Texas Beach Watch Data
and Assessment Methodology
For the Texas Integrated Report (IR)

TCEQ Surface Water Quality Assessment Advisory Workgroup

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Texas Beach Watch Program overview

Sampling schedule

Data Uses

Beach Action Value (BAV)

Follow-up beach advisory sampling

Changes to Assessment Methods

Impacts to Assessment Results

Rationale for Changing Methods

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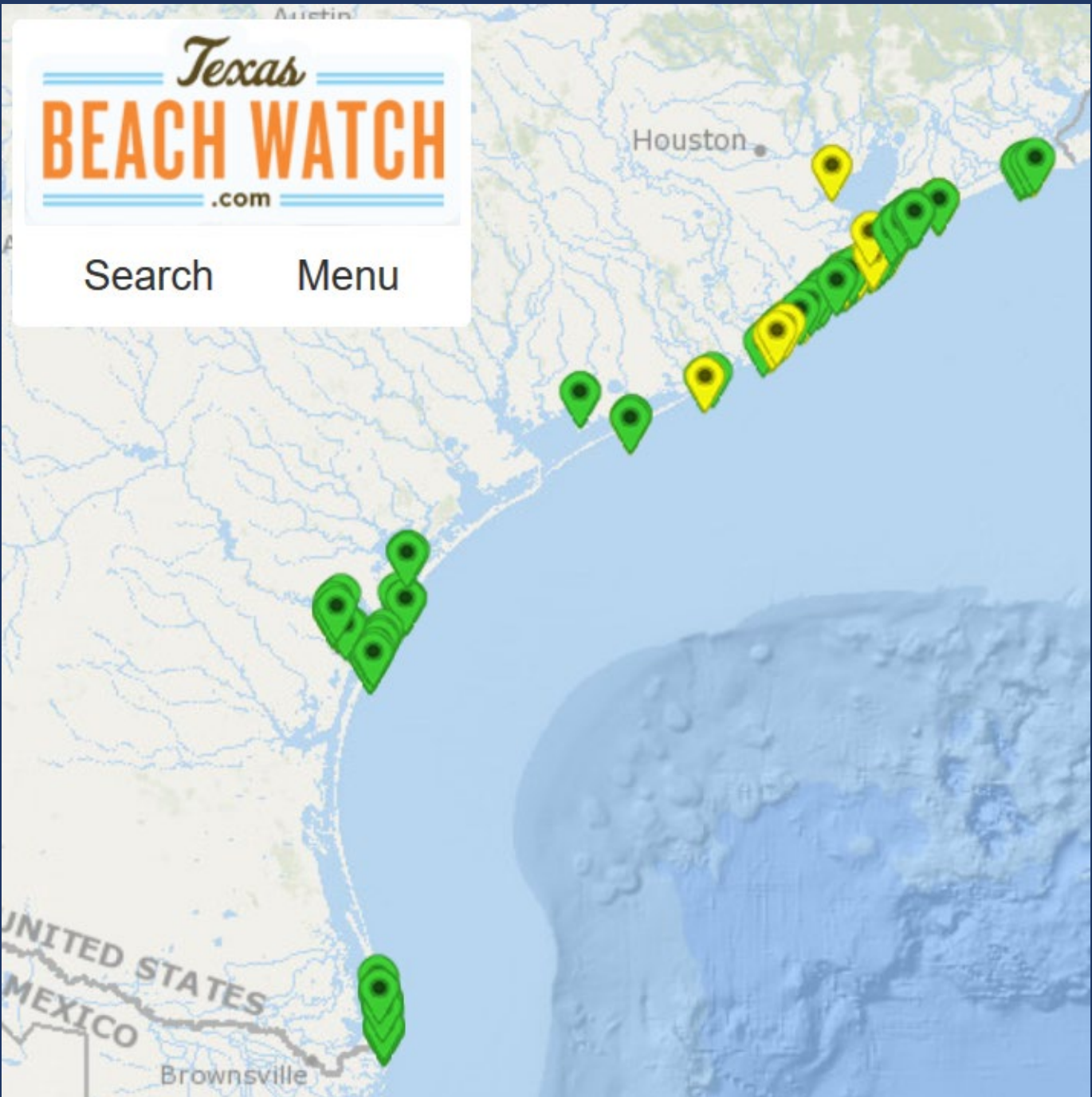George P. Bush, Commissioner

Texas Beach Watch

The main goal of the Texas Beach Watch program is to provide the public with timely notifications about water quality at selected recreational beaches along the Texas coast.

Other data uses:

- Aide local decision making
- Assist in characterizing water quality conditions
- Identify retrofit planning areas
- Assist coastal planning
- Texas Integrated Report of Surface Water Quality

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163 monitoring stations at 61 Tier 1 high use beaches

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Annual sampling schedule adjusted to match peak use time periods 2020

Sample Week	Sample	Event #
09/01/2020	Yes	1
09/08/2020	Yes	2
09/15/2020	Yes	3
09/22/2020	Yes	4
09/29/2020	Yes	5
10/06/2020	No	
10/13/2020	Yes	6
10/20/2020	No	
10/27/2020	Yes	7
11/03/2020	No	
11/10/2020	Yes	8
11/17/2020	No	
12/01/2020	Yes	9
12/08/2020	No	

12/15/2020	Yes	10
12/22/2020	No	
12/29/2020	No	
01/05/2021	No	
01/12/2021	Yes	11
01/19/2021	No	
01/26/2021	Yes	12
02/02/2021	No	
02/09/2021	Yes	13
02/16/2021	No	
02/23/2021	Yes	14
03/02/2021	No	

Annual sampling schedule adjusted to match peak use time periods 2021

Sample Week	Sample	Event #
03/09/2021	Yes	15
03/16/2021	Yes	16
03/23/2021	Yes	17
03/30/2021	Yes	18
04/6/2021	No	
04/13/2021	Yes	19
04/20/2021	No	
04/27/2021	Yes	20
05/04/2021	Yes	21
05/11/2021	Yes	22
05/18/2021	Yes	23
05/25/2021	Yes	24
06/01/2021	Yes	25
06/08/2021	Yes	26

|		
06/15/2021	Yes	27
06/22/2021	Yes	28
06/29/2021	Yes	29
07/06/2021	Yes	30
07/13/2021	Yes	31
07/20/2021	Yes	32
07/27/2021	Yes	33
08/03/2021	Yes	34
08/10/2021	Yes	35
08/17/2021	Yes	36
08/24/2021	Yes	37
08/31/2021	Yes	38

When Enterococcus bacteria levels in the water exceed the Beach Action Value (BAV), GLO works with local governments to issue advisories warning the public not to swim in affected waters.

Notifications via:

- System auto-notification email distribution
- Sign "flipping" indicating advisory in effect
- Local notification systems (text chains, email chains, etc)
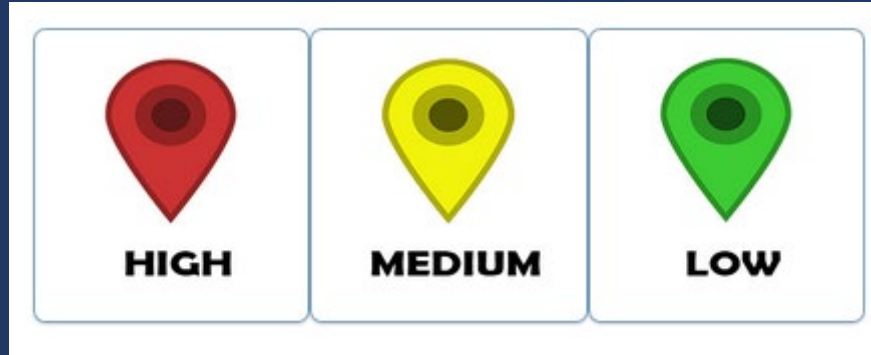
Low
Bacteria counts less than 35 cfu/100 ml.

Medium
Bacteria counts are between 35 and 104 cfu/100 ml.

High
Bacteria counts are greater than 104 cfu/100 ml. An advisory for this beach is recommended.

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BAV Follow-up Sampling

When any sample exceeds the Beach Action Value 104 cfu/100mL

Follow-up sampling occurs until results return to baseline

- Number of samples based on schedule ~ 2400
- Approximate number of annual samples ~ 7500

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Sample timing and logistics

- 9am-12pm on scheduled day (Day 1)

- Samples processed within holding times, by 3pm (Day 1)

- Results posted and available by 3pm-5pm next day (Day 2)

- BAV sampling occurs on Day 2 or the following day (36-48 hrs after scheduled sample)

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Exploring Typical Data

(Review of historical data from Brazoria County)

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Date	Station Name	Station #	Result	Outcome
3/5/2019	CR750	BRA002	41	No Advisory
3/12/2019	CR750	BRA002	1	No Advisory
3/19/2019	CR750	BRA002	10	No Advisory
3/26/2019	CR750	BRA002	120	Advisory
3/27/2019	CR750	BRA002	120	Advisory
3/28/2019	CR750	BRA002	1	No Advisory
4/9/2019	CR750	BRA002	10	No Advisory
4/23/2019	CR750	BRA002	738	Advisory
4/24/2019	CR750	BRA002	860	Advisory
4/25/2019	CR750	BRA002	1	No Advisory
4/30/2019	CR750	BRA002	20	No Advisory

Results highlighted yellow indicate follow-up BAV sampling results

- Sampling is scheduled on a weekly basis (peak use time periods)

- When samples produce results that exceed the BAV, follow sampling is scheduled for the subsequent day

- Sampling continues on a daily basis until results fall below BAV

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Assessment Method Proposal

Current Assessment Method

- GLO reports all advisories and visits for the IR period of record

- TCEQ calculates the percent of time each beach is under an advisory using all the data including re-visits

Proposed Assessment Method

- GLO reports advisories and visits for the IR period of record, excluding re-visits

- TCEQ calculates the percent of time each beach is under an advisory **NOT** including re-visits

- Beach advisories < 20% of the time—Fully Supporting

- Beach advisories 20-25% of the time—Concern

- Beach advisories < 20% of the time—Delisted and Fully Supporting

- Beach advisories > 25% of the time—Not Supporting

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Date	Station Name	Station #	Result	Outcome
3/5/2019	CR750	BRA002	41	No Advisory
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3/26/2019	CR750	BRA002	120	Advisory
3/27/2019	CR750	BRA002	~~120~~	~~Advisory~~
3/28/2019	CR750	BRA002	~~1~~	~~No Advisory~~
4/9/2019	CR750	BRA002	10	No Advisory
4/23/2019	CR750	BRA002	738	Advisory
4/24/2019	CR750	BRA002	~~860~~	~~Advisory~~
4/25/2019	CR750	BRA002	~~1~~	~~No Advisory~~
4/30/2019	CR750	BRA002	20	No Advisory

Results highlighted ==yellow== indicate follow-up BAV sampling results

- The original observation that BAV sampling could bias % exceedance analysis came from looking at one month of data.

- Including the follow-up sampling changes the results.

- These sampling events would be removed from the assessment in the proposed method

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How evaluation outcomes could change as a result of the proposed assessment method?

The following tables are derived from data collected within the
2020 IR date range (December 1, 2011 - November 30, 2018)

All values are derived from data collected within the 2020 IR date range (December 1, 2011 - November 30, 2018)

Beach ID	Beach Name	2020 Method (recent GLO data)				2022 Proposed Method (recent GLO data)			
		Repeats Visits	Repeats ADV	Repeats ADV/Visits	ILOS	No Repeats Visits	No Repeats ADV	No Repeats ADV/Visits	ILOS
TX149569	TAMUCC - University Beach	333	58	0.17	FS	265	31	0.12	FS
TX199413	Emerald Beach	317	71	0.22	FS	254	36	0.14	FS
TX259473	Cole Park	1554	550	0.35	NS	1046	249	0.24	NS
TX305317	Corpus Christi Marina	888	126	0.14	FS	767	85	0.11	FS
TX412536	Sylvan Beach Park	593	107	0.18	FS	500	84	0.17	FS
TX455545	Sargent Beach	971	157	0.16	FS	818	96	0.12	FS
TX682648	Poenisch Park	357	94	0.26	NS	260	51	0.20	NS
TX784742	Palacios - Palacios Pavillion	708	157	0.22	NS	555	102	0.18	FS, De-list
TX821303	Ropes Park	834	370	0.44	NS	502	144	0.29	NS
TX832087	Port Bolivar - Rettilon Road	324	71	0.22	FS	264	50	0.19	FS

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Rationale

Reduces bias in the sampling results in not over-reporting exceedances

Similar approach to other single sample assessment methods where samples results are independent and do not rely on a previous outcome

Comments/Questions?

We wanted to share these observations and discuss the current and potential alternatives to the current data analysis.

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