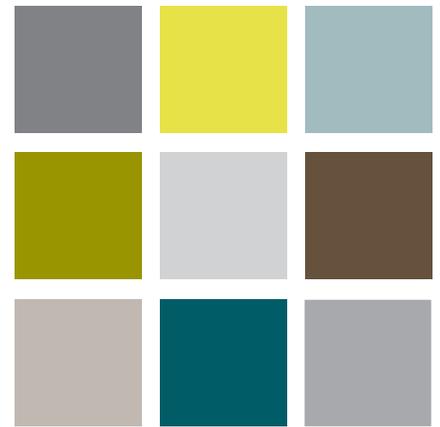


Designing Watershed Based Education through a Mental Models Research Approach

Impact Statement



Photo credit: Liz Stablein Photography 2009 .



SUMMARY

This project was developed to improve the effectiveness of conservation practices and programs by targeting critical populations in a degraded and rapidly urbanizing watershed in central Ohio. We identified knowledge gaps among target audiences through a mental models research approach. Such an approach is based on an in-depth assessment of the web of beliefs, or “mental model” that affects how an individual defines a problem and ultimately makes decisions about issues that are communicated to them. Knowledge gaps among the larger community have been addressed through tailored, web-based decision support tools for developing streamside land management plans. Mental models research has shown that having a better understanding of knowledge gaps, and the associated beliefs and perceptions of stakeholders, can improve educational efforts and inform landowner decision-making. Once the knowledge gaps and mental models of the target audiences were described, project staff designed web-based resources and educational programs for streamside landowners aimed at increasing their knowledge of stream dynamics and function within the target subwatersheds. The knowledge gap analysis was also used to develop web-based decision tools that allow landowners to assess economic aspects of streamside protection, including the development of worksheets to estimate the costs and benefits of different activities, such as planting trees or grasslands, establishing wetlands, and establishing rain-gardens. Workshops were conducted in target subwatersheds to promote long-term adoption of streamside conservation and management practices.



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

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SITUATION

Headwater streams are critical to providing fundamental watershed services, including flood control, recycling nutrients, and supporting species diversity. However, headwaters are particularly vulnerable to human activities and influences that lead to their degradation. In many states, their legal protection is the responsibility of voluntary citizen action, but there are many cases where a variety of barriers prevent citizens from prioritizing headwater stream protection. The lack of protection for these streams has significant environmental and economic impacts on watersheds locally and regionally. Protecting these streams requires significant education and extension efforts that enhance community knowledge about the ecological role of headwaters in the watershed, and the risks posed by their degradation. Successful interventions require targeting knowledge gaps and misperceptions among landowners in order to achieve changes in attitudes and behaviors.

RESPONSE

We developed a project website (<http://ohiowatersheds.osu.edu/usda/>) to highlight project accomplishments. The following four extension products are highlighted on this website: 1) 3 short video segments added to the Ohio Watershed Network (OWN) online watershed tour based on identified misperceptions experienced in all target audiences (e.g., how rivers originate and critical stream structures and functions), 2) a new section on the OWN website titled Streamside Landowner Guides that provides information on protecting stream health, organized around the streamside landowner goals identified in the interviews, 3) a streamside landowner slide presentation focused on identifying and promoting healthy streams in urban watersheds, and 4) a streamside landowner resource packet developed for and provided at the landowner workshops.

IMPACT

We held 4 structured decision making workshops (reaching 60 landowners) in the watershed. All of the participants completing the pre-post evaluation reported significant increases in knowledge (e.g., understanding about the options available to reduce erosion, how to take action without spending too much time or money, who to contact about questions, and how to find incentive programs for taking action). All of the participants completing the pre-post evaluation reported an intention to engage in new conservation practices on their property (e.g., improving streamside buffers, not dumping yard waste, and dedicating more time to evaluating their stream's health). Township administrators in attendance requested that the workshops be offered annually as part of their municipal storm water education program and that we work with them to install a streamside buffer on municipal property. Plans for establishment of a permanent streamside buffer have been made in a subdivision in the Blacklick Watershed to create a permanent location for extension workshops on stream health.

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