



BEACH & BAY

— WATER QUALITY PROGRAM —

COUNTY OF SAN DIEGO DEPARTMENT OF ENVIRONMENTAL HEALTH AND QUALITY



ddPCR IMPLEMENTATION SAN DIEGO COUNTY

9/9/2022



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Program Objectives



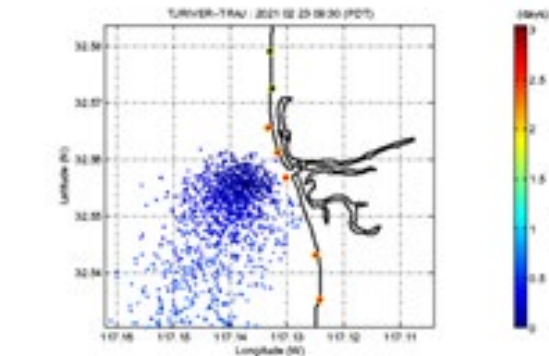
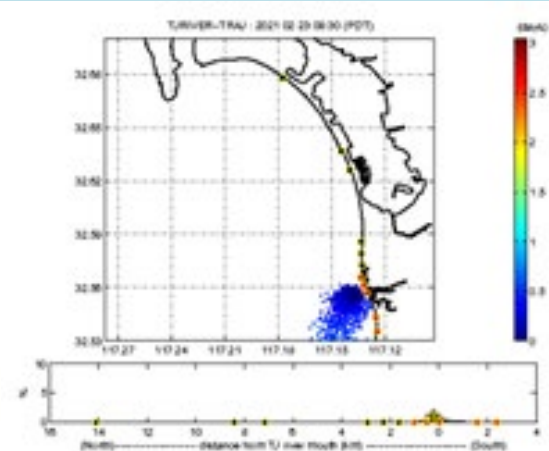
- Collect water samples
- Communicate sample results
- Beach management actions
- Public outreach & education



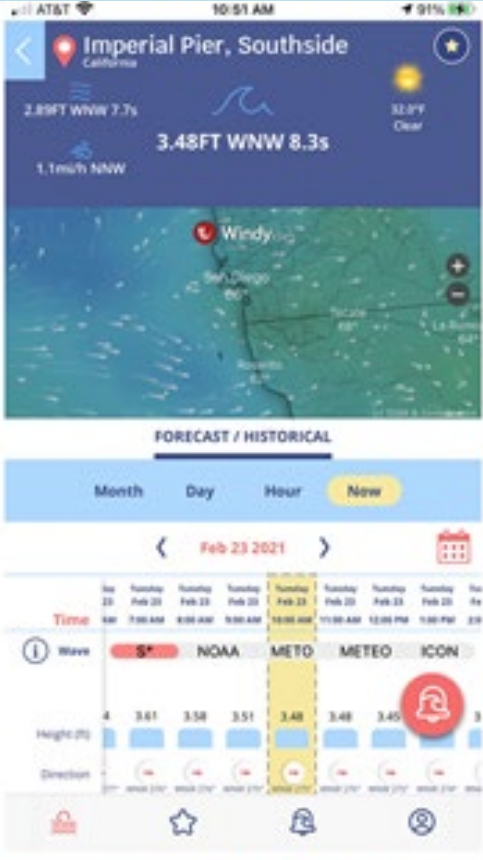
Daily Analysis

Sample results
IBWC Gauge
Plume Tracker
Wind/Swell/Tide
Lifeguards

#02/22/2021	23:45	12.002	1.13	1.20
#02/22/2021	23:50	12.002	1.13	1.20
#02/22/2021	23:55	12.000	1.10	1.20
#02/22/2021	23:00	12.000	1.10	1.20
#02/22/2021	23:45	12.002	1.13	1.20
#02/22/2021	23:50	12.003	1.14	1.20
#02/22/2021	23:55	12.004	1.15	1.20
#02/22/2021	23:00	12.004	1.15	1.20
#02/22/2021	23:45	12.003	1.14	1.20
#02/22/2021	23:50	12.003	1.13	1.20
#02/22/2021	23:55	12.029	1.11	1.20
#02/22/2021	23:00	12.029	1.09	1.20
#02/22/2021	23:45	12.029	1.09	1.20
#02/22/2021	23:50	12.028	1.07	1.20
#02/22/2021	23:55	12.029	1.09	1.20
#02/22/2021	23:00	12.029	1.09	1.20
#02/22/2021	23:45	12.027	1.06	1.20
#02/22/2021	23:50	12.026	1.05	1.20
#02/22/2021	23:55	12.025	1.04	1.20
#02/22/2021	23:00	12.024	1.02	1.20
#02/22/2021	23:45	12.024	1.02	1.20
#02/22/2021	23:50	12.024	1.02	1.20
#02/22/2021	23:55	12.023	1.01	1.20
#02/22/2021	23:00	12.022	1.00	1.20
#02/22/2021	23:45	12.022	1.00	1.20
#02/22/2021	23:50	12.020	1.07	1.20
#02/22/2021	23:55	12.009	1.23	1.20
#02/22/2021	23:00	12.036	1.18	1.20
#02/22/2021	23:45	12.032	0.87	1.20
#02/22/2021	23:50	11.998	0.70	1.20
#02/22/2021	23:55	11.995	0.40	1.20
#02/22/2021	23:00	11.997	0.00	1.20
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#02/22/2021	23:50	11.995	0.00	1.20
#02/22/2021	23:55	11.996	0.00	1.20
#02/22/2021	23:00	11.997	0.00	1.20
#02/22/2021	23:45	11.999	0.00	1.20
#02/22/2021	23:50	11.940	0.00	1.20
#02/22/2021	23:55	11.943	0.00	1.20
#02/22/2021	23:00	11.947	0.00	1.20
#02/22/2021	23:45	11.945	0.11	1.20

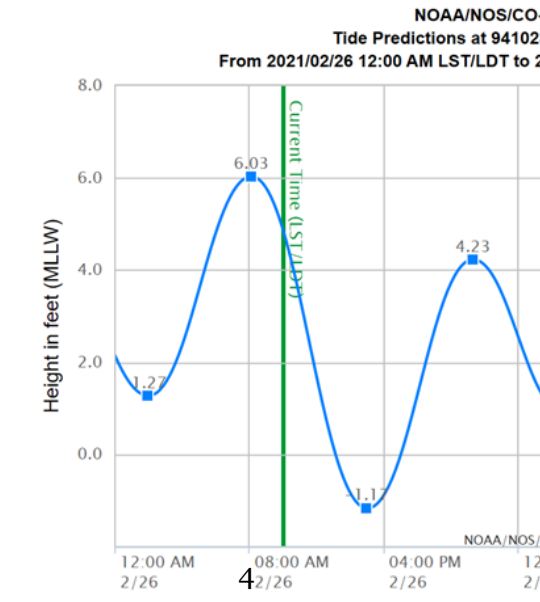


Date: 2021-02-23 16:30 GMT (2021-02-23 16:30 UTC)			
Station ID	Station Name	Particle Count	Plume Potential
1	Coronado (North Island)	0	NO
2	Silver Strand	0	NO
3	Silver Strand Beach	0	NO
4	Carnation Ave.	0	NO
5	Imperial Beach Pier	0	NO
6	Cortez Ave.	0	NO
7	End of Seacoast Dr.	2	YES
8	3/4 mi. N. of TJ River Mouth	93	YES



Wind
2 kts
SSE (157°)

Swells
● 2.4ft at 12s WNW 293°
● 1ft at 12s SSW 195°
● 1.4ft at 4s WNW 287°



Ocean swimming = potential risk of illness

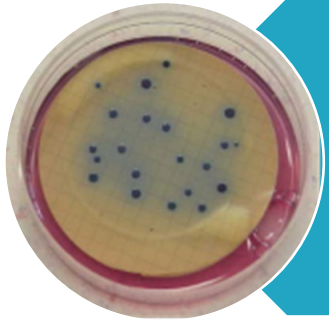


State Health Standards

17 CCR § 7958



Total Coliform
10,000 CFU/100ml



Fecal Coliform
400 CFU/100ml



Enterococcus
104 CFU/100ml

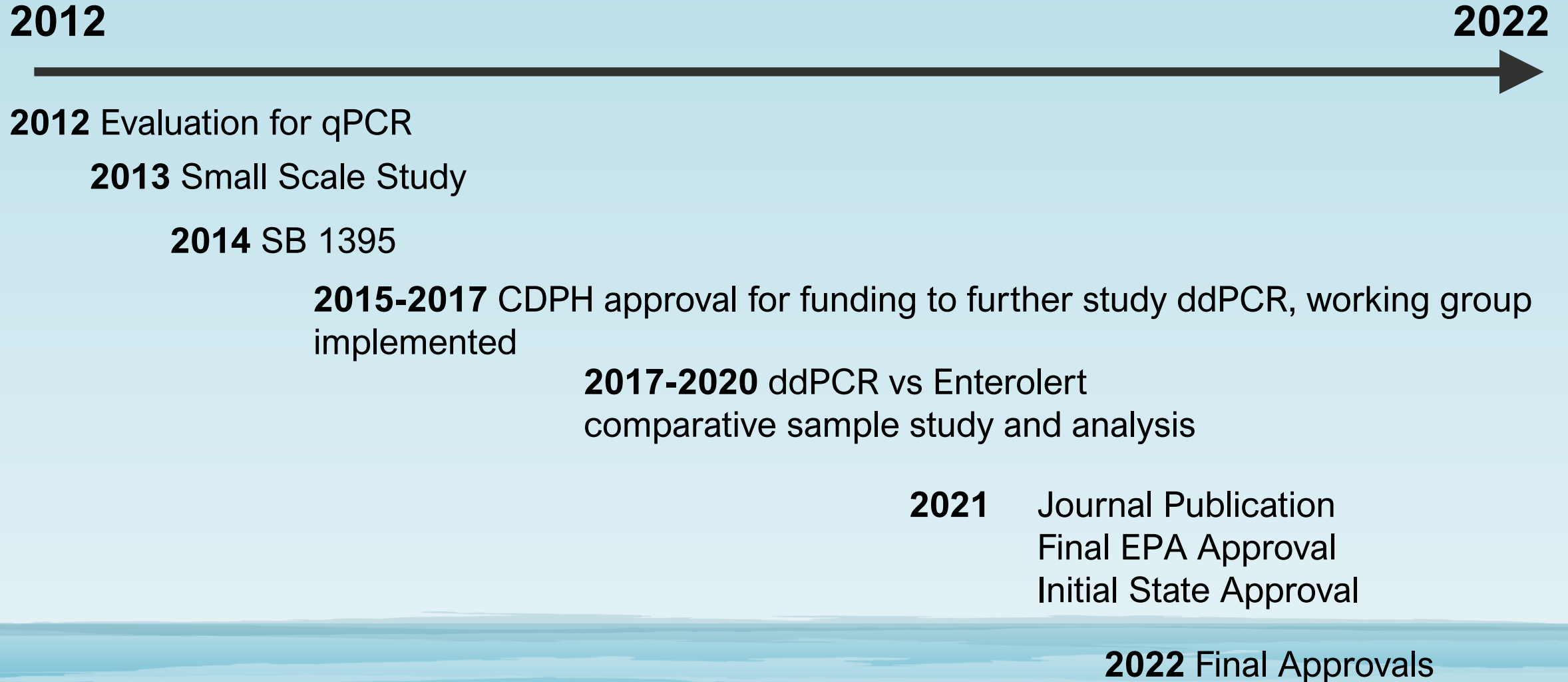
Local Case Study

Q: Is there a simpler and quicker water quality analysis method?

A: PCR (Polymerase Chain Reaction)



The Road to a Rapid PCR Test



Overview Comparison of Testing Methods

Subject	Culture Method – Old Method	ddPCR Method – New Method
What does it test for?	Fecal Indicator Bacteria (FIB), which are commonly found in human or animal feces and are indicators for pathogens that contaminate water and cause illness.	Fecal Indicator Bacteria (FIB), which are commonly found in human or animal feces and are indicators for pathogens that contaminate water and cause illness.
How does this test work?	This method relies on culturing (growing) the FIB in the water sample. It <u>estimates</u> the amount of FIB in the water sample.	This method amplifies DNA from the FIB in the water sample. It is a more <u>direct count</u> of FIB in the water sample, therefore more precise.
Limitations/Benefits of Method	Relies on bacteria to be alive	More sensitive method, but not overly sensitive
When do we get results?	24-28 Hours – Next Day	6-10 Hours – Same Day
State Health Standards (equivalent)	104 bacteria per 100 mLs water	1,413 DNA copies of bacteria per 100 mLs water

San Diego County unveils new water testing technology to provide same-day public warnings

San Diego leaders say the results will be more accurate and posted within hours, reducing the time the public could be at risk if water is contaminated.

DNA-based water testing system launched for San Diego beaches

New San Diego ocean water testing much faster

LOCAL

Water testing system questioned as beaches remain closed



New water testing system causes some San Diego beaches to ...

YouTube · KUSI News

Jun 16, 2022

New water testing policy causing more closures of Coronado beaches

SCIENCE/ENVIRONMENT

South Bay Mayors Want County to Ditch New Coastal Water Quality Test

New ocean testing system responsible for cancelling two major events in Coronado

Posted: July 13, 2022

New pollution tests wreaking havoc on South San Diego ...

Jun 16, 2022 — Imperial Beach Mayor Serge Dedina, however, is worried that beaches could be unnecessarily closed because the tests detect pollution levels that ...

South County Tiered Beach Data 5/1 to 5/31

May 2022	TJ Slough	Imperial Beach	Silver Strand	Coronado
ddPCR method				
Open	0	6	15	20
Advisory	0	0	0	0
Closure	31	25	16	11

Number of Days Per Shoreline of Beach Actions, ddPCR Implemented on 5/5

BEACH WATER MANAGEMENT TIERED SYSTEM

NEW!



1. ADVISORY

2. WARNING

3. CLOSURE

SDbeachinfo.com

South County Tiered Beach Data 7/1 to 9/8

July-Present 2022	TJ Slough	Imperial Beach	Silver Strand	Coronado
ddPCR method				
Open	0	18	35	45
Advisory	0	1	1	1
Warning	0	24	17	11
Closure	65	22	12	8

Number of Days Per Shoreline of Beach Actions Taken Under Tiered System
(data from July 1 to September 8, 2022)

Sample of Non-South County Tiered Beach Data 7/1 to 9/8

July-Present 2022	Tidelands Park	Campland Mission Bay	OC Pier Surfrider Way	SD River Dog Beach
ddPCR method				
Open	31	25	67	65
Advisory	39	45	3	2
Warning	0	0	0	0
Closure	0	0	0	3

Sample of Number of Days Per Shoreline of Beach Actions Taken Under Tiered System
(data from July 1 to September 8, 2022)

SD County Resources & Information

- Enhanced information [posted online](#) which includes:
- [Frequently Asked Questions document](#) which is updated often
- [Testing method comparison chart](#)
- Beach and Bay [Program signage](#) (4 tiers—open, advisory, warning, closure)
- Up to the minute information regarding beach status at www.sdbeachinfo.com
- [Tiered system](#) for beach management actions
- QR Code



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County of San Diego

Q and A

SCCWRP Commission Meeting
Sept 9, 2022