

Abstracts

Thursday, May 1

Session K7: Research and Achievements in Community-Based Science

10:00 – 11:30 am | Room 231

Assessing the Needs of US Volunteer Monitoring Programs: Recent Survey Results and Implications

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Abstract

Volunteer water monitoring programs can educate and build awareness of water quality issues in local communities, motivate citizens to take action for natural resources protection, effect change in natural resources policies, and protect and preserve valued waters. However, current information has been sorely lacking about needs of existing programs in order to enable strategic support, especially in these times of tight budgets and changing priorities. This presentation summarizes the results of a 2011-2012 web-based characterization and needs assessment survey of volunteer water monitoring programs across the country. (The most recent nationwide assessment of volunteer water quality monitoring programs was in 1997). This survey included queries on program staffing, size, scope, volunteer numbers, what is monitored and where, how data and results are used, as well as concerns such as funding, training, data sharing, and outreach tools. Over 130 surveys were received, from the estimated 360 “parent” and stand-alone volunteer monitoring & service provider programs across the country.

“I Want to Help Whoever Can Help the Water”: Explaining Citizen Involvement in Volunteer Water Quality Monitoring Programs

Jaime McCauley

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Abstract

Most research on volunteer water quality monitoring programs focuses on whether volunteers produce quality data. There is scant research on the factors that influence individuals to participate in these programs in the first place. This study draws on interview and survey data from individuals who participate in citizens’ water quality monitoring organizations in the Greater Cincinnati / Northern Kentucky metropolitan area. Key findings indicate that participants are primarily driven to protect their local waters by providing data to local and state agencies, or to other experts who can use the data to protect the waterway. Secondly, a key component of respondents’ ongoing motivation to participate in these programs is related to the social relationships built within water quality monitoring groups. To the extent that water quality monitoring programs can incorporate the noted motivations and goals of volunteer water quality monitoring participants into their recruitment and retention efforts, these organizations will be more likely to sustain volunteer participation. A stable pool of dedicated volunteers aids in producing the consistent quality data necessary to protect our most precious natural resource – water.

Improving Understanding of Impacts of Volunteer Water Monitoring Programs on Natural Resource Policy and Management

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Abstract

A survey of 345 volunteer water monitoring program coordinators in the United States was conducted to learn about the types and breadth of impacts these programs have had on natural resources policy and management. Eighty-six percent of coordinators replied to the survey. They shared information about program characteristics such as geographic scope, age, budget size, and level of quality assurance, along with anecdotes about the types of impacts on policy and management that have resulted from their volunteers' efforts. A wide variety of impacts on water bodies, policies and on organizations were described. Those most commonly reported were indirect impacts on policy and management expressed through volunteer actions to attend public meetings, serve on natural resource-related boards, and write letters to support or refute natural resource policies. The majority of reported impacts were at the town or city level, though state level impacts were also common. Multiple regression models comparing program characteristics to reported impacts revealed several characteristics that were significantly related to the number of impacts programs reported. These characteristics as well as examples of the impacts volunteer water monitoring programs have made on natural resources policy and management will be shared.

Citizen Science and the Management of Natural Resources and Environments: A Systems Approach

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Abstract

We describe a new approach to Citizen Science. For our purpose, Citizen Science represents an engagement from members of the public, usually volunteers, in collaboration with credentialed technical experts to observe and understand natural resources and environments for the benefit of science and society. (This includes Volunteer Monitoring of watersheds.) Our approach seeks a much greater level of engagement, not only from volunteers but also from paid professionals, than is present in current Citizen Science efforts. The approach provides new opportunities for the lay public but also solicits community and policy interactions by scientific experts and stakeholders. The characteristics of individual engagement are described by a modern version of Maslow's hierarchy of needs and are documented in current Citizen Science efforts. On the science side, observations and monitoring provide a foundation that supports critical analysis (process research) and that builds up to information syntheses (*e.g.*, spatial & temporal assessments). As citizens (and experts) move up this pyramid of science needs, the potential exists for more intense engagement and participation. At the same time, there are increased challenges associated with educational and information needs. Knowledge generation is often accompanied by individual and community biases, involving both experts and the lay public. A diversity of perspectives from volunteers, stakeholders and experts can help counter these biases. Other benefits include scientific and educational benefits and the use of Citizen Science as a social force. The approach depends on recognition by communities and organizations of the need for long-term multidisciplinary science in support of an improved management of natural resources and environments. It also depends on recognition of individual human needs. We examine our approach in the context of Garrett Hardin's "Tragedy of the Commons." We seek insights from indigenous societies and from the perspective of numerical modelers and other experts. We do not prescribe how our approach might be implemented, but we suggest that implementation might be facilitated through the involvement of integrating entities, including institutions of learning and agencies with broad science responsibilities. Our approach empowers and encourages individuals to participate in active learning and to transcend their own immediate and local needs for the benefit of a larger community.