

Déjà vu: New Recreational Use Criteria

NACWA Summer Conference
Anchorage, AK
July 16, 2008

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Manhattan Beach, KY- Yesteryear

Source: <http://www.nkyviews.com>



Manhattan Beach, KY- Today



Overview

- Why should POTWs and MS4s care about this now?
- What's the plan for developing new criteria?
- What are the issues?
- Will these new or revised criteria take disinfection requirements to a new level?
- What should I do?

EPA's Website Attributes Most Beach Closings to Sewage (Rightly or Wrongly?)¹

- US Beach closings occur because:
 - Harmful microorganisms in untreated or partially treated sewage
- Most of this sewage comes from:
 - Combined sewer overflows
 - Sanitary sewer overflows
 - Malfunctioning sewage treatment plants
- Other sources are:
 - Untreated storm water runoff from cities
 - Untreated storm water runoff from rural areas
 - Boating wastes
 - Malfunctioning septic systems

¹www.epa.gov/beaches/learn/pollution.html

Possibly Wrongly. Why?

- Old or incorrect information doesn't go away.
 - The CDC estimates 7,100,000 cases of mild to moderate, and 560,000 cases of moderate to severe, infectious waterborne disease in the US each year.¹
 - Between 1,800,000 and 3,500,000 Americans get sick every year just from swimming in waters contaminated by SSOs.²
- Good, recent news doesn't make the front page.
 - CSOs and SSOs are estimated to cause between 3,448 and 5,576 illnesses annually at recognized beaches.³
- Too complicated. Actual impact is site-specific and changes over time.

¹ Morris RD. Levin R. (1995).

² EPA (2001, unpublished). NPRM for SSOs.

³ EPA (2004). Report to Congress: Impacts and Control of CSOs and SSOs.

New Criteria are on the Horizon

- Primary contact (swimming, kayaking?, etc.)
 - EPA lawsuit; publish by 2012
- Secondary contact (incidental exposure from wading, canoeing, power boating, fishing, etc.)
 - Chicago Area Waterways Epi Study (MWRD)
 - EPA plans on developing new or revised criteria but on a longer schedule

How will the new primary contact criteria be used?

- Replace the 1986 recreational use criteria [§304(a)]
 - Not just for coastal & Great Lakes recreational waters
- **Water quality assessment** [§303(d) and §305(b)]
- Total Maximum Daily Load (TMDL) calculations for impaired waters [§303(d)(1)(C)]
- **NPDES permit limits** [§402]
- Nonpoint source programs & grants [§319]
- **Recreational water monitoring, notification, & reporting**
- *Sewer overflow response & clean-up*

What's the Plan?

August 2006	CV 06-4834 PSG	NRDC sues EPA over failure to protect public from contaminated beach water. LA County, LACO Flood Control District, and NACWA intervene.
August 2007	Critical Path Science Plan	EPA publishes plan for developing new or revised criteria and implementation guidance.
2008 to 2010	EPA and others continue research	EPA will try to complete planned work, including collaborating in some studies. EPA has not committed to using all available research. No plan for distribution of EPA's data other than through peer-reviewed papers and stakeholder meetings.
2011 to 2012	EPA develops & publishes new criteria	EPA plans to analyze research, develop proposed criteria, obtain expert peer review and inter-agency review, and address comments on draft criteria before publishing in the Federal Register.

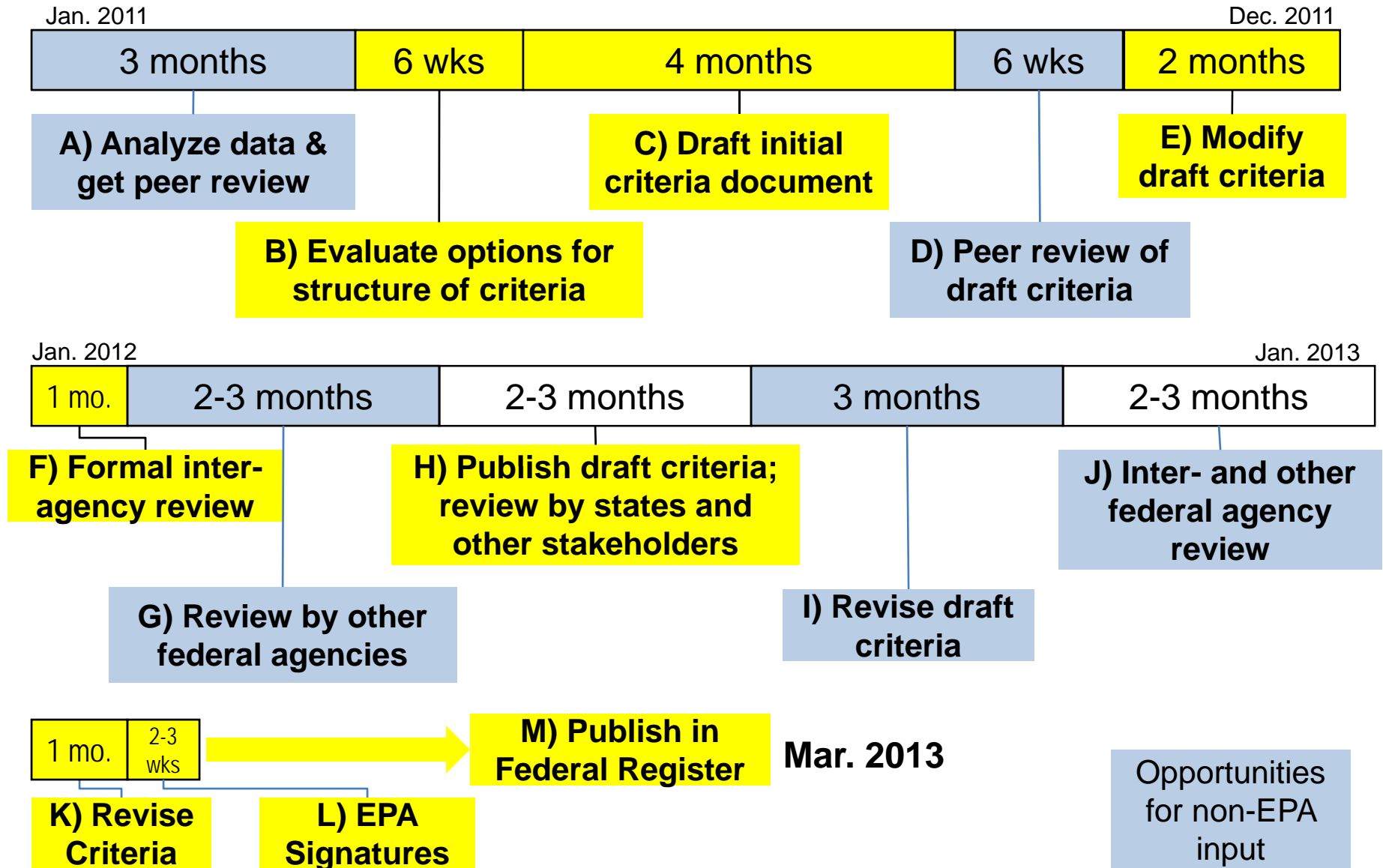
EPA's Critical Path Science Plan (or P32-Plus)

- Use existing research and conduct more research to
 - Assess human health risk
 - Children vs. adults
 - Human (POTWs, poorly treated or untreated wastewater) v. non-human sources (bovine, stormwater)
 - Develop indicators and methods
 - Rapid test methods (Enterococcus and Bacteriodes qPCR)
 - Identify the best indicator(s)
 - Assess linkages between indicators and methods
 - Establish sanitary survey protocols
 - Characterize temporal & spatial variability in measurements

EPA's Critical Path Science Plan (or P32-Plus)

- Research & literature to
 - Extrapolate results for developing new or revised criteria
 - Assess variability across geographic and aquatic conditions
 - Fresh v. marine waters
 - Temperature/climatic conditions (literature for tropical)
 - Extrapolate to other fresh waters
 - Assess methods suitable for different CWA programs
 - Develop predictive models & tools

EPA's Proposed Timeline



NACWA's Concerns¹

1. Planned studies depend on indicator organisms that do not adequately protect public health risk
2. Schedule EPA is being held to is impossible to meet since study results could change direction of the research
3. Plan lacks off-ramps and access points for rejecting current methods, considering new methods or approaches
4. Schedule lacks interim goals, checkpoints, and contingencies to obtain stakeholder input and peer-review

¹Slifko, T. (2007). Expert Report on Behalf of Plaintiff-Intervenors the National Association of Clean Water Agencies. CV 06-4834 PSG. Oct. 2007.

Interesting Comments from the Feb. 2008 Annual Stakeholder Meeting

- EPA directed Cincinnati ORD to prioritize research on animal markers (selected bovine)
- If EPA does additional freshwater studies, they will consider including E. coli (Method 1600)
- EPA will use Quantitative Microbial Risk Assessment (QMRA) to address alleged under-reporting of illnesses
- EPA plans to publish implementation guidance with the criteria
- Public should be educated about risks from other activities prior to EPA soliciting input on “acceptable” risk
 - Sunburn, drowning, toxic algae

Interesting Comments from the Feb. 2008 Annual Stakeholder Meeting

- What is a good enough relationship?
- States need EPA to tie any new criteria to the current criteria
- Need a policy call on how exposure is selected for different water bodies (do people swallow more water in pools than in rivers?)
- Need policies on how wet weather impacts are assessed
- Avoid establishing a single-sample maximum unless it's directly tied to illness
- EPA should keep the single-sample maximum
- EPA must protect all sensitive sub-populations

Interesting Comments from the Feb. 2008 Annual Stakeholder Meeting

- **Answer this question: If I take my family to the beach, will we get sick?**

Health Concerns Close Record Number of U.S. Beaches in 2006
WASHINGTON, DC, August 7, 2007 (ENS)

- Ruined vacations because of sewage and dirty stormwater
- Closings and warnings doubling



Gulls on Venice Beach in San Mateo County, California (Photo credit unknown)

Big Issues, Little Time

- Lack of commitment (and resources) to consider all relevant data
- More stakeholder involvement
 - More frequent meetings
 - Opportunity to analyze the study data to develop independent conclusions
 - Mechanism needed to allow scientists to review EPA findings, share information, and advise EPA on what changes could be made to research studies
- Fall-back plan if research indicates information is inconclusive
- Use of indicator bacteria vs. specific pathogens
- Perceptions about “acceptable” risk and public involvement in establishing this
- Site-specific conditions (especially for inland waters)
- Lack of data on human vs. non-human sources
- **Unreliable molecular methods (need models & multiple lines of evidence)**

Will these new or revised criteria take disinfection requirements to a new level?

- ? Yes
- ? No
- Maybe



Orange County, CA

Groundwater Replenishment (GWR) system

Diverts highly treated wastewater previously discharged into the ocean and purifies it through a series of advanced techniques:

- Microfiltration,
- Reverse osmosis,
- Ultraviolet disinfection, and
- Hydrogen peroxide.

What Should I do?

- Find a champion in your agency to start educating elected officials, stakeholders, and the public about this topic
- Send someone to WEFTEC for the WEF/WERF Workshop #211: *Getting Prepared for the “New” Pathogen Standards*
- Assess your situation and evaluate whether you need information on potential pathogen sources and their potential impacts in your watershed

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References

- 1986 Bacteria Criteria:
www.epa.gov/waterscience/criteria/humanhealth/microbial/#wqs
 - Water Quality Standards for Coastal and Great Lakes Recreation Waters; Final Rule. 40 CFR 131. Nov. 16, 2004.
 - Acceptable risk levels in Great Lakes waters. 823-F-06-012. Aug. 2006
 - Using a single sample maximum bacteria count . 823-F-06-013. Aug. 2006
- EPA's research plan: www.epa.gov/waterscience/criteria/recreation/
 - Report of the Experts Scientific Workshop on Critical Research Needs for the Development of New or Revised Recreational Water Quality Criteria. 823-R-07-006. Jun. 2007.
 - Critical Path Science Plan. 823-R-08-002. Aug. 2007
 - Criteria Development Plan & Schedule. 823-R-08-003. Aug. 2007
 - Recreational Water Quality Criteria Multi-Stakeholder Meeting. Feb. 20, 2008
- Slifko, T. (2007). Expert Report on Behalf of Plaintiff-Intervenors the National Association of Clean Water Agencies. CV 06-4834 PSG. Oct. 2007.

References

- Morris RD. Levin R. (1995). Estimating the incidence of waterborne infectious disease related to drinking water in the United States. in Assessing and Managing Health Risks from Drinking Water Contamination: Approaches and Applications. Reichard EG & Zapponi GA (Eds.) IAHS Publ. No. 233, Wallingford, UK. International Association of Hydrological Sciences, 75-88.
- EPA (2001). Notice of Proposed Rulemaking, National Pollutant Discharge Elimination System (NPDES) Permit Requirements for Municipal Sanitary Sewer Collection Systems, Municipal Satellite Collection Systems, and Sanitary Sewer Overflows. (January 4, 2001, unpublished, p 97)
- EPA (2004). Report to Congress: Impacts and Control of CSOs and SSOs. EPA 833-R-04-001. 2004.
http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm