

EMAP/REMAP Symposia -- April 10, 2007

Talking Points -- Michael Kenyon, Director, EPA New England Regional Laboratory

Introduction:

- Thank you very much for inviting our Region to speak today. Our Regional Administrator Bob Varney and Deputy Regional Administrator Ira Leighton regret that they were not able to attend.
- Those of you who know Bob and Ira, probably already know that they are keen, enthusiastic supporters of the EMAP program and the regional counterpart REMAP. They wanted me to clearly and forcefully state our deep appreciation and strong support of these programs today.
- As lead region for science, we touched base with other regions in preparation for talking here today. And I can tell you that the appreciation of the EMAP/REMAP programs runs deep through all the regions.
- Personally, it's a pleasure to be here. I often worry that we don't do a very good job communicating the environmental benefits from our science activities – but today we're doing just that.

Background on EMAP/REMAP Programs to Regions

- EMAP and REMAP provide the regions, states and tribes information that we absolutely need to set our regional priorities, manage our programs strategically, and issue permits and implement TMDLs wisely. Without this information, we're operating in the dark.
- **The EMAP and REMAP programs have moved us from targeted environmental monitoring to “statistically comprehensive” monitoring of all waters, giving us for the first time a comprehensive view of the health of our resources.**
 - ORD demonstrated how to use probability-based design in large scale regional and national studies, such as the Mid-Atlantic Integrated Assessment or MAIA, the Western EMAP project, and the National Coastal Assessment.
 - With the help of the REMAP program, the Regions, states and tribes have run with these tools, successfully using the EMAP statistical design approach to assess ecological conditions at smaller scales – regional and more localized characterizations of ecosystems and watersheds. The names alone of REMAP studies give you some sense of their geographic and substantive diversity:
 - the Probability Based Assessment for Wadeable Streams in Wisconsin,
 - Maryland's Green Infrastructure Assessment,
 - the South Florida (Everglades) Ecosystem Assessment Project,
 - the Western Gulf Coastal Plains Ecoregion of Louisiana,

- Urban and Mixed Land Use Impacts to Stream Conditions in an Arid Ecosystem, and
- Reference Conditions for Perennial Streams across the Great Plains Environment.

In all, there have been close to 100 REMAP studies conducted, most groundbreaking in one way or another, which have provided us with tremendously valuable data.

Benefits of REMAP Approaches to Regions and States

- Today, I'd like to provide a regional perspective on how these studies support regional, state and tribal environmental programs, noting 5 key benefits we've derived from REMAP.
- **First, REMAP has given us the tools to identify and understand the stressors which impact water quality and ecological health and has allowed us to prioritize our work accordingly.**
 - Indeed, at times, the REMAP program has given us the ability to identify patterns of pollution that we might otherwise miss, problems that are ubiquitous but subtle.
 - A prime example of this was the use of REMAP in identifying the widespread nature of mercury contamination in the Northeast. Region 1's first REMAP project, undertaken collaboratively with the State of Maine in 1993, involved an assessment of fish tissue in Maine lakes. We found mercury at alarming levels, even in the most pristine, remote lakes in northern Maine.
 - Follow up studies confirmed the widespread mercury contamination, and led to statewide mercury advisories for freshwater fish for all waters of New England.
 - Other significant findings from REMAP projects that will drive regional water quality agendas in future years include:
 - the lack of species diversity in many of our nation's watersheds,
 - the alarming rate of invasive species encroaching on aquatic ecosystems, prime examples being zebra mussel and purple loosestrife; and
 - the impact of impervious surfaces in developed land resulting in riparian disturbance and excess streambed sedimentation.
- **A second key benefit from the REMAP program has been the ability to track water quality changes over time, to identify long-term trends.**
 - An excellent example of the use of trend data has been Region 2's studies of the harbor bordering New York and New Jersey. In 1993 and 1994, Region 2, in partnership with other agency and academic partners, conducted a study of

chemical contamination and biological effects in the harbor. These initial results set a baseline.

- Follow up studies in 1998 and 2003 provided trend information on changes in sediment quality and biological health of the Harbor, serving as a report card on the effectiveness of better water quality management practices.
- **A third major benefit of the REMAP program has been the development and transfer of analytical tools and technology to the regions, states and tribes.**
 - Good example: The wadeable stream studies in Wisconsin, the Great Plains, Montana, the Southern Rockies, New England and elsewhere were hugely valuable in introducing and developing field sampling protocols, data analysis methods, and models to assess the biological health of streams. We're now seeing these methodologies being incorporated into regular use by state and tribal biological monitoring programs.
 - Building this enhanced monitoring capacity is a benefit which will live on for years into the future.
- **A fourth benefit of the REMAP program has been to strengthen the relationship and extend the collaboration among our key partners – the states, the tribes and other federal agencies.**
 - REMAP projects have caused our monitoring staffs to work together closely in the field. As we do so, we learn from each other and encourage greater consistency in our use of field and analytical methods, which in turn allows us to better compare ecological characterizations across boundaries.
- **Finally, the fifth benefit of the REMAP approach is its cost-effectiveness.**
 - In this time of fiscal austerity, REMAP allows us to depict environmental conditions in large ecological areas with significantly less resources by reducing the number of sample sites needed.

The Importance of Continuing this Work in the Future

- By now, you can probably tell, we appreciate EMAP and REMAP enormously. From the perspective of the regions, these programs have been critical to –
 - The vitality and effectiveness of our monitoring programs,
 - Our understanding of the health of our ecosystems and trends, and
 - Our ability to make intelligent regulatory decisions, using the best possible science.
- Moving forward, it's vital that we maintain and build upon the benefits and gains derived from these programs.

- As we take the national assessments beyond coastal areas and wadeable streams, we know we'll need ORD's assistance in applying these techniques and tools to lakes, great rivers and wetlands.
- We also continue to see the need to enhance the Office of Water national assessments with regional and state level studies, which provide information at a needed finer scale and fill important gaps.
- We also recognize the need to use the tools from EMAP to inform our responses to new challenges, including –
 - The impact of climate change on our water quality resources;
 - The presence of pharmaceuticals and personal care products; and
 - The impact of increasing population and urban sprawl.

Conclusion

- To know that we're focused on the right problems, and to know that our actions are effective, we need the tools and lessons of EMAP.
- In closing, let me return to New England's experience with mercury. The discovery through REMAP of widespread mercury contamination didn't just result in health advisories, it also resulted in the development and implementation of a mercury action plan by the states, the eastern Canadian provinces and EPA, which has to date reduced mercury emissions in New England by more than 60%. That's the kind of profound impact good environmental monitoring studies can have.

Thank you for the opportunity to speak today and thank you for the EMAP and REMAP programs!