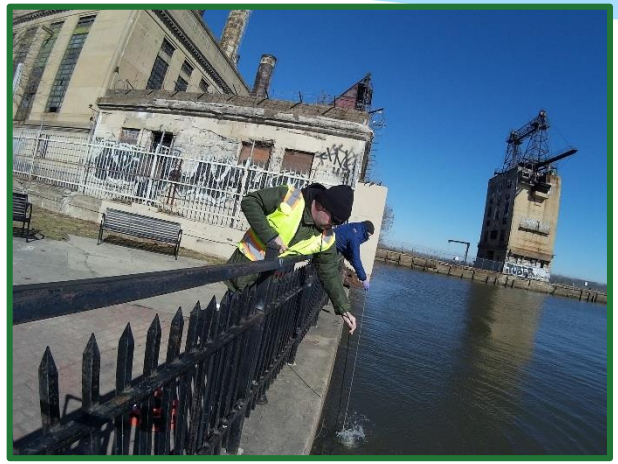
Delaware River Basin Commission

Recreational Uses & Criteria:
Status and Developments



Water Quality Advisory Committee
July 18, 2018

J. Yagecic

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Current Recreational Uses / Criteria in Delaware Estuary (DRBC WQ Regs)

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http://www.nj.gov/drbc/library/documents/WQregs.pdf

Zone	Use to be Protected	Fecal Coliform	Enterococcus
2	Recreation	**200** / 100 mL (GM)	**33** / 100 mL (GM)
3	Recreation – Secondary Contact	**770** / 100 mL (GM)	**88** / 100 mL (GM)
4 (above RM 81.8)			
4 (below RM 81.8)	Recreation	**200** / 100 mL (GM)	**33** / 100 mL (GM)
5	Recreation	**200** / 100 mL (GM)	**35** / 100 mL (GM)
6	Recreation	**200** / 100 mL (GM)	**35** / 100 mL (GM)

DRBC Water Quality Regulations Section 1.20.6

http://www.nj.gov/drbc/library/documents/WQregs.pdf

F. "Recreation" includes all water-contact sports.

G. "Recreation - secondary contact" restricts activities to where the probability of significant contact or water ingestion is minimal, encompassing but not limited to:

1. boating,

2. fishing,

3. those other activities involving limited contact with surface waters incident to shoreline recreation.

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EPA Office of Water 820-F-12-058

Table 1. Recommended 2012 RWQC.

Criteria Elements	Estimated Illness Rate (NGI): 36 per 1,000 primary contact recreators			Estimated Illness Rate (NGI): 32 per 1,000 primary contact recreators	
	Magnitude			Magnitude	
Indicator	GM (cfu/100 mL)[a]	STV (cfu/100 mL)[a]	OR	GM (cfu/100 mL)[a]	STV (cfu/100 mL)[a]
Enterococci – marine and fresh	35	130		30	110
OR					
E. coli – fresh	126	410		100	320
Duration and Frequency: The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval.					

[a] EPA recommends using EPA Method 1600 (U.S. EPA, 2002a) to measure culturable enterococci, or another equivalent method that measures culturable enterococci and using EPA Method 1603 (U.S. EPA, 2002b) to measure culturable *E. coli*, or any other equivalent method that measures culturable *E. coli*.

https://www.epa.gov/sites/production/files/2015-10/documents/rwqc2012.pdf

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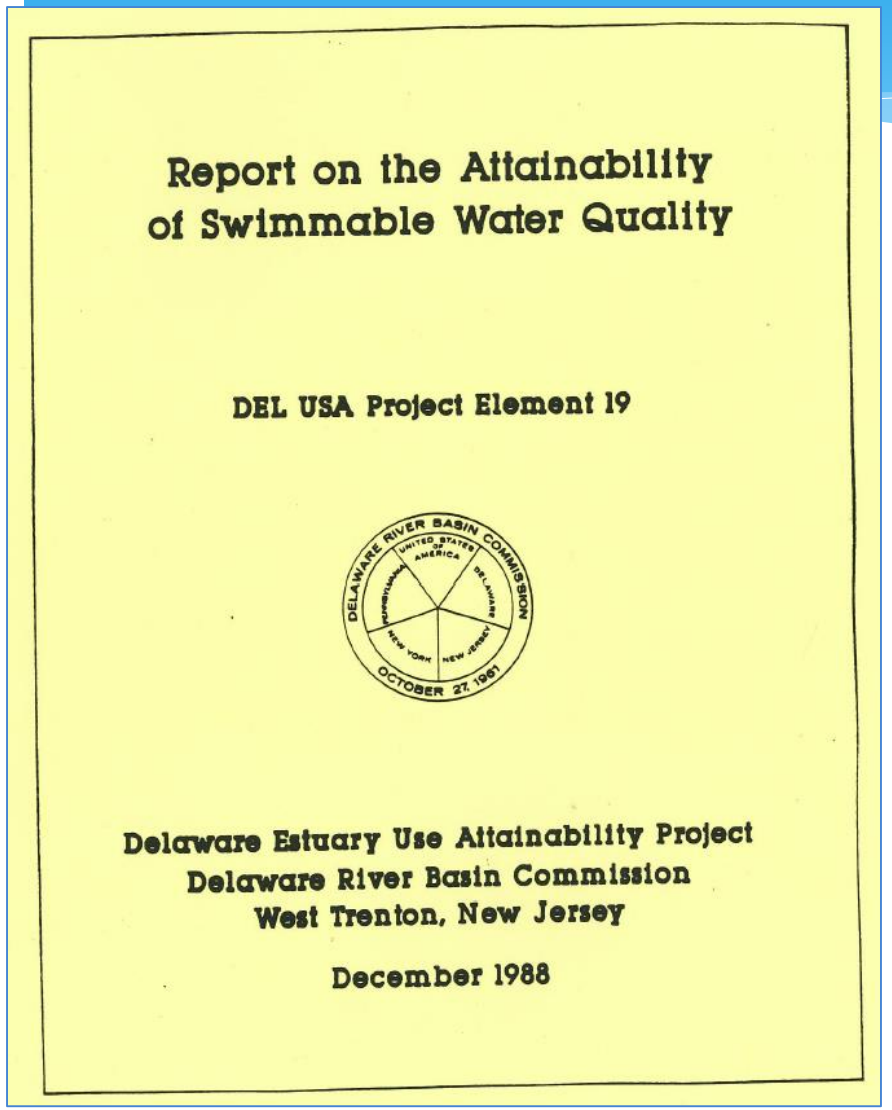
1988 Attainability Report



Report on the Attainability of Swimmable Water Quality

DEL USA Project Element 19

Delaware Estuary Use Attainability Project
Delaware River Basin Commission
West Trenton, New Jersey

December 1988

"The Use Attainability Swimmability Report states that significant segments of the Delaware Estuary will be recommended for reclassification to primary contact recreation - these include Zone 2 from the Burlington/Bristol bridge (R.M. 117.81) to Zone 3 (R.M. 108.4 - Zone 2/3 boundary), Lower Zone 4 (R.M. 83.8 - mouth of Ridley Creek), and Upper Zone 5 (R.M. 59.5). The secondary-contact use with 770 fecal colonies criteria for Zone 3 and Upper Zone 4 should be retained at this time. There is uncertainty of being able to attain a primary-contact use designation in these segments. The programs of CSO correction Philadelphia and Camden is expected to reduce fecal coliform levels which may result in future attainment of the primary recreation objective in Zone 3 and Upper Zone 4. Primary-contact will be a future use goal, based on an evaluation and a firm commitment to a CSO correction program."

Uses Happening Now

* http://www.philly.com/philly/entertainment/paddle-board-yoga-aqua-vida-philadelphia-delaware-river-2-20180622.html
* https://www.flickr.com/photos/srhbth/14599541096/in/photolist-cRF5nQ-jdHPYo-ogMpXq-ogxEyX-fdCafM-nZkL9T-AH63iF-52cyHm-oqcbgS-a2wHNV-o8J6b7-of7sVN-TGgrBy-vi9QSL-xV6VrH-JkF8F8-uTTojg-v748hh-uTKiuJ-283Q1BA-25nbjS7-gEvgSm-25nbjwN
* http://www.delawareriverwaterfront.com/events/paddle-penn-s-landing9

What has Changed since 1988?

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* PWD's Green City, Clean Waters program to reduce stormwater in combined sewers
* Much more accurate models of CSO systems – volume and timing of discharge
* Efforts to reconnect regional urban areas to their waterfronts
* Very high level of public / NGO interest in this issue
* Statistical models providing guidance on current conditions relevant to contact recreation

www.phillyrivercast.org

PHILADELPHIA WATER

Philly RiverCast A Daily Forecast of Schuylkill River Water Quality in Philadelphia

Wednesday, July 11
Current RiverCast:
GREEN
Terms of Use

Water Temp: **80 °F | 26 °C**
River Flow: **1630 cfs**

Number of visitors
000001127116

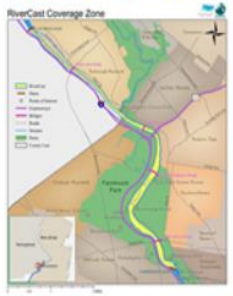
PHILADELPHIA WATER EST. 1801

Welcome to Philly Rivercast

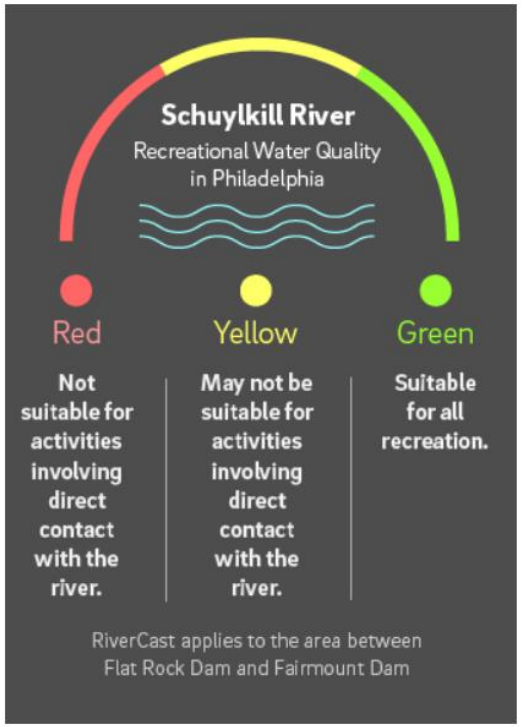
What is RiverCast?

The Philly Rivercast is a forecast of water quality that predicts potential levels of pathogens in the Schuylkill River between Flat Rock Dam and Fairmount Dam i.e. between Manayunk and Boathouse Row View Map.

The Schuylkill River, like all working rivers, is not a pristine body of water and is subject to contamination from many sources and activities that either discharge directly, or enter the river during rain events. Because rivers are vulnerable to such contamination, recreation in or upon any body of water has with it an inherent risk of illness and infection for the individual involved.



RiverCast Water Quality Designations:



Limitations of Philly Rivercast

Inherent uncertainty and potential for error is associated with any forecast of water quality. Therefore, the RiverCast should be considered a guideline and general estimate of water quality at a given period of time and not a direct measurement of water quality. Other information, policies, regulations, public health statements, data, or observations should be considered in addition to RiverCast before any individual or organizational river recreation occurs. The RiverCast does not endorse or permit activities that are in violation of any City, State, and Federal policies, regulations and laws.

For more information about Philadelphia's Watersheds and watershed planning efforts, please visit

Philly Watersheds

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http://www.phillyrivercast.org/

Current Monitoring / Assessment Approach

* Monitoring via Delaware Estuary Water Quality Monitoring Program (Boat Run)
  - Center channel
  - Once per month – April through October
* Compute geometric mean of all data in the zone (or sub zone) during the entire assessment window (5 years)

* EPA recommended criteria anticipates 30-day geometric mean, at least 5 samples

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Meeting existing / recommended criteria?

	Zone 3	Upper Zone 4
Secondary DRBC FC	Meeting criteria	Meeting criteria
Secondary DRBC Entero	Meeting criteria	Meeting criteria
Primary DRBC FC	Would meet criteria*	Would meet criteria*
Primary DRBC Entero	Would meet criteria*	Would meet criteria*
EPA recommended Entero (GM, 36 illnesses per 1000)	Would meet criteria*	Would meet criteria*
EPA recommended E. Coli (GM, 36 illnesses per 1000)	No Data	No Data

* Using the method described on the previous slide.
We do not have 5 data points within a 30-day period.

Where are we?

* 1988 Attainability report envisioned upgrading Zones 3 & upper 4 to primary contact in the future
* Contact recreation is happening right now, today
* CSO management programs are in place and expanding
* CSO prediction capability is strong
* Tools for predicting which sets of conditions are likely to contribute to exceedances have been demonstrated
* Evidence that new recreational use / criteria *should be* attainable
  - Not every condition / circumstance
  - Improved ability to attain over time?

What should be next steps?

WQAC

* Recommendation to Commission?
* Proceed toward Primary Contact use in Zones 3 & upper 4?
* Proceed toward new criteria, all zones?

DRBC Staff

* Seek funds or cooperative effort for enhanced monitoring?
* Seeks funds or cooperative effort for development of predictive tool (like Philly Rivercast)?
* Sequencing?

Questions & Discussion