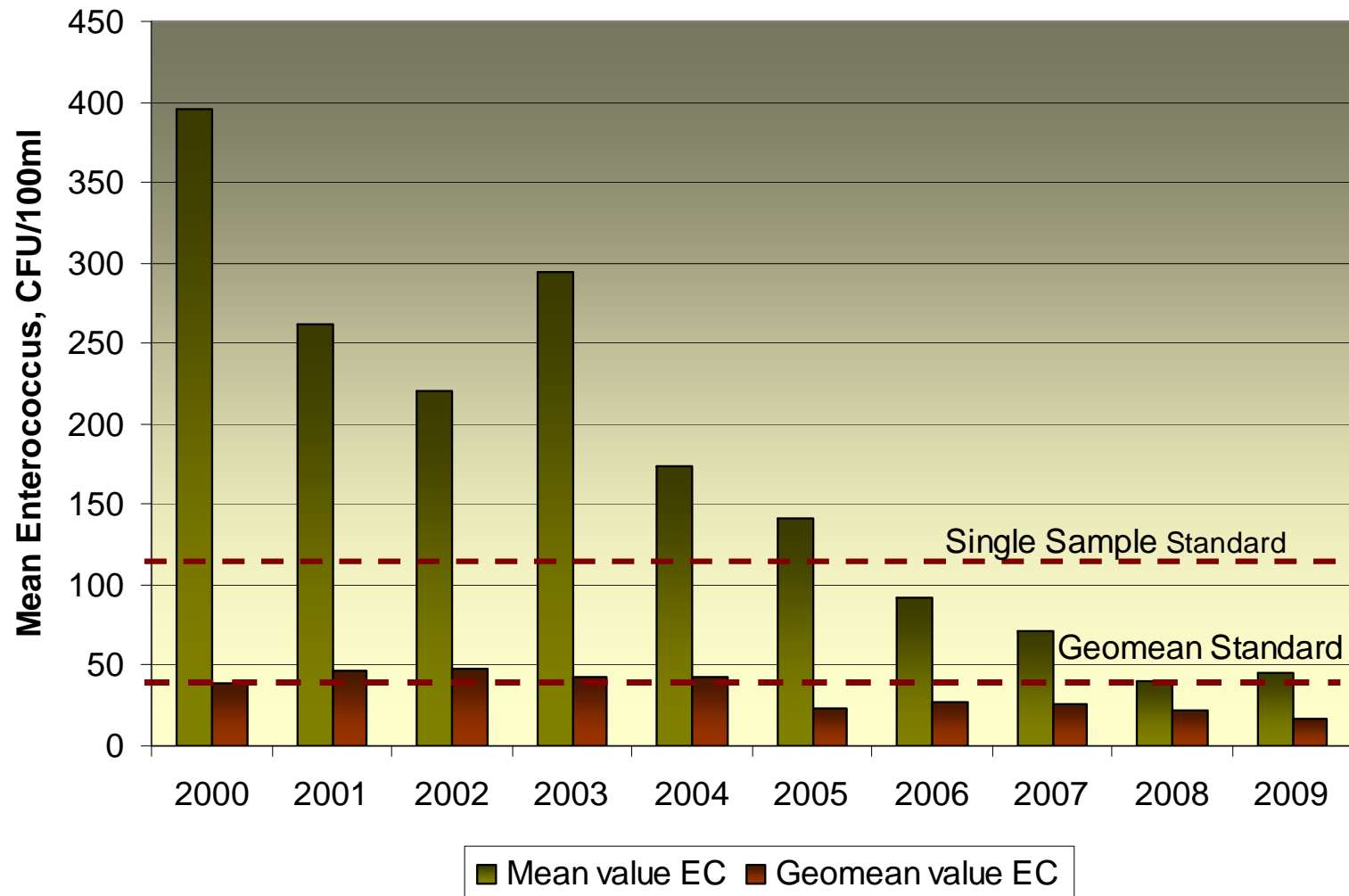


Baby Beach

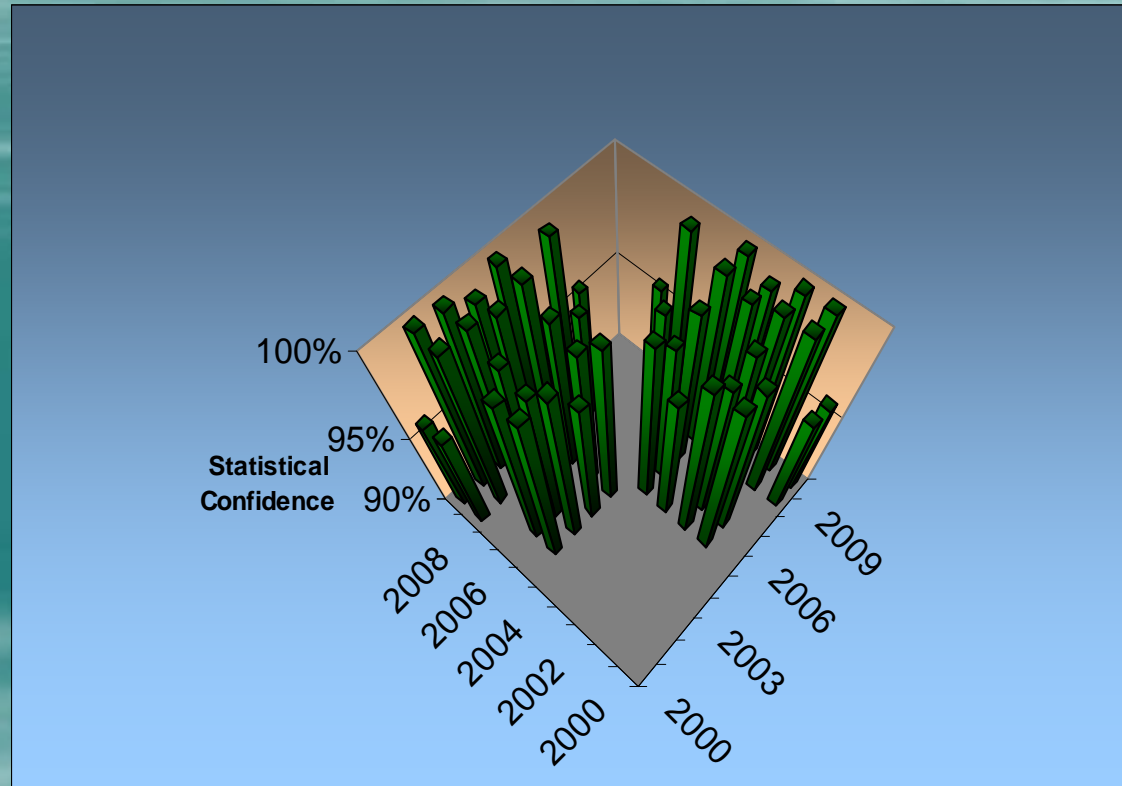
Individual Enterococcus Data 2000 - 2009



Baby Beach Enterococcus by Calendar Year 2000-2009

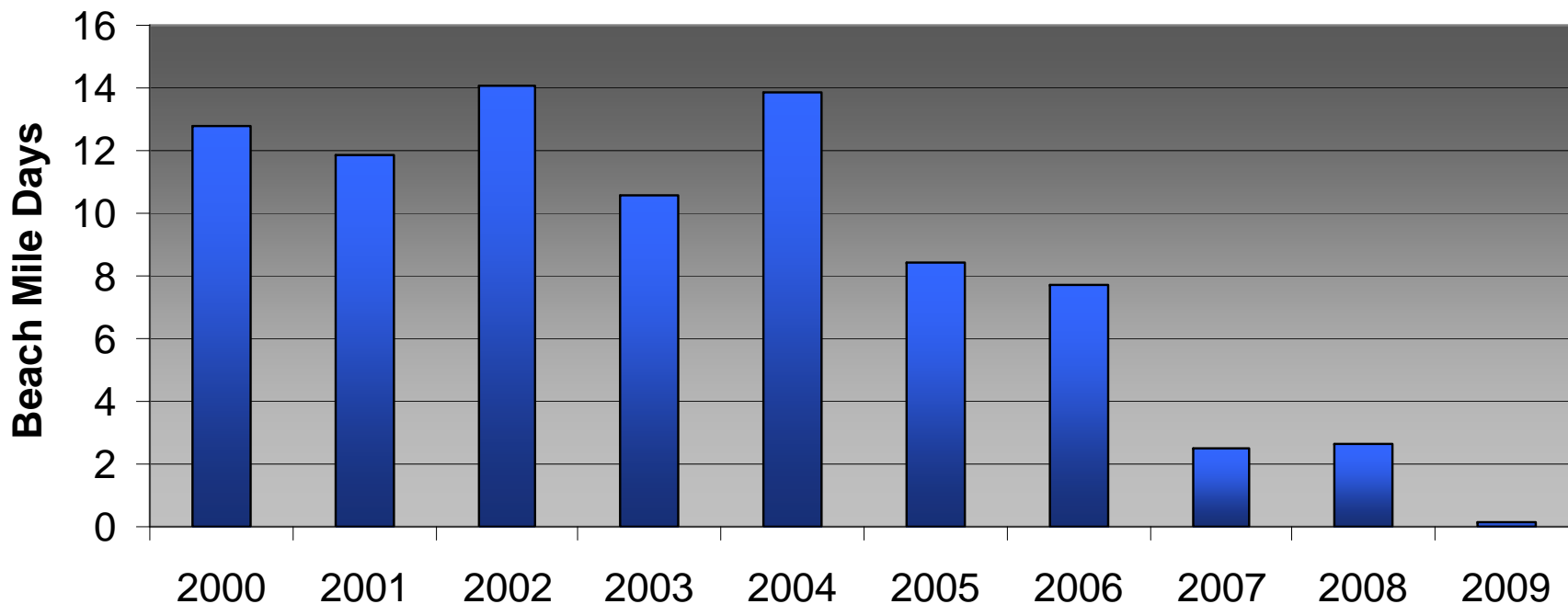


Baby Beach Enterococcus Year-to-Year Comparisons



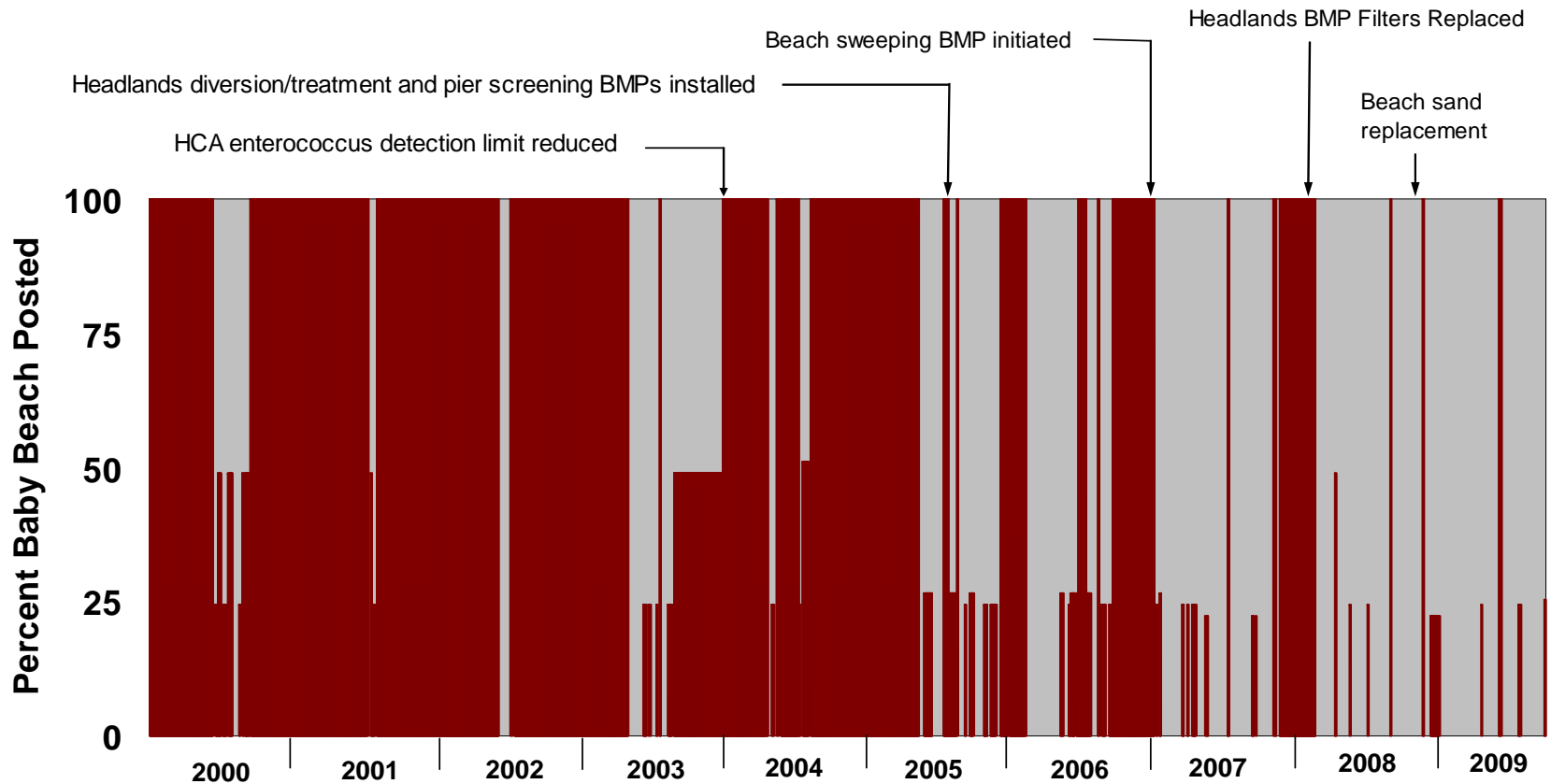
- Significant reduction between 2004 and 2005
- Corresponding significant reduction between the years 2000 – 2004 and years 2005 - 2006

Baby Beach Cumulative Annual Water Quality Advisory History 2000 - October 2009



- Substantial reduction in postings since 2004
- As of October 25th, 0.14 BMD posted for 2009
- Heal the Bay awarded "A" for 2008-09 water year

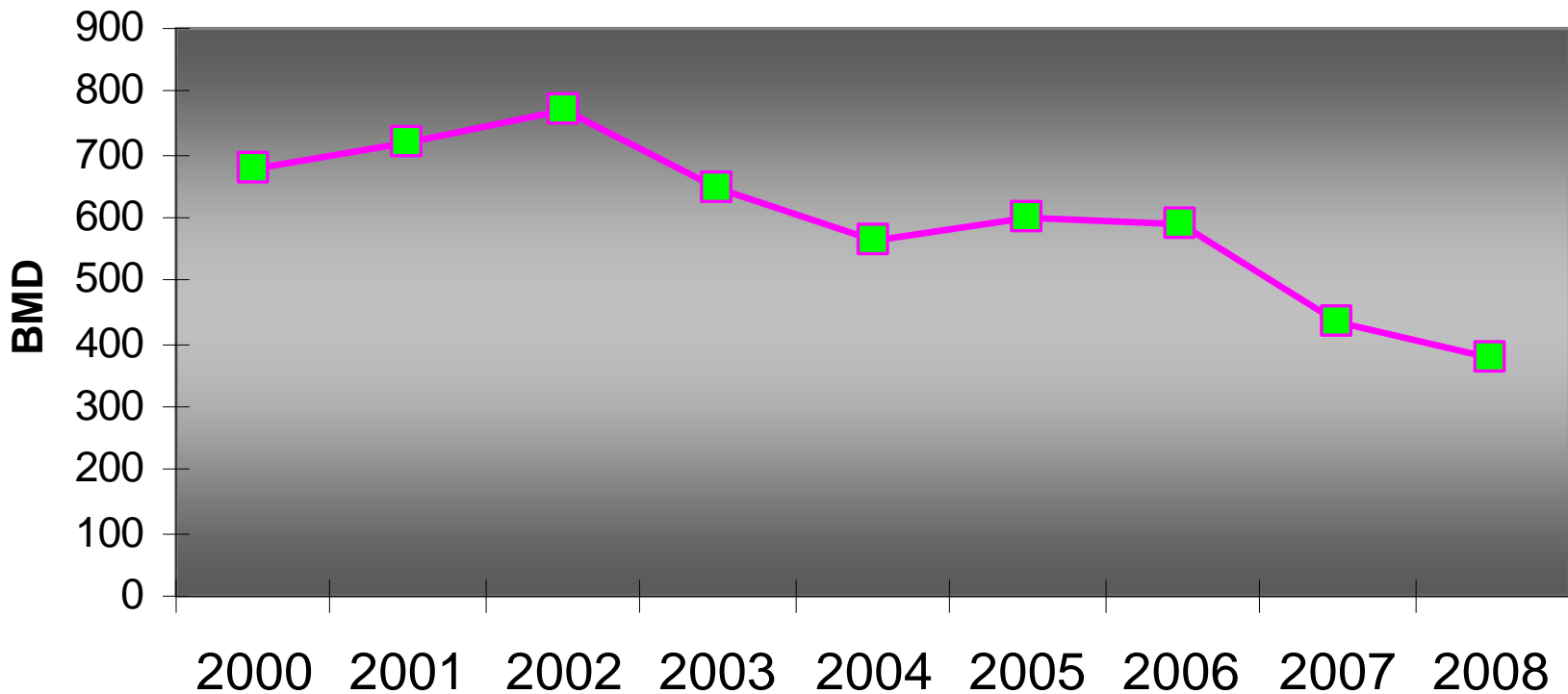
Baby Beach Progressive Water Quality Advisory Postings, 2000 - 2009 with Water Quality BMP timelines



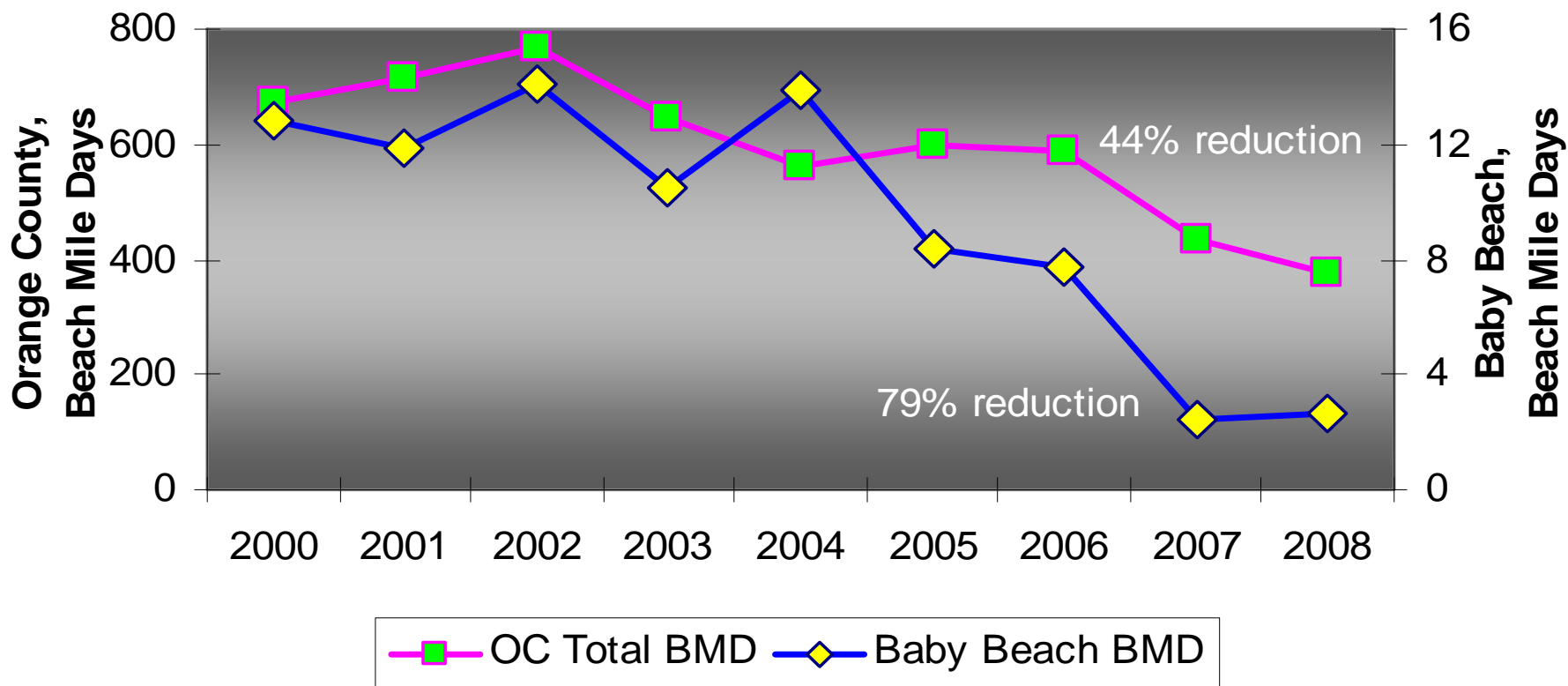
Orange County Coastal Water Quality Advisory History

Total Beach Mile Days, Calendar Years 2000-2008

(OCHCA, 2009)



Annual Water Quality Advisory History Total Orange County vs. Baby Beach Calendar Years 2000 - 2008



Acknowledgements:

California Water Resources Control Board

OC Dana Point Harbor

OC Parks

OC Health Care Agency

OC Watersheds

City of Dana Point

Headlands Reserve LLC

Dana West Marina

Ocean Institute

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