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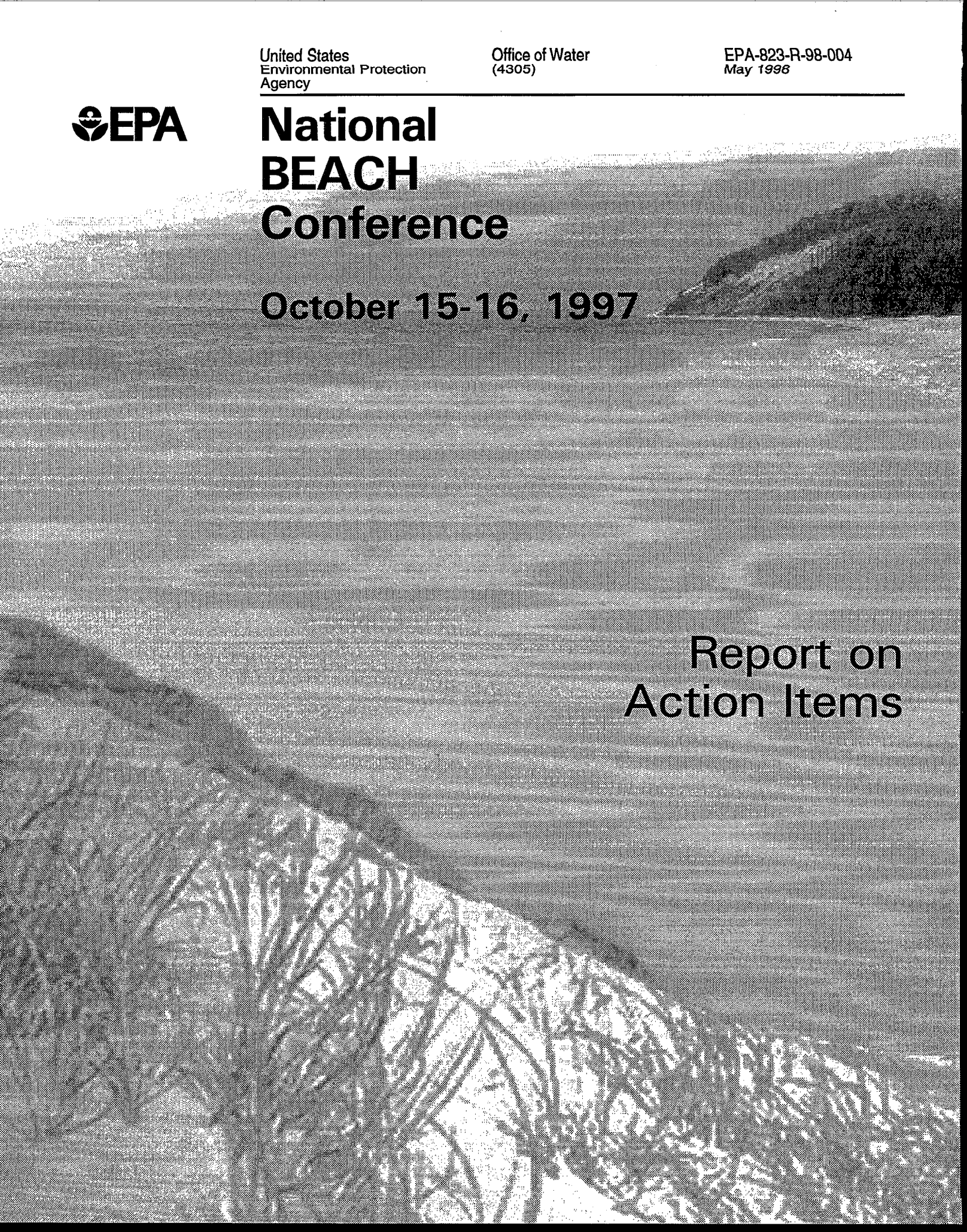

Report on Action Items

National BEACH Conference

(October 15-16, 1997)

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U.S. Environmental Protection Agency
Office of Water
Office of Science and Technology
401 M Street, SW
Washington, DC 20460

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Introduction

The purpose of this report is to present a list of potential "action items" related to beach health. The U.S. Environmental Protection Agency (EPA) and the Association of State and Territorial Health Officials (ASTHO) cosponsored the first national BEACH conference on October 15-16, 1997, in Annapolis, Maryland. Numerous topics related to beach health were presented and discussed at the conference. Participants were asked to identify needs for technical assistance, assign priorities for short- and long-term actions, and, where possible, recommend protocols and procedures to encourage greater consistency among jurisdictions in beach health issues. To assist this process, three concurrent "breakout" sessions met the afternoon of the first day and the morning of the second. A copy of the agenda is included at the end of this report, and a complete proceedings document will be published in early fall 1998.

After the conference, EPA compiled a draft list of action items identified by conference participants. Participants were then asked to review the list, add any missing elements, and comment on which action items should receive the highest priority. Approximately 120 draft lists were sent out, and 41 were returned. This report will be an important source of information for EPA's long-term planning.

The action items described in the following sections are organized according to the three breakout sessions:

- Session 1: Standards, Methods, and Indicators
- Session 2: Monitoring
- Session 3: Risk Assessment and Communication

Within each section, each action is described. Then, a summary chart shows the number of responses for each priority category. "Short-term" means approximately 1 to 2 years; "long-term" means 3 to 5 years or longer. Finally, a list of selected individual comments is included for each action. Table 1 on page 19 summarizes all the responses.

Session 1: Standards, Methods, and Indicators

Action 1a: National water quality criteria for beach protection are needed in the near term. These should be health-based, flexible, apply to bathing beaches. In general, people want flexibility in indicators used for criteria and agreed that exceedance of criteria should lead to advisory. Concern was expressed about enforcement of standards by regulators.

	High		Medium		Low		
Action 1a Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	30	2	3	3	0	1	0

Individual comments:

- Flexibility in choice of indicator bacteria should be limited to a combination of total coliform, fecal coliform, *E. coli*, and enterococcus—2 maximum and consider ratios.
- There are national criteria. The key is getting states to adopt these.
- My concern is that there is not enough enforcement/application of standards!
- Yes, flexibility [is] needed to use different and even new criteria if science and monitoring data support change.
- We need to resolve the objections to application of WQ criteria ASAP. Many objections are based on anecdotal information and could be resolved fairly quickly. If not, they should be high priority for research/resolution.
- Criteria and individual advisories should not be too directly coupled. Criteria should be the basis for advisory rules.
- Flexibility is needed to address large number of water bodies rarely or infrequently used for swimming and subject to natural coliform populations.
- This cannot wait 3 to 5 years.
- This item is critical to the success of any proposed program.
- Uniform national criteria are very important to local public health officials.
- National standards that are health-based will make local enforcement easier.
- Clarification of the definition of "bathing beach"—is this all outdoor recreational waters? (Some may not have beaches, e.g., skiing activities.)
- The highest priority—let's get it done. Flexibility should be limited.
- How can we have "national" criteria and flexibility at the same time? It seems maximum flexibility in terms of what criteria to use would render national criteria meaningless.

Action 1b: There was general agreement on need for two sets of criteria—one for single day samples in addition to geometric mean for monthly samples. More evaluation needed. Consider relationship to beach "re-opening" criteria.

	High		Medium		Low		
Action 1b Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	26	0	6	6	0	0	1

Individual comments:

- We are not convinced that two sets of criteria are needed; more data than single-day samples needed for decision-making.
- Because of the extreme variability in bacteriological data, a 20- or 60-day median is also important in assessing bathing water quality at a particular location.
- Single sample maximums [are] important where resources are thin and recreational uses are spread out over many water bodies.
- Clearer guidance for single-day exceedance is required by EPA with explanation.
- Re-opening criteria important, but one-day and geometric mean standards should be national and in stone.
- Single-day sample criteria are of higher priority.
- Need to be careful about what is and is not a meaningful single-day sample (perhaps a monitoring issue).
- States need the option of assessing large numbers of water bodies with monthly or bimonthly sampling.

Action 1c: **There was general consensus that State and local agencies want to continue using four existing indicators (total coliform, fecal coliform, *E. coli*, and Enterococcus). Total coliform should not be used alone, but in combination with other indicators. New quick inexpensive ones are needed. There was no consensus that EPA indicator criteria or other indicators are superior. Other new or alternative indicators are either (a) inappropriate or (b) not yet ready for widespread use.**

	High		Medium		Low		
Action 1c Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	20	4	4	6	0	3	2

Individual comments:

- In Hawaii, data show that indicators named above multiply in soils and cannot be indexed to pathogens.
- There will be a long lag time between identifying new indicators that relate to health risk and the development of easy methods for detection. Continue using the existing indicators and practice risk management rather than risk assessment. Set standards that keep people out of water contaminated with fecal waste.
- Disagree with allowing existing indicators without use of enterococcus as well. Enterococcus is one indicator that should be used, at a minimum.
- Most agreed that based on published data, EPA standards are not useful in tropical islands (Hawaii and Puerto Rico) and these islands can establish new regional standards.
- The states should be allowed to establish the indicators. Total coliform has not proven to be a valuable indicator in Illinois.
- Let's get the program going with indicators we understand before we focus on new indicators.
- Some newer indicators (or procedures) are appropriate and are ready for widespread use.
- Time lag remains the greatest disadvantage of any of the above methods.
- Continued research is needed to find the best indicator.
- This is in response to the need for "new, quick, inexpensive..." We agree with the consensus statements.
- Long-term need for new indicators. Use what EPA has in the short term.

- Continued research on indicators is warranted and may help in pinpointing sources.

Action 1d: Wet weather issues are important, but universal rainfall criteria should not apply. Flexibility needed regarding how wet weather events affect advisory/public notification/closure.

	High		Medium		Low		
Action 1d Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	8	2	10	14	0	3	2

Individual comments:

- We find that differences occur between monitoring stations; there are significant differences [in] rain impact between states and regions of the country.
- Do not necessarily agree. People should be advised against swimming during/after wet weather event if rain carries pollution to beach. Need to develop models to predict what amount of rain leads to exceedance of standard in particular locale.
- Rain known to increase pollution at beaches but not uniformly at all beaches. Most states know which beaches are adversely affected. However, guidelines are desirable.
- If wet weather criteria [do] not apply, we need specific info on why there is less public health significance from rain levels.
- Agree with need for flexibility—guidelines vs. rules.
- We strongly concur with comments.
- Short-term need—higher priority is the need for public notification when it rains. Wet weather modeling will take more time.
- I agree flexibility is needed here, based on local conditions.

Action 1e: Criteria should apply to bathing beaches, but flexibility is needed in determining how bathing beaches are identified and exposed populations are determined. Flexibility and further discussion are needed re: whether there should be a visitor-based "trigger" or other exposure factor to determine when a "beach" requires monitoring.

	High		Medium		Low		
Action 1e Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	10	2	7	11	0	9	0

Individual comments:

- A visitor-based "trigger" is impractical for Hawaii—year-round use of many beaches is common.
- Subjective call based on local conditions. Determin[ing] exposed population difficult at Lake Powell due to transient nature of visitation.
- States with history of monitoring know which beaches [are] used by most swimmers. Emphasis should be placed on these beaches rather than monitoring beaches with fewer users.
- Identifying and separating "bathing beaches" from other infrequently used water bodies should be a priority.
- This should be determined by the testing agency—not universally.

- EPA recommendations rather than standards would be useful.
- Visitor-based and proximity to potential source is the way to go.
- Bathing beach sampling is a must where any swimming occurs.

Action 1f: General agreement that frequency of monitoring is important, e.g., at least five times/month. No consensus on the most appropriate way to use monitoring data for beach advisory/closure decisions (e.g., geometric mean vs. single sample instantaneous sample vs. two consecutive samples vs. frequency of exceeding criteria). Guidance is needed from EPA concerning frequency of monitoring, and how to handle individual high bacteria counts. Need for flexibility is critical.

	High		Medium		Low		
Action 1f Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	29	4	1	4	0	1	0

Individual comments:

- "Guidance" is needed, but because of the tremendous differences between states/regions local control is more important.
- Need is now!
- Flexibility should not be a code word for "weak standards."
- Monitoring frequency needs to be set in recommendations.
- This applies to "Guidance is needed from EPA..." not mandates.
- Monitor daily sampling—minimum once per week. Closed waterway sampling daily with 2 consecutive days of good samples.
- This is an important issue because of the assessment process and ongoing TMDL issue.

Action 1g: Harmful algal blooms—*Pfiesteria*, red tides, other dinoflagellates that produce toxins are an ongoing concern. More research needed on whether they represent a recreational hazard and how to assess the public health concerns.

	High		Medium		Low		
Action 1g Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	11	7	4	12	0	5	1

Individual comments:

- Hawaii's mid-ocean location, small size, and strong currents reduce probability of phytoplankton blooms; benthic algal blooms are more of a concern.
- Very important to few areas but not relevant to many areas.
- Needed, but expertise is lacking and I see no short-term solution.
- Public won't be satisfied that we are doing our job until we can address their questions regarding this issue.
- This appears to be more of a geographically localized issue.

Action 1h: Guidance and more research are needed on ways to identify sources of bacteria (non-human vs. human) and the importance of non-human sources in risk assessment.

	High		Medium		Low		
Action 1h Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	15	6	1	13	0	5	0

Individual comments:

- Are TMDLs for duck poop really needed?
- Determining sources of bacteria indicator is important because source determines risk level for diseases.
- In Louisiana, we suspect that large wildlife populations are responsible for some bacteria criteria exceedances.
- Could be a valuable tool both for recreational waters and shellfish waters.
- Scientific data [that] can be easily explained is needed because there is no doubt that high indicator organisms occur due to non-health-related sources (non-human). Very important issue.
- Non-human sources may be considered equal to or greater concern than human sources in the short term.
- Very important!
- Some regions have softened their stance on criteria exceedances due to non-human sources—need more information about risks associated with non-human sources.

Action 1i: Everyone uses standard methods. A few use MPN technique and generally that is because shellfish programs require this method. There is concern about the Enterococcus test (cost and turnaround time). Presence/absence methods when used alone don't give enough information to be useful; however, might be used to trigger more intensive sampling. More work on methods needed.

	High		Medium		Low		
Action 1i Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	12	4	3	17	1	3	0

Individual comments:

- If enterococcus is to be measured at all, the method needs to be improved—verification needs to be simplified/a method that gives less ambiguous colonies is important.
- MPN known to lack precision. P/A [presence/absence] not applicable for monitoring beach water. Enterococci test now a one-day test.
- Lab procedures to lower cost and shorten turnaround should be developed/tested particularly if total and fecal coliform indicators are used; P/A tests good for screening.
- Agree. MPN also for turbid or dirty samples. Do not agree there was consensus on P/A only being of limited value. Majority felt it could be.
- Important.
- Let's get that 24-hour entero test out there for everyone. Model needs to require standard or EPA methods. Please update as appropriate.
- As soon as possible, which probably means long term.

Action 1j: EPA/FDA call for use of different methods for shellfish monitoring and water quality criteria. This is a problem for the monitoring agencies.

	High		Medium		Low		
Action 1j Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	8	5	7	7	3	6	4

Individual comments:

- It makes sense that monitoring method for recreational water and shellfish-raising water be the same.
- A key element in resolving indicator issues.
- Does cause problems and confusion. Would be best if all could speak the same language.
- Program consistency is needed to make efficient use of our limited resources.
- Shellfish monitoring [has] not kept pace with technology. Needs to be addressed.
- EPA/FDA need to move to standard methods.
- This is a minor problem.
- Localized issue.
- Seemed to be more of a problem in the Southeast.
- A single agreed[-upon] test and indicator should be used as soon as possible.

Action 1k: EPA needs to determine which quick tests (e.g., "Colilert") are compatible to standard methods.

	High		Medium		Low		
Action 1k Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	25	0	6	5	1	2	0

Individual comments:

- Quick tests are not found to be useful for marine waters.
- Tests that are simple and quick may result in an increase in testing.
- Colilert requires little training and makes holding time easier to deal with. If approved, would ease transition to *E. coli* and enterococci standards.
- A quick test method like Colilert would greatly aid in our ability to effectively monitor beaches.
- Quick tests are needed but many proposed quick tests are not satisfactory.
- Expediency is essential in this program.
- The EPA needs to decide so we can utilize easy, cheaper, quicker tests to protect our beaches and the public.
- Focus on quick tests. Research is needed to develop water quality indicators that give results immediately or within a few hours. If we report the quality of yesterday's beach water because we do not know today's quality, the public loses confidence in us.
- EPA needs to sign off on them. Standardization and comparability of results <u>is</u> critical.

Action 1l: More research is needed to investigate the importance of total/fecal coliform ratios as predictor of health effects.

	High		Medium		Low		
Action 1l Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	3	3	5	15	0	12	1

Individual comments:

- Data show that ratios are not a viable approach to pathogen assessment in Hawaii's coastal waters.
- Literature I have read suggests fecal coliforms as poor indicator of swimming-related illnesses.
- This ratio [is] not reliable in most environmental conditions.
- Can be used as a trigger without more research. We know that when nearly all the TC are FC, we are near the time and place of a source. Also, often TC and FC exceed criteria limits individually.
- Not good indicator of viral or parasitic infections.
- Of scientific interest. Not sure if really applicable to health concerns.
- It definitely works for So. Cal[ifornia] runoff impacts. CSOs and SSOs may be different.

Action 1m: New quick, accurate, and inexpensive indicators are needed.

	High		Medium		Low		
Action 1m Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	20	10	1	8	0	1	0

Individual comments:

- Extensive R&D [is] needed to achieve this goal; results may only be applicable on a regional basis.
- Such a test required but not available in near future.
- Great if it can be done!
- Extensive sampling for beach monitoring can be very expensive.
- To protect the public health, water quality results must be available in "real time" on the day of use.
- If existing indicators have no more flexibility available, then new indicators are required.

Other standards, methods, and indicators comments (Session 1):

- Increased attention to pollution source control is needed rather than too much focus on indicators. Causes of water pollution need to be isolated and corrected.
- Our highest priority should be the identification of a "real-time" indicator. The incubation period for current indicators represents a significant drawback in our efforts to protect the public.

- It was not clear to me why the participants did not like the EPA bacteria criteria, but it was clear that they were not satisfied with the lab methods for evaluating samples. Would appreciate more information on why some people think new criteria are a short-term priority.
- Hawaii and Puerto Rico have data to show that EPA standards for recreational waters are not useful and other indicators are more useful. They should be allowed to establish regional standards with approval by EPA.
- Human health and epidemiological studies are crucial.
- The need is great in Louisiana for appropriate criteria to be applied to those water bodies infrequently used for swimming as opposed to beach waters.
- Subjectivity must be reduced in sampling programs. Action, indicators, and standards should be based on hard science.
- We need to standardize test systems collection and analytical methods, closure criteria, and enforcement. This should be done by regions or according to beach/water characteristics.
- States should be given some strong economic incentives to adopt whatever national standards are chosen. Adoption of standards should be key to receiving federal environmental funds. States should enforce standards uniformly within their beaches.
- EPA should consider two separate but parallel activities—one for freshwater beaches, one for saltwater.

Session 2: Monitoring

Action 2a: EPA should develop monitoring guidance offering flexibility to meet recreational beach program needs. Topics may include: sampling location, depth, timing, etc.

	High		Medium		Low		
Action 2a Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	27	3	5	4	0	1	0

Individual comments:

- And frequency of sampling.
- Guidance only—local control.
- Sampling methods should be standardized.
- Many of these basic questions are not covered by clear EPA guidelines.
- Consistency is extremely important in this issue.
- Key word is "flexibility."
- Flexibility should be limited.
- This would facilitate state agency efforts to have programs accepted by the public and politicians.
- Monitoring guidance should be a top priority—little has been done to demonstrate what an adequate monitoring program should entail to properly ensure that water quality conditions are being adequately represented and that health risks are being properly assessed.
- The monitoring guidance needs to address the infrequently used water bodies as well as the "beach" level water bodies.

Action 2b: Need sanitary surveys and baseline data for local beach assessment and monitoring program.

	High		Medium		Low		
Action 2b Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	18	2	7	11	0	1	0

Individual comments:

- This approach gets at causes; sounds useful.
- Essential information. Many states have done this for their important beaches.
- Data probably exists in all states and there needs to be a federal stimulus to compile and analyze it.
- Both are necessary elements of a good program.

Action 2c: More guidance is needed concerning the monitoring and assessment of event-driven situations (e.g., rainfall events).

	High		Medium		Low		
Action 2c Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	9	1	10	15	1	3	0

Individual comments:

- Should pretty much assume that rain runoff is contaminated so issue advisories to the swimming public. Again, local control is necessary—0.1" of rain in Southern California has a different impact than 0.1" of rain in Louisiana.
- Difficult to monitor episodic events.
- Guidance required but needs to include fact that dilution occurs and less people use water.

Action 2d: Predictive models (existing and developmental) for determining beach water quality should be "checked out," and EPA should validate those models.

	High		Medium		Low		
Action 2d Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	5	2	3	20	0	10	0

Individual comments:

- In general, predictive models have too low a success rate to be useful for making management decisions, especially along open coastlines.
- Contamination events appear to be event-driven at Lake Powell. Difficult to model episodic events.
- Models cannot be validated for daily and monthly variations.
- I don't have much faith in this due to my knowledge of our local conditions.

- Important tool in event-driven situations—models should be validated using long-term monitoring data.

Action 2e: State and local agencies must have the capability to develop, test, and use their own models, since these may be well suited to local conditions. This will require the availability of data.

	High		Medium		Low		
Action 2e Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	6	4	2	17	1	8	2

Individual comments:

- Models are useful, but cannot be expected to substitute for modeling.
- "Model" in a very broad sense (e.g., 0.X inches of precipitation in y hours if it works at the site).
- Also concerned about geographic comparability of program results.

Action 2f: EPA guidance describing what constitutes an adequate regional or local monitoring program would be helpful.

	High		Medium		Low		
Action 2f Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	16	1	8	6	1	6	1

Individual comments:

- [State and local agencies] can develop their own model, but need to compare it to some baseline that could be set nationwide.
- There seems to be tremendous inconsistency across the nation.
- EPA should consider and spend more efforts on regional and local monitoring programs.
- Enough guidance already. Need implementation!
- As mentioned previously, this should include consideration of infrequently used water bodies as well as beach waters.
- The public should have the right to expect a level of protection and safety regardless of geographic location.

Action 2g: Recommend monitoring frequency to both close and re-open beaches.

	High		Medium		Low		
Action 2g Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	25	0	5	7	0	2	0

Individual comments:

- Frequency should be determined on the basis of fluid residence times at different beaches.
- No current recommendations exist on how to re-open beaches.
- Guidance would be useful. How many samples per square mile or length of beach.

Other monitoring comments (Session 2):

- In the past, there has been a great deal of monitoring data collected, then archived without application to management decisions. There needs to be a consensus on what data are needed, and how findings will be translated into management actions.
- Viable but non-culturable state of coliform bacteria often raised. EPA should take a stand on the relevance of this issue.
- Monitoring programs must be considerate of logistical problems associated with sampling large numbers of water bodies.
- EPA needs to lead the monitoring discussion by recommending number, frequency, and type of sampling criteria which can be applied to most (if not all) recreational water situations.
- 1e, 2f, and 2g should be tied together to be EPA recommendations to the states.
- Will there be a laboratory certification program?

Session 3: Risk Assessment and Risk Communication

Action 3a:. Risk assessment approach needs to be consistent as possible, allowing for local differences that justify alternative assumptions.

	High		Medium		Low		
Action 3a Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	16	4	1	12	1	2	3

Individual comments:

- Risk assessments are good first approximation and should be tested by monitoring data.
- Important for meaningful data.
- Good!
- Depends on how model program is created—I hope EPA will be doing most of the RAs [risk assessments], not local entities.

Action 3b: EPA should help State and local agencies by developing and/or providing examples of criteria for closing/re-opening beaches and communicating advisory information.

	High		Medium		Low		
Action 3b Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	23	2	9	3	0	1	1

Individual comments:

- Yes. Public and utilities want these guidelines but need explanation.
- This helps with consistency.

Action 3c: Risk assessment methodology should consider sensitive subgroups such as children, elderly, and immune-compromised.

	High		Medium		Low		
Action 3c Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	15	6	2	10	1	2	3

Individual comments:

- Priority would be high; prospect, given data availability, is dim.
- Without question! Public health protection should begin with groups most sensitive.
- This should be a first priority.
- Nothing new here—all EPA required to do now.

Action 3d: More research is needed to develop beach health standards. More research is needed to understand the human health risks associated with different criteria (numbers)—pathogen occurrence, and dose response or health risk.

	High		Medium		Low		
Action 3d Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	11	14	2	9	0	4	2

Individual comments:

- Need. But answer is not close.
- We need standards now! That's not to say that more research wouldn't be helpful if completed correctly and by need.
- Human health risks also need to be addressed for those infrequently used water bodies as well as beach waters.

Action 3e: Need research and guidance regarding the risks associated with human versus non-human microorganisms.

	High		Medium		Low		
Action 3e Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	11	6	4	15	0	4	1

Individual comments:

- We have a lot of cattle and wildlife input. Are these a health threat?
- [That] human waste has higher risk is known.
- This issue may be very important in waters surrounded by large waterfowl and wildlife populations.

Action 3f: Determine importance of bather contributions to pathogen loading and resulting exposures in recreational waters, especially lakes.

	High		Medium		Low		
Action 3f Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	6	3	4	19	0	6	1

Individual comments:

- Yes, bather contribution is real potential but this source is routinely ignored by EPA.
- Important on a site-specific basis for enclosed waters—not for coastal waters and inland waters with good circulation.
- Not a source that's easily monitored or controlled. More necessary for controlling outbreak of disease.
- Factors to be taken into consideration (e.g., bathers stirring up bottom and toddlers).

Action 3g: EPA should discuss with Centers for Disease Control (CDC) the need to collect more surveillance data on illness associated with beach closures.

	High		Medium		Low		
Action 3g Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	12	7	3	13	0	4	1

Individual comments:

- Only if epidemiology study [is] done.
- EPA should fund CDC to do studies.
- This will be difficult but it needs to be done.
- Urge CDC to establish an "active" monitoring system; the present "passive system" is essentially worthless.
- I think CDC's role in this and other points is critical!

Action 3h: EPA should conduct more epidemiological studies using innovative study designs to assess the health risks associated with microbial problems.

	High		Medium		Low		
Action 3h Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	9	14	0	13	0	4	2

Individual comments:

- Microbial risk assessments may be more cost-effective and provide more cause/effect information than do epidemiology surveys.
- Epi studies are good, but wait until pathogen detection techniques are reliable and easy. Until then, practice risk management.
- ☆☆☆☆☆
- Yes. Epidemiology study given direct measurement of diseases.
- Maybe EPA funding states to do this would be better.
- This should be coordinated with CDC and state epidemiologists.
- Studies should begin in very near future and probably fall in the 3- to 5-year range before conclusions can be made.

Action 3i: Work is needed to enable better identification of pathogens present in bathing beach waters. Differentiate between temperate and tropical waters and broaden beyond gastrointestinal (GI) illnesses.

	High		Medium		Low		
Action 3i Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	7	7	1	19	1	4	1

Individual comments:

- Also to determine source of contamination.
- Differences in environmental sources, indicator in temperate vs. tropical countries now known. EPA needs to recognize this. Non-gastrointestinal diseases are not addressed by EPA.

Action 3j: EPA should develop a matrix of "risk parameters" for managers to use within their organization to help decide about beach closure or reopening. Discuss how to handle uncertainty as number of samples and statistical confidence levels vary.

	High		Medium		Low		
Action 3j Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	16	4	3	11	1	3	1

Individual comments:

- This type of guidance would be very helpful when trying to justify our actions to outside organizations.
- Separate guidelines for diarrheal waterborne disease and non-diarrheal waterborne disease.

Action 3k: EPA should develop a simplified scale for use in public advisory decisions. The scale should be easy to understand, communicate to the public, and incorporate the range of risk parameters used in decisions. Risk should be described in terms easily understood by the public, e.g., days out sick, out of work, out of school, etc.

	High		Medium		Low		
Action 3k Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	15	2	9	9	1	1	2

Individual comments:

- Many potential problems if one oversimplifies different diseases with one system.
- The idea of a "Beach Report Card" is good.

Action 3l. Guidance is needed on how to select appropriate communication media to use (e.g., posting, newspaper, telephone hot lines, Internet, etc.).

	High		Medium		Low		
Action 3l Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	13	1	9	5	3	6	2

Individual comments:

- Depends on community and how to reach swimmers.
- Most local officials know how to deal with the media available to them.
- Would vary greatly.

Action 3m: Groups want a boilerplate/template language and examples for various risk communication materials such as signs, press releases including Q & A format, handouts, etc. Seek input on communication materials, from public, politicians, health professionals, beach businesses, etc.

	High		Medium		Low		
Action 3m Priority	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	No Answer
Number of Responses	16	0	7	6	3	6	1

Individual comments:

- Not easy, but helpful for all states.
- Examples, <u>not</u> required wording.
- Yes—the more standardized the signs, etc. the easier people will be able to recognize them.

Other risk assessment/communication comments (Session 3):

- Until there are reliable and easy methods for a wide spectrum of pathogenic bacteria, viruses, and protozoa, then stick with the traditional indicator system. Then when indicators identify a problem location, protect the recreating public by informing them of the situation and/or close off the area until the situation is mitigated. With the current state of the art in pathogen detection, keeping people out of fecally contaminated water will prevent them from coming down with fecal illnesses. The strongest signals of fecal contamination include the total and fecal coliforms.
- I think we need to look to EPA/CDC for some technical information, i.e., appropriate indicators, sampling methodologies, etc. It ultimately should be the local agencies' responsibility to communicate this information to the public.
- One concern I have is the number of beaches that are not monitored. It may be important to let the users of these beaches know that the waters they are swimming in may be contaminated. Ignorance is not bliss—no data does not translate to safe water.
- I suggest the implementation of a national beach rating system. Only beaches that conduct monitoring in accordance with EPA-established guidelines will get certification from EPA. EPA can then establish criteria for obtaining specific numerical ratings (i.e., AA, A, B, C). Obviously, beaches that frequently exceed standards will receive a lower rating. This provides an incentive for the locals to take responsibility for a) obtaining EPA certification, and b) taking the necessary steps to improve water quality.
- A public outreach program encouraging swimmers to use "EPA certified" beaches would hopefully get the ball rolling.
- Beaches generate a tremendous amount of money each year. Perhaps the businesses benefitting from beach use should share in the responsibility of caring for the beach.
- I was shocked to discover how little monitoring is actually conducted. I don't think it is the responsibility of the states or EPA to foot the bill for the monitoring/public information efforts that are needed.
- If EPA can establish the above states national program, the responsibility is then back to the locals to take the appropriate steps.
- I feel the most relevant issue is determining whether a health risk even exists (i.e., with fecal coliform as indicator). If not, we need a new standard.
- Need more epidemiological studies to increase confidence in risk assessments.
- States should have flexibility, but with flexibility comes responsibilities. If change is requested, it should be backed up by scientific explanation and convincing monitoring data.
- 3k, 3l, and 3m and are important for implementation of a realistic program.

General comments:

- One of [my specific comments] is my concern that EPA's Recreational Waters Program as it has been presented to the states is very rigid and applies almost exclusively to heavily used swimming (beach) areas. On the surface this seems logical, but the fact is the majority of [our] surface waters are not heavily used for swimming. Many are in remote, undeveloped or poorly accessible locations including wildlife refuges, are completely on private property, or are dangerous to swim in due to excessive depths, dredging, and/or navigation. Yet under the present guidance all these waters must be treated as high-use beach areas and assessed with the very stringent beach criteria. I feel that the statewide application of these stringent "beach" criteria has resulted in an inordinate number of our water bodies being

inappropriately assessed as not meeting the primary contact use and thus require listing on the 303(d) list of impaired water bodies. EPA must help the states develop and apply more appropriate criteria and concentrations for these lesser, infrequently used water bodies and require use of the stringent beach criteria only on the heavily used water bodies that need them. A final comment concerns the need to appreciate the financial and logistical limitations of states to conduct extensive criteria monitoring. With over 10,000 water bodies, [we] cannot sample but a representative portion of its more important water bodies and even then can do so only on a monthly or bimonthly basis. Therefore, criteria must be developed that can be assessed by these sampling regimens. Only on the truly heavily used "beach" water bodies can states afford to sample at a greater frequency such as the presently suggested "5 samples over a 30-day period."

Table 1. Summary of Comments Received

Action	Priority						
	High/Short	High/Long	Med/Short	Med/Long	Low/Short	Low/Long	No Answer
1a	30	2	3	3	0	1	0
1b	26	0	6	6	0	0	1
1c	20	4	4	6	0	3	2
1d	8	2	10	14	0	3	2
1e	10	2	7	11	0	9	0
1f	29	4	1	4	0	1	0
1g	11	7	4	12	0	5	1
1h	15	6	1	13	0	5	0
1i	12	4	3	17	1	3	0
1j	8	5	7	7	3	6	4
1k	25	0	6	5	1	2	0
1l	3	3	5	15	0	12	1
1m	20	10	1	8	0	1	0
2a	27	3	5	4	0	1	0
2b	18	2	7	11	0	1	0
2c	9	1	10	15	1	3	0
2d	5	2	3	20	0	10	0
2e	6	4	2	17	1	8	2
2f	16	1	8	6	1	6	1
2g	25	0	5	7	0	2	0
3a	16	4	1	12	1	2	3
3b	23	2	9	3	0	1	1
3c	15	6	2	10	1	2	3
3d	11	14	2	9	0	4	2
3e	11	6	4	15	0	4	1
3f	6	3	4	19	0	6	1
3g	12	7	3	13	0	4	1
3h	9	14	0	13	0	4	2
3i	7	7	1	19	1	4	1
3j	16	4	3	11	1	3	1
3k	15	2	9	9	1	1	2
3l	13	1	9	5	3	6	2
3m	16	0	7	6	3	6	1

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AGENDA

Beaches Environmental Assessment, Closure, and Health (BEACH) Conference Program

Conference Goal: Develop a multi-year action plan to improve beach health protection for swimmers and other recreational users through monitoring, assessment, and communication.

Conference Objectives:

1. Describe current issues and activities related to beach health.
2. Provide a forum for learning about beach health initiatives across the country.
3. Identify unaddressed beach health needs.
4. Assign priorities to short term and long term actions.
5. Where possible, recommend protocols and procedures to encourage greater consistency among jurisdictions in beach monitoring and notification.

Tuesday, October 14, 1997

Arrive at Hotel 5:00-7:00 p.m.	Pre-registration	Lobby

Wednesday, October 15, 1997

7:00-12:00 p.m.	Registration	Lobby
	Plenary Session	
8:00-9:00 a.m.	Welcome and Objectives:	Ballroom B/C
8:00-8:30	Welcome- Robert Perciascepe, Assistant Administrator for the Office of Water, US Environmental Protection Agency	
8:30-9:00	Objectives of the Conference-Linda Sewall, North Carolina	
9:00-10:15	Overview of Beach Health (Panel)	Ballroom B/C
9:00-9:20	History of Recreational Water Quality Indicators--Al Dufour, Environmental Protection Agency	
9:20-9:40	Sources and Control of Pollution--Kevin Weiss, Wet Weather Program, Environmental Protection Agency	
9:40-10:00	Survey of Current Activity--Sarah Chasis, Natural Resources Defense Council	
10:00-10:15	Questions and Answers	
10:15-10:30	Break	
10:30-11:45	Case Studies:	Ballroom B/C
10:45-11:05	**Case Study 1:** Coastal Assessment, the California Strategy for Santa Monica Bay • Robert Haile, University of Southern California • Mark Gold, Heal the Bay	
11:05-11:25	**Case Study 2:** Problems of Multi-jurisdictions • Steve Gradus, Milwaukee, Wisconsin	
11:25-11:45	**Case Study 3:** Beach Monitoring Efforts in New Jersey • David Rosenblatt, New Jersey	

11:45-1:15 p.m.	Lunch Speaker: Martin Wasserman, Secretary, Maryland Department of Health and Mental Hygiene	Thomas Point Room
1:15-1:30	Introduction to Work Groups–Betsy Southerland, Environmental Protection Agency	Thomas Point Room
1:30-4:30	Individual Breakout Sessions: **Session 1:** Standards, Indicators, and Methods Discussion Leaders: • Al Dufour, Environmental Protection Agency • Mark Gold, Heal the Bay	Ballroom B
	Session 2: Monitoring Strategies Discussion Leaders: • David Rosenblatt, New Jersey • Steve Schaub, Environmental Protection Agency	Ballroom C
	Session 3: Health Risk Assessment and Communication Discussion Leaders: • Robert Haile, University of Southern California • William Burke, East Carolina University School of Medicine • Jay Fleischer, State University of New York at Brooklyn	Thomas Point Room
3:00-3:15	Break	
5:00 p.m.	Dinner (On Your Own) List of Area Restaurants Available at Registration	
8:00-9:30 p.m.	Session Leaders, Conference Leaders, and Recorders–Work Period	Thomas Point East Room

Thursday, October 16, 1997

7:00-8:00 a.m.	Morning Coffee and Tea	Atrium
8:00-11:00 a.m.	Second Set of Breakout Sessions (Repeat of yesterday's sessions. Select your second option.)	
	Session 1: Standards, Indicators, and Methods Session 2: Monitoring Strategies Session 3: Health Risk Assessment and Communication	Ballroom A Ballroom B Ballroom C
9:30-9:45 a.m.	Break	
11:00-11:45 11:00-11:15	Case Studies: **Case Study 4:** Massachusetts Survey • Elaine Kruger, Massachusetts	Ballroom A/B
11:15-11:30	**Case Study 5:** Lake Pontchartrain Activities • Henry Bradford, Louisiana • Steve Gorin, Lake Pontchartrain Basin Foundation	
11:30-11:45	**Case Study 6:** San Diego Experience • Chris Gonaver, San Diego, California	
12:00-1:30 p.m.	Working Lunch and Wrap Up–Plenary Session, Review of the Breakout Sessions–Identify Key Priorities	Ballroom A/B
1:30-2:30	Pfiesteria Update- Optional (TBA)	Ballroom A/B
1:30 p.m.	Adjourn	