

**North American Association for Environmental
Education**

**USING ENVIRONMENTAL ISSUES
FORUMS (EIF) TO ENHANCE
DELIBERATION: CASE STUDIES**

**Bora Simmons, Editor
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Using Environmental Issues Forums (EIF) to Enhance Deliberation: Case Studies is a product of the partnership between the North American Association for Environmental Education (NAAEE) and the Kettering Foundation.

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About NAAEE

For more than four decades, NAAEE has promoted excellence in environmental education throughout North America and the world. We are dedicated to strengthening the field of environmental education and increasing the visibility and efficacy of the profession. NAAEE's influence stretches across North America and around the world, with members in more than 30 countries. NAAEE and its 56 state, provincial, and regional Affiliate organizations in the United States, Canada, and Mexico have more than 20,000 members. These members are professionals with environmental education responsibilities and interests across business, government, higher education, formal (K-12) education, nonformal education, early childhood education, science education and STEM, and other sectors of society.

Our vision is a sustainable world where environmental and social responsibility drive individual and institutional choices. Our mission—to accelerate environmental literacy and civic engagement through the power of environmental education—is strengthened through our work with the Kettering Foundation.

About Kettering Foundation

The Kettering Foundation is a nonprofit operating foundation rooted in the American tradition of cooperative research. Kettering's primary research question is, what does it take to make democracy work as it should? Kettering's research is distinctive because it is conducted from the perspective of citizens and focuses on what people can do collectively to address problems affecting their lives, their communities, and their nation.

The foundation seeks to identify and address the challenges to making democracy work as it should through interrelated program areas that focus on citizens, communities, and institutions. Guiding Kettering's research are three hypotheses. Kettering's research suggests that democracy requires:

- Responsible citizens who can make sound choices about their future;
- Communities of citizens acting together to address common problems; and
- Institutions with public legitimacy that contribute to strengthening society.

Kettering produces materials, including issue books and starter videos, for the National Issues Forums (NIF), a network of civic and educational organizations whose common interest is promoting public deliberation. The foundation collaborates with NIF as part of its research efforts.

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Introduction

In 2014, NAAEE and the Kettering Foundation renewed their partnership to develop the Environmental Issues Forums (EIF). One of the goals of the partnership is to increase deliberative public dialogue on climate change and other environmental issues. EIF is modeled on the National Issues Forums (NIF)—a nonpartisan, nationwide network of locally sponsored public issues forums. NIF is rooted in the simple notion that democracy requires an ongoing deliberative public dialogue. People need to come together to reason and talk — to deliberate about common problems. Understand together. Decide together. Act together.

EIF provides tools, training, and support for engaging adults and students in meaningful, productive democratic work by:

- Initiating a nationwide network of individuals and organizations using deliberative forums for the consideration of key policy issues;
- Establishing *EIF in the Classroom*, a suite of resources for middle and high school teachers;
- Assisting in the development of issue guides focusing on climate change, water, and energy; and
- Compiling and growing a list of moderator resources.

EIF provides a way for people of diverse views and experiences to seek a shared understanding of the problem and to search for common ground for action. Organized by a variety of organizations, groups, and individuals, forums offer citizens the opportunity to join together to deliberate, to make choices with others about ways to approach difficult issues and to work toward creating reasoned public judgment. Forums range from small or large group gatherings similar to town hall meetings, to study circles held in public places or in people's homes on an ongoing basis.

Forums are led by trained, neutral moderators, and use an issue discussion guide that frames the issue by presenting the overall problem and then three or four broad approaches to the problem. Forum participants work through the issue by considering each approach; examining what appeals to them or concerns them, and also what the costs, consequences, and tradeoffs may be that would be incurred in following that approach.

NAAEE's interest in civic engagement is, in part, inherent in the structure and commitments of the field it serves. Environmental education (EE) provides the skills necessary for people of all ages to make intelligent, informed decisions about the environment and how they can take care of it. EE informs, inspires, and enlightens. It builds human capacity, influences

attitudes, and encourages action. Most importantly, it can help people make informed decisions about the environment that lead to lifelong stewardship and a more sustainable society.

Through the partnership with the Kettering Foundation, EIF has involved educators from across the nation in the development and testing of issue guides and other materials. This publication documents, through a series of case studies, the journeys taken by these educators. They report on the process of developing locally relevant EIF materials, reflect on their experiences holding forums for a variety of audiences, and report assessment results.

To learn more about EIF and to download forum related materials, please visit naaee.org/eif.

PART I

ENVIRONMENTAL ISSUES FORUMS: COMMUNITY DELIBERATION

Developing the Wisconsin Central Sands Groundwater Deliberative Framework

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Issue

Wisconsin's Central Sands is a large region in Central Wisconsin in which irrigated agriculture is an important economic activity and extensive trout streams and lakes are important recreational and ecological resources (Bradbury, et. al., 2017). A shallows aquifer is the source of the irrigation and irrigation pumping has been contentious for decades as impacts on surface water levels in streams and lakes have become apparent. The public "discussion" has often pitted farmers and the agriculture industry against recreationalists, homeowners, and environmentalists. It's in this context in which we set out to develop a deliberative framework entitled "How do We Use and Manage Groundwater in Wisconsin's Central Sands?"

Process

The Wisconsin Environmental Education Foundation, ThinkWater, and the Wisconsin Institute for Public Policy and Service partnered to develop and test the "How do We Use and Manage Groundwater in Wisconsin's Central Sands?" deliberative framework with support from the Kettering Foundation and the North American Association of Environmental Education (NAAEE).

The initial framing was completed based on discussions with stakeholders and published reports of the issue. We then conducted two test forums using the framework.

The first deliberation included 12 people from a mix of stakeholders with varying backgrounds and points of view, including 4 conservationists and citizen activists, and 4 farmers. While there was not a lot of ethnic diversity—all were white except for one Native American—the group nevertheless represented a diverse cross-section of viewpoints about

the water quantity issue. The forum proceeded normally in the sense that participants went through the usual stages of a forum beginning with the welcome and introduction through an examination of all three approaches.

Participants immediately noted the framework limited its focus to water quantity and did not address water quality, which is also a major issue of concern in the region. As hosts, we acknowledged the omission and explained that our decision to focus on the water quantity issue as a subset of the broader water issues in our region allowed for an effective deliberation in a relatively short timeframe. Participants appeared to accept this explanation and it did not prove to be a barrier for participation. A further observation made by one of the participants about the framework was that it did not take into consideration the flora and fauna-of the land itself as having an interest or stake in the outcomes of water use. In other words, it was pointed out that each of the action items and tradeoffs represented a human-centered position and did not consider its intrinsic impact on nonhuman actors, including animal species and the earth itself.

The most interesting result of the first forum came during the “Ending the Forum” segment. Several participants acknowledged that they were on opposite sides of the water quantity problem—some having had a long adversarial history working on the issue. Yet, they not only acknowledged listening respectfully to the other’s point of view, but they recognized that they had reached common ground on several points. For example, all felt that ascribing some value to water usage—in other words, pricing water to reflect true costs in terms of taxes and costs to the environment—might be an effective strategy to help people limit use.

Similarly, there was strong agreement about educating the public about food production and the real costs of that production. Most also agreed that passing legislation or other government involvement was not the sole answer. In fact, several argued for working outside of the traditional legislative/policy context, which was seen as often generating one-size-fits-all solutions to disparate and unique problems. For example, educating farmers and agricultural industries on best practices was seen as a potentially effective strategy. This went hand in glove with providing incentives for farmers to use high efficiency water use practices and more precise monitoring. Using science to help identify less water intensive crops and to provide a database of surface water conditions and information was also generally accepted.

Perhaps most astonishingly, as the test forum concluded and participants were asked to provide observations and feedback, some participants wondered if there were plans to hold additional forums. The two “sides” acknowledged that until that moment, they had never before ended a conversation about water with hope for real solutions. Some even asked if they could use the issue guide going forward to help address water quantity in the region. Several participants stated that the conversation had been highly valuable. As one

organizer noted in our post-forum assessment, “We ended up with a test forum during which an actual deliberation broke out.”

A second test forum was organized and included an audience (11 participants) that was more reflective of the community population—or, in other words, organizers did not specifically seek out stakeholders with a special interest in the topic. Most were not experts in the topic, though we did have three farmers present and 3 community educators who were knowledgeable about various aspects of the issue.

There was a noticeable difference in the depth of the conversation with regards to specificity—participants used more generalities and were less knowledgeable about the topic than the first group. Overall, the second group seemed to be more homogenous in their concern for over-usage of water, particularly by large capacity wells and farm interests. Yet, as a group, they seemed less knowledgeable about water issues than the first test forum group. As a result, this second deliberation took place at a more general level compared to the first. For example, when pushed by the moderator to place value on the water in terms of a tax or to better reflect its “real” value, members of the group stated that it would be very difficult to understand such a value and therefore they did not seem to think that this was an actionable solution. Most participants seemed to norm around the idea that a definitive scientific study followed by good education should be enough to form a basis for appropriate water usage formulas. Nevertheless, they acknowledged that different stakeholders tended to interpret science based on their pre-existing interests and biases. For this reason, the group also seemed to form consensus around the idea that government laws and intervention might be the only sure way to reign in water use and ensure enforcement. It was also brought up that citizens concerned about water management should also reach out to lakefront property owners and water sports enthusiasts to find alliances to combat those who would allow uninhibited use.

Following each of the test forums we made some tweaks to the issue guide. We updated the brief introduction section to acknowledge the focus on water quantity rather than water quality. Within the framework, we updated and better aligned tradeoffs to specific actions within our three options. We also removed or revised option actions that were unclear or seemed duplicative. The process resulted in a readily usable, seemingly effective, framework for community deliberation.

Reflection

The forums generally, and specifically the “How do We Use and Manage Groundwater in Wisconsin’s Central Sands?” forum, have proven to be effective formats to engage participants in real deliberation. The power to bring people together and get them to challenge others and their own understanding of a topic is an important, and sadly a seemingly rare, function in our society. In our experience, the most powerful piece of the deliberative framework is matching tradeoffs with actions. This pairing forces an acceptance that there are rarely any perfect solutions, opening up the potential for

challenging one's own beliefs, and considering the benefits and tradeoffs of others' preferences. The discussions enabled in the forums carried over to other venues at later dates, which speak to the importance and uniqueness of the forums.

The question has been asked: "Is this education?" The answer is, emphatically, "yes" given that people are learning from each other, knowledge is being developed, and perspectives are being understood. These deliberations can, and should, play an important role in community education and stewardship.

References

Bradbury, K.R., Fienen, M.N., Kniffin, M.L., Krause, J.J., Westenbroek, S.M., Leaf, A.T., and Barlow, P.M., 2017, Groundwater flow model for the Little Plover River basin in Wisconsin's Central Sands: Wisconsin Geological and Natural History Survey Bulletin 111, 82 p.

Environmental Issue Forums in a Small Western Colorado Town

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As a member of a team of three Colorado Alliance for Environmental Education volunteers, I participated in the development of the Colorado Water Issues framework. This work has introduced me to the work of the Kettering Foundation, the art of naming and framing an issue, moderating Environmental Issue Forums (EIF) deliberations, and utilizing EIF resources across my community of influence.

During two projects, I utilized the EIF materials in Carbondale, Colorado, a small town of 6,000 people in western Colorado. In this case study I will share results of this work as well as reflections on what has been learned and include further questions and opportunities for research and development.

Climate Issues Forum at Catholic Parish Establishes Common Ground

There has been an interest among parishioners at St. Mary of the Crown Catholic Church to be more engaged in environmental issues in recent years. Pope Francis' 2015 encyclical *Laudato Si': On Care for Our Common Home* has catalyzed Christians around the world to be more actively engaged in environmental issues. Yet, at St. Mary of the Crown, we had to begin with an open forum to allow parishioners to come together, share their stories, their concerns, and establish common ground together before we could begin to take action. The Climate Choices issue guide was utilized with a small group of a dozen parishioners and parish leaders to facilitate this need for creating common ground through deliberation around how we might take steps to address the causes and impacts of climate change.

Parishioners were fully engaged in the May 2017 *Climate Choices* deliberative forum and found that while they did establish some common ground, they realized how much more complicated this issue is through listening to each other's stories. Many reported later that they appreciated coming together with other parishioners who also care deeply about the impacts of climate change. Prior to the deliberation, they reported, they were not aware of many others within the parish who also shared similar concerns.

Common Ground Leads to Climate Action

Following the *Climate Choices* deliberation, the parishioners were enthusiastic about creating change within the parish to address the parish's impacts on climate change. This energy led to the creation of a Creation Care Team in partnership with the Catholic Climate

Covenant, a national initiative. St. Mary of the Crown established the Creation Care Team in June 2017. The small group meets monthly for prayer, reflection, project work, and advocacy. Projects have included:

- hosting World Day of Prayer for Creation Ecumenical Prayer Celebration;
- writing and committing to Parish Creation Care commitment statement;
- establishing a parish waste reduction effort including co-mingled recycling and compost;
- hosting a Common Home Energy Efficiency Resources Weekend which invited parishioners to leverage local energy rebates, home efficiency improvements, and the low-income home efficiency program;
- celebrating St. Francis with an evening class and blessing of the animals;
- encouraging participation in Carbondale Hazardous Waste Collection Day;
- including Green Tips for Living in the weekly parish email;
- encouraging parishioners to sign the St. Francis/Laudato Sí Pledge;
- incorporating concepts from *Laudato Sí* into the Religious Education program and,
- asking parishioners to write their legislator and asking him to join the House Climate Solutions Caucus and co-sponsor the Climate Solutions Commission Act.

Collectively, this work is raising the awareness of parishioners on the importance and faith-informed responsibility of taking action to address the causes and impacts of climate change.

The value of the *Climate Choices* deliberation at St. Mary of the Crown Catholic Church was greater than expected. Parishioners, who are not already engaged in many parish activities, participated and discovered other parishioners who like themselves care deeply about the impacts of climate change and other environmental issues. It was inspiring to facilitate an opportunity for parishioners to connect more deeply on issues of common interest and then begin to take action.

Community Radio Station Member EIF Forums

KDNK Community Radio in Carbondale Colorado is a public access radio station that connects community members to one another and the world. The station strives to create space for all voices representative of our community to be heard both on the air and through member events and forums. In an attempt to provide a member only special forum series, I partnered with KDNK to host a three week Environmental Issues Community Forum Series in early August 2017.

The three-week series was vigorously promoted and interest was sparked in the local community. Multiple people reached out wanting to learn more prior to the forum series. *Climate Choices*, *Energy Choices*, and *Colorado Water Issues* frameworks were to be utilized throughout the three weeks. Unfortunately, there was little participation during this early August series. The first week, 6 community members participated in the *Climate Choices*

forum. The second week, only a couple of people attended the *Energy Choices* forum and a less formal discussion was facilitated, not a full deliberation. And, for the third week, only one person attended.

Potential Causes for Low Participation

This attempt at bringing community members together around environmental issues, using deliberative forums, was a new type of event for our community. People are accustomed to attending forums that involve experts talking in the front of a large auditorium of community members. Community members are listeners and, if there is time at the end, one or two people are able to ask questions. The concept and power of a participatory small group deliberative forum was difficult to convey and inspire participation.

In addition, the time of year chosen for the Forum Series may not have been ideal for this community. With such a recreation-focused community, 7:00 p.m. on a long summer evening is a perfect time to be out on an after work bike ride or walk and not be indoors deliberating wicked issues. There is also a known understanding that people experience event fatigue in late summer in this community. Both of these circumstances could have led to low participation.

Opportunities for Further Research and Development

Continuing to research and develop methods for participation in community deliberative forums is needed. The EIF materials are valuable and usable in a community forum setting, yet strategizing ways to entice people to participate in a forum setting would be helpful to EIF moderators and host organizations. At both St. Mary of the Crown Catholic Church and KDNK Community Radio, the target audience was existing members of the respective organizations. Even though there was an established audience existed, participation was still low. I am interested in exploring best practices for making community EIF deliberations enticing and well attended.

Climate Choices Deliberation in Kansas ~ A Pilot Project

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Exploring the Intersection of Environmental Education, Deliberation & Action

Laura Downey and Melissa Arthur from KACEE, and Donna Schenck-Hamlin from ICDD have been active participants in the development of the water, energy, and climate choices Environmental Issues Forums (EIF) materials at the national level in partnership with NAAEE and the Kettering Foundation. In response to a request from NAAEE, we set out to pilot the *Climate Choices* discussion guide in a community-based Climate Choices Environmental Issues Forum.

Our objectives for this pilot project included:

1. Collaborate with local conveners to provide a community experience of high-quality public deliberation, using an NIF/EIF discussion framework.
2. Test the effectiveness of the *Climate Choices* materials as a tool to engage communities in deliberative dialogue around the issue of climate change.
3. Explore how KACEE might partner with other organizations to facilitate initial deliberative dialogue around climate choices and provide those organizations with a foundation of common ground to engage communities in advancing individual and collective actions around environmental challenges

Partner and Participant Recruitment

Climate Choices Forums have great potential for environmental education organizations to help groups bring community members together to engage in dialogue that is not combative or destructive, but rather, which builds understanding of multiple view points and uses a unique approach to positively identify common ground for action. A challenge for environmental education organizations is that this action outcome can veer into the realm of advocacy and out of alignment with our non-biased, non-advocacy missions. KACEE continues to wrestle with our role with EIF and how implementation of this program in Kansas might be most effective. As a statewide umbrella organization for environmental education, KACEE is well positioned with a variety of strong partnerships in the environmental field. We are also well equipped to facilitate deliberative dialogue and have an advantage in that we are positioned as a non-biased organization—we don't advocate for environmental issues. What becomes challenging for our organization is what to do *after* the forum is facilitated and there are some initial points of common ground identified. To *not* provide leadership to continue to pursue the initial common ground identified seems to leave potential for change untapped. However, to continue to lead in a community to begin planning and implementing environmental action on an individual or collective basis begins to feel out of alignment with our mission, potentially risking our positioning as non-biased. As part of this pilot we explored how organizations that do advocacy might be potential partners to build on the common ground.

To test our ideas, we identified several key partners in the Agriculture, Energy, Water, and Climate fields for which we perceived partnering on a public deliberation would be mutually beneficial. We reached out to 5 partner organizations with a request for their help in convening a group for the purpose of piloting the *Climate Choices* materials. We found recruiting partners for this pilot to be more difficult than anticipated. While all potential partners responded that this was an interesting, worthwhile endeavor, some had their own program for public outreach on climate issues, some were unable to dedicate the time within our short planning horizon, and some were reluctant to veer from their primary issue (water, agriculture, etc.) to publicly address the issue of climate change.

Kansas Alliance for Wetlands and Streams (KAWS) did agree to partner with us on a pilot forum and Jessica Mounts, Executive Director, proved to be a tremendous asset to our team. Jessica secured meeting space for an October 13, 2017 forum at the Great Plains Nature Center in Wichita, KS. Her connections with local environmental, education, county & municipal governments, agricultural producers, energy/nuclear power professionals, leadership programs, retired community members, and college students brought together a diverse group of participants for a rich discussion.

KACEE, ICDD, and KAWS pooled our contacts to develop an invitation list and issued email invitations for a free lunch and discussion.

EIF Event

Fifteen participants representing the above-mentioned sectors participated in a 2 ½ hour event on October 13, 2013 in Wichita, KS. KACEE provided an optional build your own burrito bar for participants 30 minutes prior to the start of our 2 hour discussion. Fifteen participants were grouped into 2 tables. Table groups were assigned to maximize diversity of viewpoints. Laura and Donna served as facilitators, one per table. Jessica and Joan (a volunteer) took notes, and Melissa kept time and served as convener for the overall event.

Following lunch, we shared the *Climate Choices* introductory video and Melissa provided a welcome, thanks to conveners and participants, and objectives for the session. Donna introduced the principles of civic discourse and the protocol and structure for our time together.

To emphasize the values-based nature of EIF deliberation, the table facilitators led their groups in identifying and sharing key values around climate change. The values that emerged include: New Opportunity, Choices, Diversity (protecting), Nature based opportunity, Equity, Honesty, Respect for Animals, Earth, Truthfulness, Peaceful Discourse, Responsibility, Culture – Change, Mutual Consideration, Realism (do-able solutions), Understanding, Mutual Respect, and Education/Outreach.

For each of the three options outlined in the *Climate Choices* discussion guide, each table read aloud the potential options and tradeoffs, chose by majority vote 2 options to discuss as table groups for 20 minutes, and then came together to share key learnings with the full group for 5 minutes before moving on to the next section.

For Option 1: Sharply Reduce Carbon Emissions, actions discussed included:

- Appliances and tires, and reduced driving.

For Option 2: Prepare and Protect Our Communities, actions discussed included:

- Upgrade storm-water systems, levees, and emergency water-supply systems, and build roads and transit above flood levels.
- Use zoning, building codes, relocation, and insurance rules to keep people from living and building in vulnerable areas. (chosen by both tables)
- Make communities more self-sufficient by building independent power grids and creating strong local agricultural production.

For Option 3: Accelerate Innovation, actions discussed included:

- Offer companies incentives for developing technologies that help build a low-carbon economy.
- Strengthen development of geoengineering—scientific methods for modifying Earth’s climate.
Ease regulatory processes to bring new “green” technologies to the market more quickly.

- Give businesses and nongovernmental organizations wider latitude to direct research at American universities.

For the wrap-up, each table was asked their overall thoughts on each of the 3 option categories:

- Group 1: Option 2 easier to discuss, lots of interest in the action items. Option 3 is tricky; in the real world decision makers are risk averse.
- Group 2: Option 3, much is unknown, results are not assured. Option 2 not dealing with root cause just accepting it is happening. We got stumped with that, but infrastructure benefits seem easier to accept.

The group was also asked what questions and suggestions they had about the Issue Guide:

- How do recent climate related events impact our discussion, and how would this process play out in the affected areas?
- How could geoengineering be included?
- What can individuals do? It is implied but not specifically addressed.
- Culture changes and voluntary choices, agreement that change is needed, this is not specifically addressed.
- Is this discussion assuming that climate change is happening? Are we assuming that it is human caused? May want to clarify this in invitation.
- Could the options be associated with letters or numbers to make it easier to refer back and forth throughout the discussion?

Opportunities

Overall, conveners observed that the above described process yielded a rich and energetic discussion that was time well spent for all involved. The KACEE, ICDD, KAWS partnership was effective in convening a successful pilot, but there remains several unanswered questions regarding how environmental education organizations can help EIF reach its full potential in Kansas. Areas for further exploration include:

- How can we better define and articulate the benefits of partnering on an EIF with KACEE?
- How can we better define and articulate the benefits of participation in an EIF to citizens outside of the education and environmental fields?
- What are some best practices for environmental education organizations around navigating the intersection of education, deliberation, and action without crossing into the realm of advocacy?
- What would a model partnership for education, deliberation and action to address environmental challenges look like?

Framing the Future of a Kansas Reservoir: Blue-Green Algae and a Community in Crisis

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Milford Reservoir & the Community of Wakefield, KS

Milford Reservoir, the largest in the state, is adjacent to Fort Riley and Junction City, offering fishing, recreation and wildlife observation to the surrounding population. It resides in the lower boundaries of the Lower Republican Watershed, and as a reservoir, is subject to the oversight of not only the U.S. Army Corps of Engineers, but of the Watershed Restoration and Protection Strategy (WRAPS) developed by local stakeholders and approved by the Kansas Department of Health and Environment.

Our team's conversations with John Bond, Director of the WRAPS program, and Tom Meek, Programs Coordinator for the Clay County Conservation District, revealed local frustration with recurrent blue-green algae blooms in the reservoir. Toxic algae have severely disrupted the economy and outdoor recreation identity of the community of Wakefield, in addition to posing health threats to humans and animals. Loss of recreational use, declining area property values, severe odor, and a decrease in tourist dollars are among the community's primary concerns. Tom & John explained that a succession of public meetings on the problem, though well-attended, were characterized by polarizing speech, dominance by self-confident ("authoritative" or "motivated") speakers, and a lack of meaningful information exchange or demonstrated progress toward goals.

EIF Objectives and Preparation

An over-arching goal of this collaboration with local conveners was therefore community experience of higher-quality public deliberation, using an NIF/EIF discussion framework. Establishing a baseline articulation of reservoir health issues (including the dominant algal blooms concern) was integral to that goal, and to this end, Melissa conferred repeatedly with John and Tom to tailor the “fact sheet” to the Milford situation. The water issues discussion guide that was customized by the Kansas team from the template developed by the national water issue framing team to address reservoir health was further revised to include meaningful Actions for the Milford situation. Other goals of the event included increasing participant skills at evaluating options and proposed actions, finding common ground from which to advocate for local improvements, and recognition of issue complexity (multiple demands on water as a system, upstream and downstream).

EIF Event

The town of Wakefield (population c.980) on Milford Reservoir offered a community space and a free meal (funded by Milford WRAPS) to participants, who were solicited by local conveners Tom and John to register in area newsletters and websites. More than the 88 registrants appeared, and Scanoli’s, the privately-owned community center, was nearly at capacity for the event. Thanks to the diligence of the conveners and the timeliness of the issue, turnout was highly diverse, including a class of 6th grade students with their teacher, lake-side property owners and townspeople, agricultural producers, a few state, city, and county elected officials, and Americorps volunteers from various parts of the country. A significant effort was made to assign tables to maximize this diversity, and feedback from facilitators and participants affirmed the positive effects of mixed-generation and cross-sector table conversation.

To further distinguish the agenda of the forum from “typical” public meetings, Melissa issued an evocative, welcoming introduction, citing the community’s concerns about lake conditions, and articulating a distinction between technical and adaptive responses. Donna reviewed ICDD Principles of Civic Discourse that were offered on post-cards. It seemed novel to some in attendance that the “outside,” but engaged organizations KACEE and ICDD, were conducting the event at the request of local conveners, who participated as observers.

Fitting a 16-Action NIF protocol into two hours with food service was accomplished by asking participants to read aloud, consider briefly, then vote on prioritizing (initially) two out of the four Action/Tradeoff pairs per Approach. The protocol offered facilitators guiding questions to encourage participants’ exploration of the values of water, their relationship to Actions, and tensions among Tradeoffs paired with Actions. Following the NIF discussion framework required facilitators to keep tempo to cover the maximum ground across four Approaches, which may have restricted some opportunities for elaboration of local proposals (some literally “brought to the table”) by community advocates.

The Participant Experience

In a post-event teleconference with conveners, we received confirmation that the quality of participation was improved in this setting, and that the experience of “being heard” was largely shared. There was disappointment that the facilitators’ notes (un-aided by an assigned recorder) did not reflect in detail the breadth of suggestions for specific Milford Reservoir policy changes. This was addressed by a follow-up email to all participants with the full report, soliciting additional ideas that are not found in the notes. We learned from this to employ trained note-takers and (where permitted) audio recorders to capture more participant contributions in the future.

When asked about the “fact sheet”, our conveners affirmed the value of a short, selective set of issues that can be cited in conversation. An information table with copies of lengthier materials was available at registration, but few of these materials were taken away by participants. What occurs in the aftermath of this event will demonstrate its utility in the context of community participatory governance of a public water resource. Conveners are anxious to demonstrate that official decision-makers respond to public input, and that documented participants’ suggestions receive airing, as well as cogent responses that increase public learning on water subjects. These are high demands that users of an NIF process need to acknowledge, although as facilitators, ICDD and KACEE might not be inclined to advocate for more than the process of public conversation.

While it is meaningful to ask participants, as was done in the survey, whether they learned new facts or are more likely to see the issue from a different perspective, the contribution of forum conversation to subsequent engagement might be better assessed by a follow-up solicitation to meet again with community members. That meeting could be designed to: assess progress on an issue from subsequent communications between decision-making bodies and laypersons; give an opportunity for participants to engage in additional informal education on a topic that emerged; and compare “actual” Action proposals with their responses to hypothetical Actions from the NIF framework elicited in the forum. To undertake the last idea suggests a more rigorous means of recording in-forum responses and careful interpretation of what they mean, and perhaps a community re-examination of their local Action proposals from a values-based framework.

Opportunities

Development of a water issues framework for NIF discussions has been a productive investigation, and the reservoir topic framing with four Approaches has proven satisfactory for modifying Actions to the needs of one specific locale. In order to accomplish additional reservoir-based community forums, the team recommends further support for training/compensating facilitators and recorders, as well as expanding a corps of convening organizations such as WRAPS and conservation districts. Additionally, funding for KACEE to support the time-consuming process of customizing the discussion guides, protocols, and event agendas to reflect local needs and priorities is needed.

ICDD involves faculty and graduate students in research who could, with conveners' permission, investigate more systematically the responses of forum participants and subsequent community engagement. General and political self-efficacy have been examined in previous studies, and a current research initiative on self-efficacy for inquiry could amplify the work of convening public forums. KACEE has members who have expressed an interest in CGA as a tool for capturing the text interactions of online participants, once some of the technical aspects of engaging become more familiar. These are avenues that we hope to explore in the future.

Community Engagement Efforts in Florida

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Introduction

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) Extension is the outreach arm of the University of Florida located in Gainesville, FL and provides a suite of educational programs that are primarily concentrated in the areas of agriculture, natural resources, youth development, and, family and consumer sciences. Pinellas County is one of 67 counties in the State of Florida with an Extension office and is considered the most densely populated.

Pilot Program in Pinellas County

In May 2016, Lara Milligan (Natural Resource Extension Agent) and Ramona Madhosingh-Hector (Urban Sustainability Extension Agent) piloted the use of the National Issue Forums (NIF)/Environmental Issues Forums (EIF) concept to host a conversation about water quality in Pinellas County. Pilot participants were recruited from existing volunteer programs offered by both Agents – Florida Water Stewardship Program and Sustainable FloridiansSM as well as members of the Overall Extension Advisory Committee. Selected participants received an e-mail invitation with information about Kettering and NIF along with a customized registration link. In total, 15 individuals volunteered to participate in the NIF pilot focused on water. Lara and Ramona were trained facilitators through the Florida Natural Resources Leadership Institute, but decided that an experienced NIF moderator would be a better fit for this known audience. This also allowed Lara and Ramona to observe the NIF moderation process in action. Based on communications with the Kettering team, Virginia York was assigned to be the moderator for the pilot forum.

One important component of using the NIF/EIF forum process in Pinellas County was to test the modification of the national framework, [Let's Talk About Water](#), to ensure that the

issues resonated with participants at the local level. The Kettering water issue framing team identified four (4) preliminary options (values) at the national level, but the Pinellas team decided to focus on only three (3). In addition to reviewing the water issue framework, Pinellas County also created a placemat for use with the pilot forum. Placemats are important tools in the NIF forum because they provide background information on the issue and outline tradeoffs for each action within each option. The placemat (see Appendix A) titled “Water Choices” included these options: “Protect the Health and Safety of People and Communities”; “Work with Nature to Create Sustainable Water Systems”; and “Preserve Our Way of Life.” The option eliminated for the pilot was “Rely on Innovation and Advanced Management”. Background information for the placemat included specifics on water usage, regional water equity, and potential conflicts in the Tampa Bay region. Each option included images, data, or information about particular tradeoffs in the region (Tampa) and the State of Florida. Each attendee at the pilot forum received a copy of the placemat and time was allotted to read the introduction and options before conversation commenced.

Lessons Learned

- It is important to attend and/or observe a forum before hosting one.
- Multiple facilitators at a forum are highly recommended.
- There is a “learning curve” involved with the use of the placemat given its focus on tradeoff analyses.
- Providing opportunities for participants to contribute to the tradeoff matrix is a valuable part of the learning process.
- National-scale actions and tradeoffs tend to be discussed by participants at the local level.

Pilot Programs in Alachua County

In August 2016, Jennison Kipp Searcy (Resource Economist and Sustainable FloridiansSM State Coordinator) and Denise Debusk (Environmental and Community Horticulture Extension Agent) adapted the draft Florida Water Issues framework to host two pilot deliberative forums in Gainesville, Alachua County: one on urban stormwater and one on freshwater springs issues in North Central Florida. Participants were recruited through the Master Gardener Program volunteer and local professional networks (e.g., working with the county Water Conservation Coordinator), with promotion through direct email communication, a summer Extension newsletter and press release, an events calendar in the local newspaper, and public Facebook event pages. As in the pilot forum in Pinellas County, Virginia York served as the moderator, Extension faculty co-facilitated the forums, and local issue “placemats” were developed and used to frame the deliberations.

Both forums were held at the Alachua County Cooperative Extension Office and lasted three hours from start to end. Following an agenda overview, participant introductions, and a brief discussion of the placemat background, at least 20 minutes were allocated to discussing each option and associated actions and tradeoffs. The remaining time (approximately 30 minutes) was dedicated to reflection and discussion. Fifteen participants

attended the stormwater forum, held on a Friday afternoon, and eight attended the springs forum, held the following Saturday morning. Among the 23 total participants, three attended *both* forums.

Stormwater Pilot

The issue placemat (see Appendix B) titled “This Drains to Your Creek: How should we manage stormwater runoff to protect Florida’s urban watersheds?” included three of the four options used in the draft statewide framework: “Work with Nature to Create Sustainable Stormwater Systems”; “Rely on Innovation and Advanced Stormwater Management”; and “Protect the Health and Safety of People and Communities”.ⁱ Background information for the placemat included rainfall data specific to Alachua County. It also introduced fundamentals of how stormwater flows through urban environments, picks up pollutants along the way, and ultimately impacts the health of downstream water bodies. At the time this forum was held, the county was well into development of a new stormwater design manual, so much of the opening discussion focused on how this test forum was independent, part of the National Issues Forums Initiative, yet could be used to help inform and potentially improve outcomes of local stormwater management decisions.

Springs Pilot

The issue placemat (see Appendix C) titled “Polishing Florida’s Gems: Choices for springs restoration and protection” included two of the same options used in the Alachua stormwater placemat: “Work with Nature to Create Sustainable Stormwater Systems” and “Protect the Health and Safety of People and Communities”.ⁱⁱ The third option, “Preserve Our Way of Life”, was used in place of “Rely on Innovation and Advanced Stormwater Management” because for springs issues specifically, local discourse and perspectives often reflect a desire to protect the “Real Florida” and freshwater springs as a key element of its natural and cultural heritage. A short (3-minute) video providing aerial and underwater views of a local spring with accompanying music and no narrative was used to open the forum and set the stage for the discussion.ⁱⁱⁱ The issue placemat provided background information on Florida’s freshwater springs, their connections with the Floridan Aquifer, drinking water supply, and local economies; the trends of declining flow and water quality degradation; and the complexity of identifying solutions to reverse these trends.

Follow-up evaluations (distributed through an online survey instrument) indicated that Alachua County forum participants were relatively evenly distributed among newcomers to Florida (those living here for five years or fewer) and long-time residents (including at least two who have lived in the state for over three decades). All participants found the test forums to be a valuable experience, with 71% strongly agreeing that they felt comfortable sharing their personal perspectives and opinions with the group and most (57%) stating that they heard new perspectives on Florida water issues that they hadn’t considered before.

Lessons Learned

- The issues framework can be an effective tool for bringing new voices to the table in discourse around local water issues.
- It is critical to provide sufficient and equal amounts of time for discussion of issue options and tradeoffs; often this is a challenge.
- Participants appreciate creative and engaging (e.g., multimedia) approaches to framing the issues and opening deliberative dialogue.

Programmatic Applications

Summer Film Series

The deliberative forum concept was also applied to a Summer Film Series hosted in Pinellas County by the Sea Grant, Natural Resources and Urban Sustainability Agents. The film series was hosted at all three offices in Pinellas County which allows a wider dissemination of educational information within the county's geographic boundary. The 2016 summer film, *DamNation* highlighted the environmental impact of dams which were primarily established to ensure energy reliability. Although the film focused on impacts in the western United States, the placemat created for this educational program provided an overview of dams in the State of Florida and outlined its private and public uses as it relates to agriculture, flood control and recreation. Based on lessons learned in the pilot program, Extension faculty created a new placemat (see Appendix D) to localize the issue and capture participants' ideas about dams and water. Attendees (n=38) at the sessions "agreed" that the placemat was a useful tool to examine water issues (84%) and indicated that it provided enough context to study national issues on local and/or regional scales (65%, n=37). The film series provided new knowledge about water issues (92%, n=39) and the use of water as the national issue of concern attracted new audiences to Extension (33%, n=36). The deliberative forum concept allowed participants to learn from each other and share new knowledge or perspective gained from the film screening.

Lessons Learned

- Multiple facilitators ensure that audience contributions are appropriately captured.
- Scheduling the appropriate amount of time for the forum is key to its success.
- The blank entries in the tradeoff matrix allowed participants to contribute to the process with local, personal knowledge.

Landscaping

In December 2016 Lara was approached by a Florida-Friendly™ Extension staff, Doris Heitzmann and Commercial Horticulture Agent, Jane Morse about creating a forum that focuses on landscape practices. Heitzmann primarily works with home owners associations (HOAs), specifically those with high water bills. Morse works with commercial landscape companies to ensure landscape best management practices. Doris and Jane thought

bringing these two groups together for a facilitated discussion by Lara could reveal important gaps in landscape expectations and outcomes by HOA groups and landscape maintenance staff.

The forum, titled “Landscaping for the Future of Florida’s Waters” was organized around three main options (see Appendix E): “Work with Nature to Create Sustainable Landscapes”, “Rely on Improved and Advanced Water Management Practices”, and “Protect the Health and Safety of People and Communities”. The forum followed two hours of professional presentations, the draw for commercial landscapers to earn continuing education credits.

Following the presentations, many landscape staff left the program, leaving 21 participants for the forum, the majority of which were HOA managers. One former landscape maintenance staff remained for the forum, providing valuable input to represent this party. Though a formal evaluation was not conducted, the conversation revealed a gap in HOA expectations and follow-up on work being done by contracted landscapers.

Lessons Learned

- In order to get landscape staff in the room, CEUs are important, but forums do not count as CEUs so most landscape professionals left after the professional presentations
- Bringing two very different groups in the room together can be powerful to highlight the needs and issues of both groups
- More forums like this could help these groups work together in a more cohesive, effective and efficient manner
- Many verbal comments were made by participants indicating a desire to have more time for the forum and less time spent on presentations
- Have an assigned note taker

Climate Change

Utilizing the *Climate Choices* guide from NIFI and through financial support of Florida Sea Grant, UF/IFAS Extension Sea Grant Agents, Libby Carnahan (Pinellas County) and colleagues were able to conduct three climate choices forums in Florida. Colleagues included Lara, Ramona, and Rebecca Zarger, Associate Professor and Graduate Director in Department of Anthropology at the University of South Florida.

The team piloted the national *Climate Choices* guide with members of the Tampa Bay Association of Environmental Professionals before using the tool with other community groups. A pre/post survey was developed by the team and used in addition to the standard evaluation tool provided in the *Climate Choices* guide. Following the pilot, a climate forum was also held with members of various advisory groups from the City of Dunedin in collaboration with the city’s Sustainability Coordinator, and with graduates of the Florida Master Naturalist Program and other interested residents from Brevard, Volusia, and Indian River counties in collaboration with other Extension faculty.

The forums started with an introduction and overview of the program as well as a guiding question to get participants talking. Ground rules were also established followed by a climate science overview presentation by Libby. The nationally developed, starter video was shown before participants began deliberating. Twenty minutes was allotted to discussing each option. A different team member facilitated each option and notes were taken to capture conversation. Time for reflection was also provided and guided by a facilitator before participants completed their post evaluations.

The pre-survey asked participants at all three climate choices forums about their level of concern with climate change, revealing 57% (n=37) are “extremely concerned” about local impacts. Results from the standard national evaluation tool showed 47% (n=34) are thinking differently about the issue after participating in the forum, and 44% talked about aspects of the issue they had not considered before. Reports were written by the team for City of Dunedin and Brevard County with details on forum conversations and more evaluation results.

Lessons Learned

- Having a climate science overview before forum is helpful to get all participants on the same page
- More diverse participants are needed to have conversation that reflects the community
- Participants express willingness to take action against climate change, but also indicate they don't know how, presenting an opportunity for providing suggestions to participants

City of Oldsmar Stormwater

Lara used the placemat from the stormwater forum piloted in Alachua County and adapted it to be more specific to local issues for the City of Oldsmar. Lara reached out to stormwater and utility staff in the city to verify details about stormwater management and treatment. These details helped Lara formulate accurate actions within each option listed on the placemat (see Appendix F). Lara limited each option to three actions and associated tradeoffs and included an informational graphic with each option.

Lara and Ramona partnered with the City of Oldsmar Sustainability Coordinator to plan and implement the stormwater forum that took place on Wednesday, November 29, 2017. The forum was advertised specifically to current participants and alumni of the City of Oldsmar's Citizen Academy, a multi-session class to learn about the city's government. Ten people participated in the forum. A pre- and post- survey was distributed to participants.

Results from pre/post surveys showed 89% (n=9) indicated “yes” this program introduced them to new ideas they had not previously considered. There was a 58% increase in knowledge about stormwater issues based on a five-point scale with an average knowledge

base of 2.7 before the forum and 4.2 after. Participants were asked about the likelihood of discussing this topic with others in their community in the pre- and post- survey. Results only show an 8% increase for this action. The level of motivation to participate with others on projects related to the topic of stormwater was also assessed before and after the forum, showing a 14.3% increase.

Participants were also asked to rate the level to which they agree or disagree with the following statements:

n=9	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Sure
I was able to clearly communicate my ideas and opinions to the group.	89%	11%			
I felt my ideas were heard and received by the group.	89%	11%			
I was receptive to other people's ideas and opinions.	89%	11%			

Forum attendees were also asked to indicate their level of satisfaction with various aspects of the program. Evaluation tools for these forums are still being developed and tested. Full evaluation tools for forums presented here can be sent upon request.

How satisfied are you with ... n=8	Very satisfied	Fairly satisfied	Somewhat satisfied	A little satisfied	Not very satisfied
...the placemat as a tool to provide context to examine a local or regional issue?	87.5%	12.5%			
... the opportunity to talk about issues with others in your community?	100%				

Lessons Learned

- Diversity of perspectives is very important to relay accurate information to elected officials that represent their constituents.
- Notes were made to bring name tags and clipboards (for completing surveys)
- Allowing time for participant introductions is valuable for participants and moderators
- Having an expert in the room has its pros (filling information gaps, correcting misinformation), but can also bias the conversation

Appendix A

General Water Issues Placemat for Pinellas County Pilot

Water Choices

How Should We Meet the Water Challenges of a Growing World?

Water is one of Florida's most abundant natural resources. Water is a crucial resource that impacts not just the environment, but other important industries in Florida's economy, such as tourism, agriculture, retail, and real estate development. However, due to high population growth, development, and the agricultural needs of the state, the freshwater resources that Florida so heavily depends upon are being significantly impacted.

Evidence that water resources are changing is all around, some for the better, and some for the worse. Tampa Bay has seen an increase of seagrass coverage exceeding levels measured in the 1950s, but it is also being threatened by new emerging contaminants found in some personal care products and pharmaceuticals. Tampa Bay Water was formed following the water wars of the 1972 to help distribute water equitably among the region, but it is now faced with finding alternative water supplies to meet future demands.

To avoid future water conflicts, different interest groups need to understand the water concerns of all users in Florida and work together to find sustainable solutions. The central questions around water resource concerns have become: Where are we going to find enough water to support our growing populations? How are we going to meet water quality standards?

This "placemat" presents three options for addressing water resource concerns that are based on the views and concerns of people from across the country. Water resource issues, and how we choose to respond to them, put these essential values into tension with each other.

These are not the only options for addressing water resource concerns, but they capture a range of commonly held views and their benefits along with their drawbacks.

Some questions to consider as you discuss the 3 options:

- How does this option address our concerns about local water resources?
- What worries us or make us uncomfortable about this approach?
- If this approach worked perfectly, what would the trade-offs or consequences be?

Source: <http://es.fsu.edu/etw/11>

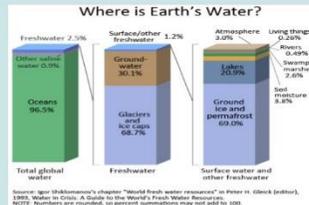


Option 1

Protect the Health and Safety of People and Communities

Water is a public good, and we should use and provide it fairly to protect the well-being of people and communities.

Examples of What Could Be Done	Some Trade-Offs to Consider
Strict regulations to protect human health and safety	May disadvantage the environment
Enhanced regulatory authority	May create (or not address) longer-term more systemic problems
Relocate from hazard zones (e.g. coastal flooding, contaminated water, or not enough water)	May limit personal choices and freedom
Convenient, centralized information sources about quality problems, clean-up, water usage and availability, etc.	May involve more government authority, which could interfere with local and individual control
Clean up contamination	Cost of clean ups diverted from other projects, cost could outweigh benefits



Option 2: Work with Nature to Create Sustainable Water Systems

Many of our water systems work against nature rather than with it, and despite some efforts, nature often gets short-changed. Human communities are intertwined with the environment, so we must focus on creating water systems that are sustainable for people and nature.

Examples of What Could Be Done	Some Trade-Offs to Consider
Water recycling, groundwater recharge, in-stream flows	May involve changes that conflict with personal choices and freedom
Water treatment plans that incorporate nature (e.g., constructed wetlands)	May commit resources to environmental protection at the expense of more immediate community needs
Allow water to be traded on open markets where supply and demand determine the cost and its best uses	May be difficult, expensive, and disruptive to retool water management systems
Price water to reflect its real costs, including ecological considerations	Increased burden on economically disadvantaged communities and increased costs to industries that use water
Aggressive conservation	Reduced revenue for water suppliers, decreased demand leading to shut offs
Education for cultural shift	Increased social pressure surrounding new behaviors

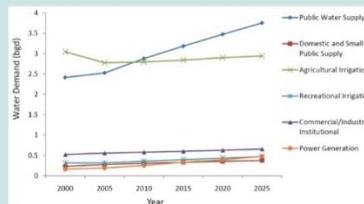


Source: Florida Department of Environmental Protection

Option 3: Preserve Our Way of Life

Water is a resource essential to our livelihoods and our quality of life. We should make sure we have enough clean water so that people and businesses can continue to make their own decisions (how much water they need and how they want to use it).

Examples of What Could Be Done	Some Trade-Offs to Consider
Provide enough water for business and residences (e.g., development of new water sources)	May negatively affect water availability and water quality
Improve water quality for recreation	Waters not used for recreation could be ignored and quality may decrease significantly
Encourage public-private partnerships for provision of clean water and protect existing water rights	Citizens and government may be priced out of the market



Graph: Florida Department of Environmental Protection, Sustaining Our Water Resources, 2010

Appendix B

Stormwater Placemat for Alachua County

OPTION 3

Protect the health and safety of people and communities.

Stormwater management infrastructure is a public good, and we should design and use it to protect the well-being of all Floridians. The top priority is to provide for the health and safety of people and communities—minimizing risk for all. This means focusing on hazards such as flooding and water-borne diseases, and investing in both prevention (proactive) and recovery (reactive) measures.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Adopt strict water policies and regulations (at multiple levels) to protect human health and safety.	May disadvantage the environment and impose high social costs.
Improve or expand existing regulatory authority.	Could create (or fail to address) longer-term, more systemic problems.
Relocate from hazard zones (contaminated water, or high flood-risk locations) to areas of lower risk.	Imposes limits on personal choices and lifestyles; likely to disrupt social and economic stability.
Establish centralized hubs of information about current water quality problems, flood hazards, and threats to public health.	May involve more government authority, which could interfere with local and individual control.
Mitigate and clean up contamination where possible.	Cost of clean ups diverted from other projects, prevention could be more cost-effective.

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Extension Symposium | Initiatives 3 & 6 | Water Issues Mock Forum | 04.18.17

THIS DRAINS TO YOUR CREEK

How should we manage stormwater runoff to protect Florida's urban watersheds?

BACKGROUND

We live in a very wet place. Alachua County receives over 50 inches of rainfall each year, and most of this arrives as small (less than 1 inch) storm events. As stormwater flows across impervious surfaces (roads, sidewalks, roofs), it captures pollutants such as fertilizers, animal waste, pesticides, and motor oil. Stormwater conveyance systems carry this runoff and any contaminants it has picked up through a series of pipes, ditches, or swales to our creeks, rivers, and lakes. Polluted stormwater runoff is a main contributor to water quality problems across the state, and in many regions, it eventually reaches the Floridan Aquifer, which supplies 90% of our drinking water.

CHALLENGES

Like many other Florida communities, Alachua County has experienced significant and rapid growth, with thousands of new people, homes, and businesses added to the map. As our urban footprint expands, the challenges of stormwater management, water conservation, and water quality protection have become increasingly complex... and often contentious.

There are no easy solutions to Florida's water quality challenges—no silver bullets. What can we do as individuals and as communities to prevent stormwater pollution and improve water quality in our local water bodies? This booklet lays out three broad options or potential paths forward for addressing urban water quality and stormwater management challenges in Florida. Each option includes a few examples of potential actions to support that option and associated tradeoffs.

TODAY

We will use this draft framework to guide a deliberative discussion (mock forum) about Florida's stormwater and water quality issues. **Our goal is to help foster a greater understanding of and respect for the different perspectives at the table...** it is not to educate, debate, or convince others of a specific position. Thank you for sharing your time and perspectives with us this afternoon, and we hope you enjoy the conversation!

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OPTION 1

Work with nature to create sustainable stormwater systems.

Most stormwater treatment systems are designed to control or work against rather than with natural systems and hydrologic processes. Yet Floridians' health, productivity, and prosperity rely directly on the water services that such systems provide. Despite well-intentioned efforts to achieve a balance, nature often gets short-changed. We should focus on stormwater management practices that are sustainable not only for people, but for ecosystems as well.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Provide incentives and/or recognition for replacing traditional landscapes with Florida-Friendly Landscaping.	Uncertain effects on property values and could hurt local businesses that provide landscape maintenance services.
Install multifunctional, low-impact stormwater conveyance, storage, and treatment systems (e.g., rainwater harvesting, vegetated swales, and enhanced stormwater ponds); "green infrastructure" projects.	May commit resources to environmental protection at the expense of more immediate community needs (such as health and safety).
Use aggressive public education and social marketing campaigns to shift cultural norms around water quality and stormwater pollution.	Might conflict with personal choices and consumer preferences; lead to increased social pressure surrounding new behaviors.
Adopt and impose stormwater utility fees based on impervious surface area and use revenues to rebuild failing stormwater systems.	Could place an unfair burden on economically disadvantaged communities and increase costs to industries that use potable water.

Extension Symposium | Initiatives 3 & 6 | Water Issues Mock Forum | 04.18.17

OPTION 2

Rely on innovation and advanced stormwater management.

Florida's stormwater is controlled with complex, interconnected, and carefully engineered capture, conveyance, and storage systems. Yet water management and stormwater treatment are often behind the times and disjointed. We must rely on a combination of innovations in stormwater management and technological advances in treatment systems to address our complex water quality issues.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Integrate stormwater permitting, water quality, and supply planning data and tools and provide incentives for inter-agency coordination and oversight of stormwater treatment projects.	Data collection and management protocols may differ between water management districts; possible perceptions of loss of local authority and control (by citizens, counties, and municipalities).
Incentivize pollution prevention practices, programs, and partnerships between water utilities and businesses, schools, non-profits, towns, and cities.	Some partners may not have the human or financial capital to implement comprehensive, sustainable programs.
Invest in advanced and emerging nutrient/pollutant removal technologies; replace aging septic tanks with advanced systems or connect to sewer.	May be difficult, expensive, and disruptive to replace or retrofit stormwater treatment infrastructure; could impose undue cost burdens on low- and fixed-income families.
Use market-based incentives like water quality credit trading to reward those who investment in pollution prevention and stormwater treatment measures.	Complicated; difficult to structure and get buy-in, may benefit investors or polluters at the expense of the environment.

Appendix C Springs Placemat for Alachua County

OPTION 3

Protect the health and safety of people and communities.

Our springs, the water they provide, and the ecosystems they support are public goods, and we should manage them to protect the well-being of all Floridians. The top priority is to provide for the health and safety of people and communities—minimizing risk for all. We should minimize hazards such as contamination of drinking water supplies, sinkholes, and flooding, investing in both prevention (proactive), and recovery (reactive) measures.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Adopt strict water policies and regulations (at multiple levels) to protect human health and safety.	May disadvantage the environment and impose high social costs.
Enhance regulatory authority.	Could create (or fail to address) longer-term, more systemic problems.
Relocate from vulnerable or sensitive areas (e.g., sinkhole-prone locations) to areas of lower risk.	Imposes limits on personal choices and lifestyles; likely to disrupt social and economic stability.
Establish convenient, centralized hubs of information about springs conditions and possible threats to public health.	May involve more government authority, which could interfere with local and individual control.
Mitigate and clean up contamination where possible.	Cost of clean ups diverted from other projects, prevention could be more cost-effective.

UF IFAS Extension
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Alachua County Water Issues Test Forum (08.20.16)

POLISHING FLORIDA'S GEMS

Choices for springs restoration and protection

BACKGROUND

We live in a truly special place: Florida is home to what may be the world's largest concentration of freshwater springs (~600). The Floridan aquifer, a vast underground reservoir, feeds the springs and supplies over 90% of Florida's drinking water. Our springs regions (including Alachua County) have been growing rapidly, with a steady influx of people, homes, businesses, and tourists to the region. While this human activity has generated many valuable benefits for local economies (including millions of dollars of revenue annually), the consequences for springs ecosystems have been high, including reduced water flows, declining water quality, and loss of wildlife habitat and species diversity.

CHALLENGES

The challenges of springs restoration and protection have become increasingly complex... and are often quite contentious. There are no "quick-and-easy" solutions to these problems, and many talented and passionate people are working hard to solve them. **What can we do** as individuals and as communities to protect these valuable community assets? This water issues framework lays out three broad options or potential paths forward for addressing the complex challenges of springs protection and restoration in Florida. Each option includes a few examples of actions to support that path forward and notes associated tradeoffs (what we have to give up if we take that action).

TODAY

We will use this draft framework to guide a deliberative discussion (test forum) about Florida springs restoration and protection. **Our goal is to help foster a greater understanding of and respect for the different perspectives at the table...** it is not to educate, debate, or convince others of a specific position. Thank you for sharing your time and perspectives with us this afternoon, and we hope you enjoy the discussion!

Background photos courtesy of John Moran, Springs Eternal Project

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OPTION 1

Work with nature to create sustainable water systems.

Many of our water management systems are designed to control or work against rather than with natural systems and hydrologic processes. Yet Floridians' health, productivity, and prosperity rely directly on the water services that such systems provide. Despite well-intentioned efforts to achieve a balance, nature often gets short-changed. We should focus on management practices that are sustainable not only for people, but for ecosystems as well.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Provide incentives and/or recognition for replacing traditional landscapes with Florida-Friendly Landscaping.	Uncertain effects on property values and could hurt local businesses that provide landscape maintenance services.
Install multifunctional, low-impact stormwater conveyance, storage, and treatment systems (e.g., rainwater harvesting, vegetated swales, and enhanced stormwater ponds); "green infrastructure" projects.	May commit resources to environmental protection at the expense of more immediate community needs (such as health and safety).
Use aggressive public education and social marketing campaigns to shift cultural norms.	Might conflict with personal choices and consumer preferences; lead to increased social pressure surrounding new behaviors.
Adopt and impose springs impact fees on certain human activities and use revenues to educate and promote behavior change.	Could place an unfair burden on economically disadvantaged communities and increase costs to people who rely on springs for their livelihoods.

Alachua County Water Issues Test Forum (08.20.16)

OPTION 2

Preserve our way of life.

Water is a resource essential to our livelihoods and our quality of life. Florida's springs and spring-fed rivers provide economic, aesthetic, cultural, environmental, and spiritual benefits that have supported human communities for thousands of years. We need to make sure that people and businesses can continue to make their own decisions about how much water they use and how they want to use it. And, where possible, we should get government out of the water business.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Provide enough water to meet the needs of businesses and year-round residents (e.g., development of new water sources).	May negatively affect water availability and water quality and stress natural ecosystems.
Improve water quality to better support traditional recreational uses (fishing, swimming, kayaking, etc.)	Waters not used for recreation could be ignored and quality may decrease significantly.
Keep local water local, local ag viable, and support eco- and agri-tourism ventures that bring outside dollars into our local economy.	Could have unintended consequences; loss of traditional revenue streams (e.g., from agricultural services).
Discourage in-migration and new development (e.g., with urban growth boundaries, impact fees, tourism taxes).	Restricts personal freedoms.
Encourage public-private partnerships for provision of clean water; protect existing water rights.	Citizens and government may be priced out of the market.

Background photos courtesy of John Moran, Springs Eternal Project

Appendix D DamNation Film Series Placemat

Water Choices

How should We Meet the Water Challenges of a Growing World?

Water is one of Florida's most abundant natural resources, a crucial resource that impacts not just the environment, but other important industries in Florida's Economy (tourism, agriculture, retail, real estate, etc.). However, due to high population growth, development, and agricultural needs of the state, freshwater resources that Florida so heavily depends upon are being significantly impacted.

Although we might not think of Florida when we think of dams, there are 895 documented dams in the state according to the National Inventory of Dams, the majority built between 1950 and 1980. Seventy-eight of those dams are classified as "High Potential Hazard" (when the loss of one or more human lives is probable should the dam fail for any reason). Only 16 of those have an Emergency Action Plan. Dams are numerous in Florida, mostly privately owned, and mostly used for flood control, fish & wildlife ponds, and other purposes (something other than debris control, fire protection, hydroelectric, irrigation, navigation recreation, tailings, water supply and unknown).

In addition to the potential positive or negative impacts of dams, Florida faces a wide variety of threats when it comes to water supply and water quantity. To avoid future water conflicts, different interest groups need to understand the water concerns of all users in Florida and work together to find sustainable solutions. The central questions around water resource concerns have become: Where are we going to find enough water to support our growing populations? How are we going to meet water quality standards?

This "placemat" presents three options for addressing water resource concerns that are based on the views and concerns of people from across the country. Water resource issues, and how we choose to respond to them, put these essential values into tension with each other.

These are not the only options for addressing water resource concerns, but they capture a range of commonly held views and their benefits along with their drawbacks.

Some questions to consider as you discuss the 3 options:

- How does this option address our concerns about local water resources?
- What worries us or make us uncomfortable about this approach?
- If this approach worked perfectly, what would the trade-offs or consequences be?

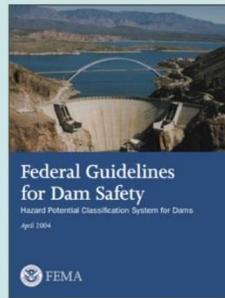


Map highlighting dams in Florida. Source: http://nid.usace.army.mil/cm_apex/f?p=838:3:0:NO

Option 1: Protect the Health and Safety of People and Communities

Water is a public good, and we should use and provide it fairly to protect the well-being of people and communities.

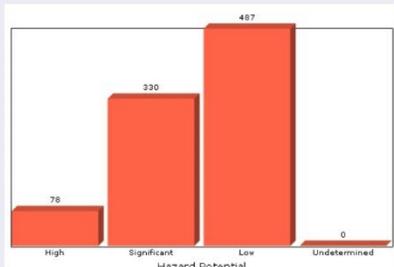
Examples of What Could Be Done	Some Trade-Offs to Consider
Write to elected officials about requiring Emergency Action Plans on all "High Potential Hazard" dams	Cost to tax payers (if government dam) or cost to dam owners to get emergency action plan



Option 2: Work with Nature to Create Sustainable Water Systems

Many of our water systems work against nature rather than with it, and despite some efforts, nature often gets short-changed. Human communities are intertwined with the environment, so we must focus on creating water systems that are sustainable for people and nature.

Examples of What Could Be Done	Some Trade-Offs to Consider
Ask your local representative to push for a review of all dams to determine which can be restored back to their "natural state"	Very costly to get an Environmental Assessment completed

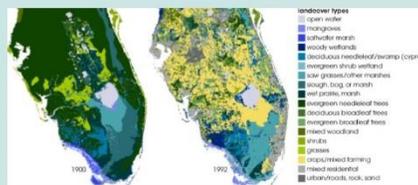


Graph of Hazard Potential classifications for dams in Florida. Source: http://nid.usace.army.mil/cm_apex/f?p=838:3:0:NO

Option 3: Preserve Our Way of Life

Water is a resource essential to our livelihoods and our quality of life. We should make sure we have enough clean water so that people and businesses can continue to make their own decisions (how much water they need and how they want to use it).

Examples of What Could Be Done	Some Trade-Offs to Consider
Support Tampa Bay Water in any and all efforts for them to provide enough water for commerce and residences (e.g. development of new water sources)	May not provide adequate environmental protection



Maps of land use in central and south Florida showing 1900 (left); 1992 (right). Source: http://earthobservatory.nasa.gov/Features/DeepFreeze/deep_freeze3.php

Appendix E

Landscaping Placemat for Pinellas County

Landscaping for the Future of Florida's Waters

Traditional landscapes are made up of mostly exotic (non-native) plants with large expanses of lawn that provide very little for our native plants and animals. These landscapes require many resources to survive such as water, fertilizer, pesticides, and lawn equipment (mowers, blowers, edgers).

Between 2015 and 2030, demand for fresh water in Florida is estimated to increase by about 1 billion gallons per day (bgd) for a total of 7.4 bgd. Alternative water supplies will need to be identified in order to meet additional demand (DEP state water supply Florida, 2015). Regarding outdoor water use, an estimated 75% of US residential water is used outdoors (Brehm, Pasko, and Eisenhauer 2013). For example, a typical Florida homeowner may use 50% or more of the home's total water consumption for irrigation (Davis and Dukes, 2012). Significant water savings could be seen by changing landscapes to be compatible with site conditions of the property.

Not only is scarcity of water a concern, but also water quality. The water that surrounds us—lakes, rivers, bays and aquifers—makes up our drinking water sources. These sources of water can be threatened by potential contaminants such as hazardous chemicals, bacteria, and nutrients that are washed off impervious (solid) surfaces or leached through the soil.

Pinellas County is the most densely populated county in Florida. The challenges of water conservation and water quality protection are increasingly complex. What can we do as individuals and as communities to prevent pollution and improve water quality in our local water bodies? How can we conserve water and help our environment to be healthy? This handout lists three potential paths forward for addressing our water quality and quantity challenges. Each option includes a few examples of potential actions to support that option and the associated possible effects.



Source: Florida Department of Environmental Protection

We will use this framework to guide a discussion about these concerns. **Our goal is to determine what you are willing to adopt and implement in a landscape to protect the future of Florida's waters. We will then develop educational materials to help you implement your desired course of action.**

Option 1

Work with Nature to Create Sustainable Landscapes

Water is a limited resource essential to our livelihoods and our quality of life. We need to make sure we have enough clean water for future generations. Traditional landscapes are made up of mostly exotic and invasive plants, large expanses of lawn and provide very little for our native plants and animals. We need to focus on landscape design and maintenance practices that are sustainable not only for people, but for ecosystems as well.

Examples of What Could Be Done	Some Trade-Offs to Consider
Selecting native plants and creating landscapes that are suitable for the natural habitat (site conditions) to rarely need water, fertilizer, pesticides, or frequent motorized equipment for maintenance.	Might conflict with personal choices and consumer preferences; your neighbors may not like it; code violations; uncertain effect on property values; business opportunity for native plant nurseries; upfront cost to redo landscape; time to find landscaping company to help with plan and maintenance; attract wildlife/pollinators; improve air
Adopt landscape maintenance practices that are non-traditional, i.e. mulching, selective pruning, pest scouting, composting, watering only during drought, and not using motorized equipment regularly.	Could hurt local landscape businesses that provide traditional maintenance services; business opportunity for non-traditional landscape company; neighbors or homeowners perception; less noise and pollution from equipment; water conserved.
Plant more trees to reduce runoff and improve water and air quality.	Time to properly select and plant tree; cost to purchase tree; maintenance costs; leaf litter; falling hazard; decrease energy costs; benefit wildlife; increase property value; improve aesthetics; reduce runoff; cleaner air.

Option 2:

Rely on Improved and Advanced Water Management Practices

"Florida faces a one billion a day water shortfall by 2030 if we do nothing" – Adam Putnam, Florida Commissioner of Agriculture.

Furthermore, potential sources of groundwater contamination are numerous in Florida. We must rely on a combination of water-saving technologies and polluted runoff reduction to address our complex water issues.

Examples of What Could Be Done	Some Trade-Offs to Consider
Use water conservation practices such as using reclaimed waste water; install soil moisture sensors; use drip irrigation; use cisterns.	Still run out of water; potential restrictions on water use; cost of putting in the systems; technical challenges; maintenance of systems; time to find company to install; increase water savings.
Plant and maintain riparian (bank of a body of water) areas and strips to protect stormwater ponds with trees and buffer zone.	Loss of water view; aesthetics (looks) are different; upfront planting and maintenance costs; time to find qualified contractor; absorb nutrients; provide wildlife habitat; improve air & water quality; reduce erosion; reduce sedimentation; reduce fish kills.



Source: befloridian.org

Option 3:

Protect the Health and Safety of People and Communities

Water quality is a public necessity. Pollutants (air and water) can cause health problems. The priority is to provide for the health and safety of people and communities. This means focusing on preventing hazards such as algal blooms, air and water pollutants, and water-borne diseases.

Examples of What Could Be Done	Some Trade-Offs to Consider
Provide community guidelines for homeowners regarding pet waste, plant selection, landscaping practices; and prevention of standing water (reduce mosquito breeding).	Effort to compile guidelines; noncompliance by homeowners; enforcement issues; improve water quality; reduce mosquito populations; reduce algal blooms; reduce bacteria counts.
Petition local government to implement a local stormwater fee that would support "FREE" native plant sales every quarter.	Organizing the movement may be difficult; increased cost to homeowners and businesses; impinge on personal choices and freedom; objection from people; provide habitat for native animals; reduce water use; reduce water pollution.
Petition local government to change existing codes to allow for sustainable landscape practices.	Organizing the movement may be difficult; determining which codes need to be changed; objections from people that want status quo; improve water quality; reduce toxic algal blooms; reduce fish kills; reduce bacteria counts; reduce lung problems.
Ask County or Southwest Florida Water Management District to fund water education programs or positions	Increased educational opportunities; additional job opportunities; more educated public; improved water quality; reduced water demand.

Appendix F

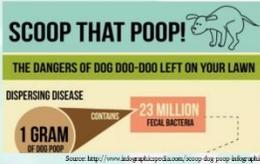
Stormwater Placemat for City of Oldsmar Forum

OPTION 3

Protect the health and safety of people and communities.

Stormwater management infrastructure is a public good, and we should design and use it to protect the well-being of all Floridians. The top priority is to provide for the health and safety of people and communities—minimizing risk for all. This means focusing on hazards such as flooding and water-borne diseases, and investing in both prevention (proactive) and recovery (reactive) measures.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Require code enforcement to have a dedicated position to monitor for stormwater violations	Other code violations will go unnoticed; less contaminants entering stormwater systems; angry residents
Implement a required stormwater education program for new employees and residents of the city	City staff time creating, promoting and teaching program; regulatory burden takes precedence over education; educated residents and workers, improved stormwater quality
Initiate a Scoop the Poop and/or "Leaf it on the Lawn" campaign	Annoyed residents; more residents picking up after their pets; more residents blowing leaves back onto the grass instead of into the street; improved water quality



CIVIC Program | City of Oldsmar | Stormwater Forum | 11.29.17

THIS DRAINS TO TAMPA BAY

How should we manage stormwater runoff to protect Florida's urban watersheds?

BACKGROUND

We live in a very wet place. Pinellas County receives ~50 inches of rainfall each year, and most of this arrives as small (less than 1 inch) storm events. As stormwater flows across impervious surfaces (roads, sidewalks, roofs), it captures pollutants such as fertilizers, animal waste, pesticides, and motor oil. Stormwater conveyance systems carry this runoff and any contaminants it has picked up through a series of pipes, ditches, or swales to our creeks, rivers, lakes, and bays. Polluted stormwater runoff is a main contributor to water quality problems across the state, and in many regions, it eventually reaches the Floridan Aquifer, a major source of our drinking water.

CHALLENGES

Like many other Florida communities, Pinellas County has experienced significant and rapid growth, with thousands of new people, homes, and businesses added to the map. As our urban footprint expands, the challenges of stormwater management, water conservation, and water quality protection have become increasingly complex... and often contentious.

There are no easy solutions to Florida's water quality challenges—no silver bullets. What can we do as individuals and as communities to prevent stormwater pollution and improve water quality in our local water bodies? This booklet lays out three broad options or potential paths forward for addressing urban water quality and stormwater management challenges in the City of Oldsmar. Each option includes a few examples of potential actions to support that option and associated tradeoffs.

TODAY

We will use this draft framework to guide a deliberative discussion about local stormwater and water quality issues. **Our goal is to help foster a greater understanding of and respect for the different perspectives at the table...** it is not to educate, debate, or convince others of a specific position. Thank you for sharing your time and perspectives with us, and we hope you enjoy the conversation!

UF IFAS Extension
UNIVERSITY OF FLORIDA

OPTION 1

Work with nature to create sustainable stormwater systems.

Most stormwater treatment systems are designed to control or work against rather than with natural systems and hydrologic processes. Yet Floridians' health, productivity, and prosperity rely directly on the water services that such systems provide. Despite well-intentioned efforts to achieve a balance, nature often gets short-changed. We should focus on stormwater management practices that are sustainable not only for people, but for ecosystems as well.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Provide incentives and/or recognition for replacing traditional landscapes with Florida-Friendly Landscaping™	Impact to property values; impact to local businesses (landscape maintenance); increased wildlife habitat; reduced water use
Increase current stormwater fee to fund city Adopt-A-Pond program	Increased financial burden for residents and businesses; improved nutrient removal by adopted ponds; aesthetics; community buy-in
Start a Rain Garden Grant program to help fund residential rain gardens	Staff to manage program; cost to fund grants; improper installation without technical assistance; reduced stormwater runoff



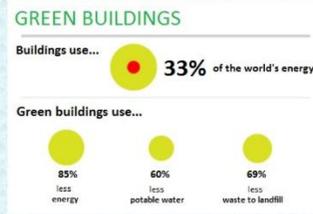
CIVIC Program | City of Oldsmar | Stormwater Forum | 11.29.17

OPTION 2

Rely on innovation and advanced stormwater management.

Florida's stormwater is controlled with complex, interconnected, and carefully engineered capture, conveyance, and storage systems. Yet water management and stormwater treatment are often behind the times and disjointed. We must rely on a combination of innovations in stormwater management and technological advances in treatment systems to address our complex water quality issues.

Examples of What Could Be Done	Some Possible Trade-Offs to Consider
Revise codes to mandate green certified buildings for any new development or re-development projects (e.g. LEED).	Increased development costs; reduced runoff and nutrient loads; opportunity for local business
Increase the frequency of street sweeping.	Cost; reduce pollution; reduced nutrient load; noise pollution
Design integrated stormwater and wastewater management plan.	Upfront investment; construction; inconvenience of construction; maintenance costs; reduced nutrient



Source: World Green Building Council

Assessing the Effects of Community-based Forums in Central Missouri

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Overview

In collaborating with Kettering Foundation, North American Association for Environmental Education has developed a new initiative—Environmental Issues Forums (EIF). The first issue guide and program focuses on climate change. The initiative and issue guide is designed to promote meaningful and productive discussions about difficult issues that affect the environment and communities. In collaborating with the City of Columbia Sustainability Office, Columbia Public Library, and North America Association for Environmental Education Environmental Issues Forums, we have conducted 6 forums at three different study sites. In spring 2017, we conducted three forums at the Columbia Public Library ($n = 24$). During the summer 2017, we conducted a forum with a group of rising seniors from Missouri high schools ($n = 11$) at the University of Missouri campus. Finally, in fall 2017, we conducted two forums at the Calvary Episcopal Church ($n = 21$).

Background

The majority (97% or higher) of Earth Scientists agree that mean global temperatures have risen since pre-1800 levels and that this temperature increase is human caused (Cook et al. 2013; Doran and Zimmerman 2009; Oreskes 2004). However, among the public, those that agree that the earth is warming due to human activities ranges between 16% among Republican conservatives, 38% among Republican moderates/liberals, 51% among Democratic conservatives/moderates and 77% among Democratic liberals (PEW 2013). Further, the public is far less sure that scientists agree that the “earth is getting warmer

because of human activity” with only 30% of Republicans, 58% of Democrats and 45% of Independents answering “yes” to this question (PEW 2013). Closing the gap in understanding between expert and layperson about this important issue is critical for identifying solutions to managing both greenhouse gas emissions and adaptation response to climate change impacts. Further, Ding et al. demonstrated that misperception about scientific consensus is strongly associated with reduced levels of policy support and a belief that action should be taken (2011). Given that communication of facts alone has been shown to have limited impact on changing the minds of the public (Owens 2000), Environmental Issues Forums (EIF) take the approach of creating dialogue and deliberation among non-experts. While many laypeople may still be on the fence about whether or not the climate is changing, many experts are directing efforts toward adaptation responses.

Civic Engagement Strategies

Engaging the public in solving environmental issues starts with community-based conversations. Jacobson et al. suggested five different types of outreach techniques as effective approaches to connect communities with conservation (2015). The five techniques include service learning, issue investigation, project-based learning, public participation in scientific research, and mapping. Strategies for civic engagement fall broadly into two categories: 1) those based on rationalist, ‘information deficit’ model, and 2) those owing more to a civic or deliberation model. The first category assumes that lay people lack knowledge of environmental issues and need to learn how to prepare for risks: the public must be engaged in order to be better informed and converted to a ‘more objective’ view. The second category assumes that public perspectives might help not only to identify or implement solutions but to define, or reframe, what the problems actually are (Bulkeley 1999; Burgess et al. 1998; Jasanoff 1999; Lash and Wynne 1992; Macnaghten and Urry 1998; Thompson and Rayner 1998; Wynne 1996).

Deliberative Democracy

Deliberative democracy is a field of political inquiry that is concerned with improving collective decision-making. The deliberative democracy process values the openness that would allow people “to question assumptions about the roots and the character of environmental issues and the scientific understanding upon which analysis is based” (RCEP 1998 paragraph 7.22); alternatively, the community will remain effectively disengaged and disempowered. National Issue Forums and Kettering Foundation have developed a series of issue guides to promote public deliberation about difficult public issues. The issues guides cover a wide variety of topics, such as climate change, water, energy, safety and justice, higher education, and so forth. In collaborating with Kettering Foundation, the North American Association for Environmental Education (NAAEE) has developed a new initiative—Environmental Issues Forums (EIF). The first issue guide and program focuses on climate change—*Climate Choices*.

Hope Concerning Climate Change and Public Deliberation

To effectively engage people in problem solving and taking actions to address climate change, researchers studied the role of sense of hope and found that constructive hope had a unique positive influence on pro-environmental behavior (Ojala 2012). Given that many of the public deliberation programs are aiming to improve local civic capacity to solve critical issues through building stronger relationships, creating more productive decision making processes, and bolstering collaborative action, there is a lack of research and evaluation studies that look at the effectiveness of deliberation process on fostering civic engagement competency and sense of hope. Thus, this study aimed at answering the following research questions.

Research Questions

1. What are participants' motivations and expectations for community-based forums, focusing on climate change?
2. What are the effects of EIF forums and deliberation on building hope regarding climate change? What do community members gain from participating in deliberative forums? To what extent does the deliberative forum affect participants' understanding and actions on climate change?
3. What actions do adults value the most to mitigate and adapt to climate change at the community level and personal level? What actions do youth value the most? Do youth think similarly or differently than adults on preference for action on climate change? How does this compare to climate change expert suggestions?

Methods

Issue Guide and Intervention Procedure

We used the *Climate Choice* issue guidebook for all five forums (National Issues Forums 2016). As suggested, the size for each forum was between 8 and 15 participants and each forum lasted 2 hours. We followed steps suggested in the moderator guidebook with a neutral moderator and a discussion guide to present several possible approaches to climate change to the group. The deliberation process focuses on three options: 1) Option 1 – Sharply reduce carbon emissions; 2) Option 2 – Preparing and protect our communities; and 3) Accelerate innovation. Option 1 suggests that we need to take aggressive action to reduce our energy consumption and other climate-changing behavior. Option 2 emphasizes that we should protect and prepare communities for the effects of climate change. Option 3 suggests that we must invest in rapid innovation to develop new, cleaner fuel sources, new ways to influence Earth's climate, and even new societal arrangements. Note that the forum does not create much room for debating anthropogenic activity induced climate change, rather the materials are intended to support discussion about what to do given that human activities have increased greenhouse gas concentrations to the point that the climate is changing. In deliberation, people examined the advantages and disadvantages of different options for addressing this issue, weighing these against the things they hold deeply valuable. The deliberative process involved the following steps.

1. Welcome: moderators introduced the program; participants completed the pre-forum questionnaire.
2. Ground Rules: participants and the moderators reviewed desired outcome and agree on ground rules.
3. Getting Started: moderators asked participants to take a few minutes to talk about their personal experiences with the issue and tell their stories. We asked people to describe how climate change is affecting them, their families, and friends. The moderators also showed the starter video provided by NIF that reviewed problems associated with climate change.
4. Deliberation: participants examined all the options and spent an approximately equal amount of time on each option. All thoughts and opinions were welcome. A note-taker was present to record key words on a large pad of paper or a white board for participants to view throughout the meeting.
5. Ending the Forum: participants reflect on what have been discussed.
6. Questionnaire: participants completed the post-forum questionnaire.

Study Site

We conducted total six forums in Columbia, MO from March to September 2017. We chose the Columbia Public Library and Calvary Episcopal Church as our public forum sites because of their proximity to downtown Columbia. This allowed us to attract a diverse audience. We also conducted a forum with a group of rising seniors from Missouri high schools who attended the Natural Resources Careers Academy in July 2017. The study followed the Institutional Review Board protocol at the University of Missouri.

Table 1. EIF forums implemented in MO with specific locations, date, and type of participants

Study Site	Forum Locations	Type of Participants	Date	Number of participants
1	Columbia Public Library	Adults	March 4, 2017	7
1	Columbia Public Library	Adults	April 18, 2017	12
1	Columbia Public Library	Adults	May 10, 2017	8
2	University of Missouri	Youth	July 12, 2017	11
3	Calvary Episcopal Church	Adults	Sept 24, 2017	8
3	Calvary Episcopal Church	Adults	Sept 25, 2017	13
TOTAL				59

Evaluating Instruments

Adult Survey. The pre-survey included five sections: motivation (1 open-ended question), expectation (1 open-ended question), feeling (1 open-ended question), action (1 open-ended question), and hope concerning climate change (10 items). We used the Climate Change Hope Scale (CCHS) (Li and Monroe 2017) to measure the pre- and post-forum sense of hope among participants. The CCHS measured the hope with three factors: 1) collective-sphere willpower and waypower, 2) personal-sphere willpower and waypower, and 3) lack of willpower and waypower. The reliability and validity study indicated that the scale was reliable for use among high school students. The omega coefficient was between .75 and .83 for each of the three factors. The Cronbach's alpha was between .68 and .80 for each of the three dimensions.

The post-survey included the five questions and a standard survey developed by National Issues Forums Institute (2016). The first four questions are open-ended and focus on feeling, action, perceptions, and recommendations for the forum. The fifth question is the same set of 10 items on hope concerning climate change used in the pre-survey. We hypothesized that the forum would increase participants' sense of hope significantly. The standard National Issues Forums Institute survey asked participants to rate from strongly disagree (1) strongly agree (5) a set of policy suggestions (6 items), actions (9 items), and demographic questions (6 items).

Youth Survey. The survey for youth participants include 5 question from American Teens' Knowledge on Climate Change (Leiserowitz et al. 2011) to measure the teens' prior knowledge about the causes and consequences of climate change, and the *Climate Choices* Participant Questionnaire (National Issues Forums Institute, 2016).

Data Analysis

For analyzing quantitative data, we used descriptive and inferential statistics. We used IBM SPSS version 24 to conduct the statistical analysis. We used percentage, mean, standard deviation, and dependent t-tests for comparing pre- and post- means on hope scores. We used a *p*-value of less than 0.05 for statistical significance. For analyzing qualitative data, we followed the steps suggested by Creswell (2007).

Results

Participants

Study site 1 served as pilot test. Daniel Boone Library System advertised an invitation to attend climate change forums through their newsletter called *About Your Library* ($n = 12,000$). In total, we recruited 27 adult participants in spring at study site 1 (Columbia Public Library), 11 youth participants at study site 2 (University of Missouri campus), and 21 adult participants at study site 3 (Calvary Episcopal Church).

Knowledge: In general, the majority of the participants agreed that climate is changing and is mostly due to human causes. About 90% of the youth participants believed that climate change is happening; approximately 63% of them believe that climate change is caused mostly by human activities; and about 73% believe that most scientists think global warming is occurring. All of them correctly defined the term greenhouse gas effect (100%). On average, youth participants from study site 3 rated their knowledge about climate change as 3.17 ($SD = 0.54$; 1 = not at all informed; 4 = very well informed) prior to the forum. The youth group had higher knowledge score than the national average, likely because these students applied to and were participating in an ecosystem conservation program.

At study site 3, about 95% of the church participants believed that climate change is happening and about 42% of them believe that climate change is caused mostly by human activities. The majority of the church participants (85.7%) agreed that most scientists think climate change is occurring. On average, participants from study site 3 rated their knowledge about climate change as 2.86 ($SD = 0.72$; 1 = not at all informed; 4 = very well informed) prior to the forum.

Motivations for Participation

We received 27 responses for the question “why did you want to participate in this climate change forum?” from adult participants. We examined the responses by considering intrinsic and extrinsic motivation (Deci and Ryan, 1975). All 27 responses fall under intrinsic motivation in which participants reported attending the forums because they think climate change is an important topic, and they come for its own sake rather than the desire for some external reward. Many people responded that they were there because they wanted to talk about how to find community-supported decisions, and wanted to know what others thought. Because this is a voluntary event and adults have free choice to come to not to come, intrinsic motivation emerged as the driving force in this pilot phase. In general, people wanted to learn more about the issue, know how they can work together with their fellow citizens to make a difference, and stay informed about local initiatives. People commented on:

- “I wanted to learn about climate change and local responses to the issue.”
- “Voice concern of climate change and be active in the community.”
- “I am curious to know my fellow citizens ideas and to work toward a community supported decision.”

Expectations for Forums

We received 26 responses to the question “what did you hope to get out of the forum?” Participants wanted: 1) information on different ways to make a positive impact personally ($n = 8$); 2) information and data on climate change ($n = 7$); 3) information on how others feel about climate change ($n = 5$); 4) contact to new people and ideas about climate change ($n = 4$); 5) how to influence people to act in sustainable ways ($n = 3$); 6) to be more familiar with

climate change initiatives in the community ($n = 5$); 7) information on effects of climate change in farming in Columbia ($n = 1$); and, 8) not sure ($n = 1$).

Complex Feelings

When asked, “What is your feeling when you hear about climate change?” participants held complex feelings and the majority of them commented that they feel anxious about this issue, but would like to take actions to address it.

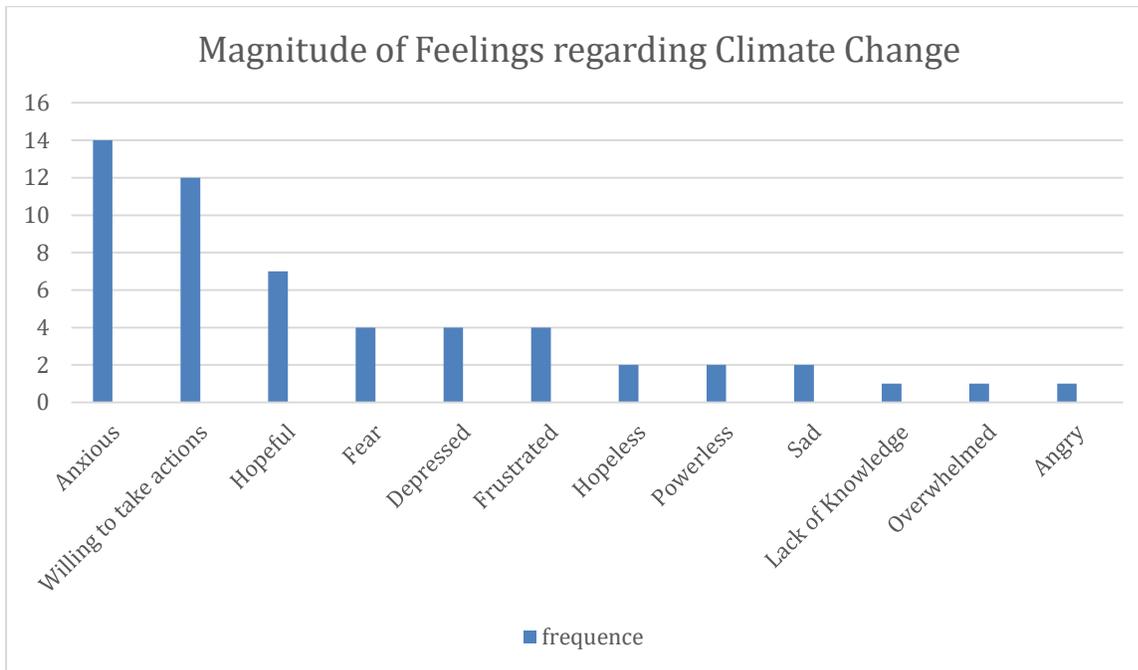


Figure 1. The frequencies of different types of feelings emerged in the survey ($n = 26$, adults)

- “I am anxious because of the amount of inertia in society for climate, but also hopeful because of human problem solutions potentials.”
- “I feel frustrated by the level of apathy in our government and society, but I am hopeful that I and others will be able to effect change in this community. ”
- “When I hear about climate change, I often feel overwhelmed and hopeless. It is such a huge overarching issue that feels impossible to solve.”

After they participated in the forums, most felt that climate change is still a huge issue but they have more information and tools to help. They felt better and more optimistic that active discussion is occurring ($n=21$). For some, their feelings about climate change remained unchanged ($n= 6$).

- “I feel better and more optimistic that people are thinking about this.”
- “I feel more familiar with difficult options on climate change.”
- “I feel like it is a problem we can fix.”

Collective Discussion Matters

Participants from all study sites commented that the deliberation process was very informative, and they gain new insights and perspectives by listening to each other. The discussion helps participants to not only gain a deeper perspective on the possible actions, but to also weigh pros and cons.

When asked, “Have you tried anything to address climate change in your home or community?” About 78% of them have already taken actions (recycle, bike, less consumption, energy efficient home, compost, not eat meat, volunteer, garden, buy organic and/local, and new technology). About 22% of participants were not able to articulate actions, but they were willing to make needed changes. However, they reported, on the pre-forum survey, needing information on what to do.

On the post-forum survey, when asked, “Would you be willing to try anything new to address climate change in your home or community?” about 90% of participants said that they learned and are willing to try new things while one person responded that he/she is already doing what he/she can in the current time restrictions. The new actions included both those at the personal level (solar power, unplug, participate in groups, energy audit, and reduce personal energy usage) and the community level (sponsor a local event for climate change education, support and advocate for local climate policy).

Increase in Sense of Hope

We measured the sense of hope by using the Climate Change Hope Scale (CCHS) developed by Li and Monroe (2017). The range for the composite score is from 10 (minimum, strongly disagree) to 70 (maximum, strongly agree). At study site 1, we received 23 completed pre- and post-forum responses, and observed an increase on the mean score from pre-forum ($mean = 57.08, SD = 5.82$) to post-forum ($mean = 59.35, SD = 6.29$). At study site 3, we received 19 completed pre- and post-forum responses and observed an increase on the mean score from pre-forum ($mean = 52.31, SD = 11.80$) to post-forum ($mean = 56.11, SD = 10.47$). We used dependent t-tests to determine whether or not the increase is statistically significant. Table 2 shows the mean differences on the statements from CCHS. Results show that the participants moved from slightly agree to agree on two statements: that they think the society will be able to address climate change and they know what to do to help solve the problem. The increase is not statistically significant at $p = .05$.

Table 2. Comparison between pre- and post- mean score on the CCHS at Study Site 1

Statements	<i>Mean^a</i> on Pre- Survey ^a	<i>SD^a</i>	<i>Mean^b</i> on Post survey ^b	<i>SD^b</i>
1. I believe people will be able to solve problems caused by climate change.	5.85	.91	5.96	.92
2. Even when some people give up, I know there will be others who will continue to try to solve problems caused by climate change.	6.39	.98	6.47	.79
3. If everyone works together, we can solve problems caused by climate change.	6.47	.84	6.34	.77
4. I am willing to take actions to help solve problems caused by climate change.	6.60	.65	6.56	.78
5. I believe more people are willing to take actions to help solve problems caused by climate change.	5.08	1.53	5.47	1.44
6. I know that there are things that I can do to help solve problems caused by climate change.	6.13	.86	6.21	.79
7. I know what to do to help solve problems caused by climate change.	4.60	1.4	5.52	.89
8. Climate change is beyond my control, so I won't even bother trying to solve problems caused by climate change.	6.34	.88	6.04	1.06
9. Climate change is so complex we will not be able to solve problems that it causes.	4.86	1.76	5.56	1.50
10. The actions I can take are too small to help solve problems caused by climate change.	4.69	1.74	5.17	1.52
Total	57.08	5.82	59.34	6.29

Note:

^aN=23 participants completed pre-survey on CCHS statements

^bN=23 participants completed post-survey on CCHS statements

Follow up Interview Results

We conducted follow up interviews with participants (response rate = 20.1%) to further understand the impacts of the forums. Participant 1 felt the content was well-balanced, had good visuals, and had good handouts. He liked that it was a small, intimate group (around 12 people). He felt everyone was able to speak and be heard because it was a small group. Participant 1 believes that change happens when awareness spreads and the community is educated on the facts. He cared about the environment before attending the forum, and after cares the same amount, but now it is more at the forefront of his attention. He believes we need representatives from the city to participate and be good leaders, and devote more resources to affect change-possibly with more education of the community. He claimed to be very optimistic about climate change, hoping that awareness spreads. He worries that until people are educated on the subject, nothing can change.

Participant 2 has a personal interest in climate change and believes it is an appealing topic. He thought the forum was OK and very informative. Attending the forum did not affect his feelings about climate change, but he claims it was very nice to talk to other concerned citizens. He feels discussion is positive. The forum added support to the direction he is already going regarding climate change. It reinforced his current actions. He believes the most important action on climate change is mitigating public policy. He believes the community should be investing money and time into reducing our output of greenhouse gases so that we can "live without guilt." He claims he has a high willingness to change in order to adapt to climate change. He believes the community should be a leader in recognizing that climate change is human caused and that we need to be as aggressive as possible in educating and steering the community in the right direction. The City of Columbia council should integrate CO₂ and greenhouse gas emissions reductions in the annual job review for city operations. He is personally willing and optimistic about change, but after watching Al Gore's "An Inconvenient Truth," he is very pessimistic. He believes it is an inevitable reality.

Participant 3 attended the forum because she has personal interest in climate change and is very passionate about the subject, and affecting change. She thought the forum was great, and enjoyed the people who presented. She thought the forum was very informative. She suggests using microphones, because it was difficult to hear at some points. Being new to the community, she believes it is important to know how much the community cares, and she was happy with the results. She believes that personal actions are the most effective action on climate change, with each person in the community taking action and making considerate choices. She is personally willing to make small and large changes in order to adapt to climate change. She believes that personal behavior and mindful decision making is important. For example, saying no to plastic bags and instead using reusable bags at the grocery store. She mentioned she would enjoy meeting more people in the community, if there was such an opportunity. She would like to see more interest group meetings, with more people coming together or more events held. She is overall very optimistic regarding climate change-she believes in people, especially people

of the Midwest. As more people are educated about climate change, more people will start to care.

Participant 4 decided to attend the forum because she felt helpless and shocked after the ongoing American political situations, including cuts to the EPA. She wanted a place to talk about the future and climate change. She enjoyed the forum, and thought it was a friendly atmosphere. She was in a group that was dominated by a few people, and wanted to be able to speak more. She suggests either a group moderator or procedure to ensure that everyone who wants to speak would be able to speak. She is willing to make big lifestyle changes to adapt to climate change. She believes the most important adaptation to climate change is for the community to systematically reduce its dependence on fossil fuels. At a personal level, she believes in making lifestyle changes like using less electricity and using shared transportation. She claims that the city needs to look at community needs that are area specific, while remaining sensitive to marginalized populations. She is optimistic about the future regarding climate change, but some days feels more realistically pessimistic. Current events and news shift her attitude towards climate change. She also mentioned "An Inconvenient Truth" and her concern about the population's capacity and willingness to change. She is very optimistic regarding today's technology and research. Overall, she enjoyed the forum, but concluded that everyone there was "preaching to the choir," and to affect change, we need to reach audiences that do not show up at forums, educating these people.

Participant 5 attended the forum because she is interested in climate change issues. She identifies as an environmental activist. She enjoyed the forum, claiming it was a good community gathering of sharing ideas and talking to one another. She liked the Q & A setting. She reported learning no new information regarding climate change, since she is already environmentally active. She believes that the most important aspect of fighting climate change is communicating with neighbors. It must be a group effort, and therefore the word needs to get out to the entire community. When asked about her willingness to change and adapt to climate change, she claimed she is very willing to make big lifestyle changes. She is encouraged that the city council in committing to reducing carbon emissions by 100% by 2050. She is currently working to reduce her carbon footprint in her home and in other personal activities. Overall, she is hopeful regarding climate change. Due to recent events and phenomena such as hurricanes climate change is in the media, which she believes is helpful to the cause. She is hopeful that there will be change.

Adult and Youth Comparison on Climate Policy

Adult and youth participants hold very similar viewpoints regarding proposed climate change policy and action items (Table 3 and 4). Both adult and youth strongly agreed that we should give companies incentives to develop technologies that reduce CO₂ emissions even if that means government interference in the private sector. Both groups somewhat agreed that we should require states to lower their carbon emissions to meet federal standards, even if this eliminates some jobs and harms communities that rely on fossil fuel

industries. Neither group favored using zoning laws, building codes, forced relocation, and insurance rules to keep people from living and building in vulnerable areas like waterfronts. However, youth and adult did not agree with each other on building levees, and rebuilding water systems, roads and transit to protect against flooding, even if these changes mar the landscape, and provide only limited protection ($t = -.277, df = 23, p < .05$). Youth strongly agree that schools should teach children about the causes, consequences, and potential solutions to climate change and government should establish programs to teach Americans about climate change ($mean = 4.82, SD = .60$). Both groups strongly agreed that since the US is one of the world's largest greenhouse gas producers, it should take the lead in reducing emissions of CO₂. They somewhat agree that climate change will cause damaging changes for "my community and me in my lifetime." The majority somewhat agree with the statement: "It's not possible to curb CO₂ emissions without much stronger governmental regulation and enforcement." They somewhat disagreed that taxpayers should not have to bail out people who choose to live in areas likely to be affected by sea level rise, wildfires, flooding and other problems caused by climate change. They both somewhat disagree with the suggestion that we should rely on innovation and adaptation – not regulation to address climate change. They both somewhat disagree that taking action to deal with climate change will seriously harm the US economy.

Table 3. Comparison between youth and adult group on proposed climate policy

Statements	Mean^a	SD^a	Mean^b	SD^b	t-value
Give companies incentives to develop technologies that reduce CO ₂ emissions EVEN IF that means government interfering in the private sector.	4.45	.69	4.21	.89	.74
Require states to lower their carbon emissions to meet federal standards, EVEN IF this eliminates some jobs and harms communities that rely on fossil fuel industries.	4	.89	4.36	.63	-1.17
Increase the use of electric vehicles and redirect highway funds to create bike lanes, car-free zones and pedestrian-friendly neighborhoods, EVEN IF these actions will take a long time to produce any significant cuts in carbon emissions.	3.91	.94	4.29	.61	-1.20
Encourage communities to build independent power grids and increase local agriculture EVEN IF it makes power and food more expensive.	3.73	1.00	3.86	1.03	-.31
Encourage Americans to use less energy by taxing fossil fuels, EVEN IF this burdens poor Americans by increasing the costs of necessities and commuting to their jobs.	3.27	1.19	3.93	.92	-1.56
Use zoning, building codes, forced relocation, and insurance rules to keep people from living and building in vulnerable areas like waterfronts, EVEN IF this would restrict what people can do with their land.	2.82	.75	3.5	1.16	1.69
Ease the rules for bringing new “green” technologies to the market EVEN IF there’s a chance they could harm human health and safety.	2.73	.90	2.93	1.07	-.49
Invest in finding new scientific methods to modify the climate EVEN IF the outcomes and negative consequences of such “geoengineering” are unknown	2.64	.92	2.5	.94	.36
Build levees and rebuild water systems, roads and transit to protect against flooding, EVEN IF these changes mar the landscape and provide only limited protection.	2.45	1.03	3.64	1.08	-2.77*

Table 4. Comparison between youth and adult group on proposed climate actions

Statements	Mean^a	SD^a	Mean^b	SD^b	t-value
Schools should teach children about the causes, consequences, and potential solutions to global warming.	4.82	.60	--	--	--
Our government should establish programs to teach Americans about global warming.	4.55	.93	--	--	--
Since the US is one of the world's largest greenhouse gas producers, it should take the lead in reducing emissions of CO ₂ .	4.27	1.19	4.79	.43	-1.50
Climate change will cause damaging changes for me and my community in my lifetime.	4.09	.94	4.43	1.09	-.81
It is not possible to curb CO ₂ emissions without much stronger governmental regulation and enforcement.	3.82	.87	3.71	1.07	.26
Taxpayers should not have to bail out people who choose to live in areas likely to be affected by sea-level rise, wildfires, flooding and other problems caused by climate change.	2.82	.98	2.36	1.01	1.15
We should rely on innovation and adaptation – not regulation – to address climate change.	2.73	1.10	2.42	.94	.73
Taking action to deal with climate change will seriously harm the US economy.	1.82	.87	2	1.04	.46

Note:

^aN=11 Youth

^bN=14 Adult

Discussion

Participants from six forums at three different sites considered EIF informative and appreciated the opportunity to talk about the issue in a safe space. Local opinion leaders played an instrumental role in helping researchers' recruitment participants.

The feedback was very positive overall and participants liked the open discussion, the quality of the guidebook (*Climate Choice*), the presenters, and the safe space to talk openly

and express their concerns. They found that the discussion to be helpful and examples inspiring.

- “I liked the sharing of ideas on how climate change affects us and what we can do.”
- “The information provided was easy to digest and discuss; I like the active discussion.”
- “I appreciate the space to talk openly and express our concerns.”

When asked, “How we can improve the forum?” participants would like 1) more suggestions for concrete action items to take place in the local area; 2) more time and follow up opportunities to for the region.

- “I would give more action items and discuss more attainable goals than just the 3 vague options. It would be better to discuss what we can do now, not just possible future options.”
- “I would like to see more suggestions for concrete action to take place in Columbia.”
- “I would give the booklet as a pre-reading material.”

Recommendations

The EIF forums were initiated at three different sites and most participants were Caucasian. While the researchers announce the forum through the public library newsletter and other public venues, they were not able to reach out to a diverse group that holds different opinions on climate change. In future, researchers would like partner with more church groups in the hope of reaching out to a more diverse ethnicity group. Researchers would like to contact church leaders from African American, Asian American, and Latino Churches. Researchers found that these faith leaders play an instrumental role in defining a successful recruitment of participants. In recruiting a more ethnically diverse group, language could be a barrier to hosting the forums (e.g., some church groups may prefer using languages such as Spanish and Chinese). Researchers highly recommend the EIF lead team to consider translating the issue guide and video materials in other languages.

Conclusion

EIF allowed the researchers to initiate an applied research process using deliberation and dialogue among citizens from local communities. The forums were effective at building participants’ understanding, critical thinking, and willingness to take personal and collective actions. The deliberation process is a successful model in building citizen competencies and enhancing social capita among local participants. Participants view the discussion as informative and engaging. They expressed strong interests in holding the forum in their communities and would be willing to help spread the word. The researchers would like to focus on engaging different type of participants, such as teachers, farmers, policy makers, K-12 students in using the EIF *Climate Choice* issue guide as a model.

Acknowledgements

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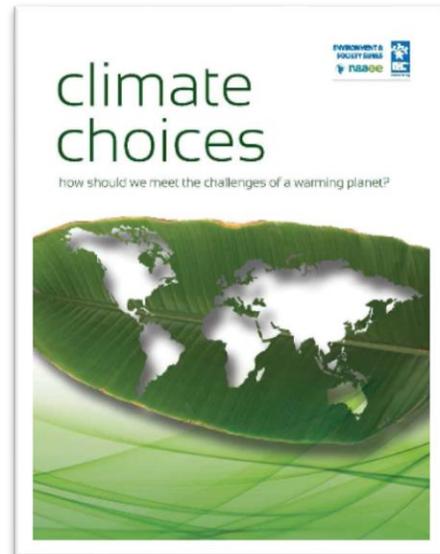
Appendix A

Invitation to Climate Change and Household Energy Efficiency Forum

Climate change is a complex issue and many scientists warn us that our current rate of adding heat-trapping gasses to the atmosphere is warming the planet and could send us into uncharted and potentially dangerous territory.

Why are people concerned about climate change? How do you feel about it? How can we meet the challenges of a warming planet?

In this facilitated forum you will have the opportunity to share your thoughts about the benefits and challenges of reducing carbon emissions; encouraging innovations; and preparing and protecting our communities. You will also hear from Columbia Water & Light about household energy efficiency programs and tips to make your household more comfortable and energy efficient. Light refreshments will be provided.



Come and have a conversation about climate change.

Time:

- May 10th, Wednesday, 1:00-3:00pm CST

Location: Friend's Room in Columbia Public Library – Daniel Boone Regional Library (100 W. Broadway, Columbia, MO 65203)

So we can plan for seating and refreshments please RSVP to Christine Li: lij1@missouri.edu, or call 573-882-0613

We hope to meet you at the forum!

Yours sincerely,

Christine Li & Christine Costello

School of Natural Resources
City of Columbia

Appendix B

Climate Choice Forums - Informed Consent Form

Hello Friends!

Thank you for attending our community forum, "Climate Change and Household Energy Efficiency." In partnership with the North American Association for Environmental Education and Kettering Foundation, Environmental Issues Forums (EIF) provides tools, issue guides, and support for engaging adults and students in meaningful, productive discussions about sticky issues that affect the environment and communities.

These forums, organized by School of Natural Resources at University of Missouri and City of Columbia, offer citizens the opportunity to join together to deliberate, to make choices with others about ways to approach difficult issues and to work together toward creating reasoned public judgment. We are interested in understanding how participants currently view climate change and perceive the challenges and solutions to solve problems caused by climate change. We appreciate your taking just a few minutes to share your ideas and opinions about climate change in the survey. The survey takes about 5-10 minutes to complete. There is no risk to you to participate, and your responses to this survey will be kept confidential. The only compensation we can offer is the deliberation experience in sharing and hearing from each other about how we can work together to help with the environment and our community. Please complete the enclosed form at the bottom of this page as well as the pre-and post-forum surveys and return them to your moderators.

If you have any questions about the survey, please do not hesitate to contact me at any time. Thank you for your help.

Sincerely,



Christine Li
Assistant Professor, School of Natural Resources
University of Missouri
Lij1@missouri.edu

Appendix C

Climate Choice Forums Pre-Survey

ID: _____ **Date:** _____ **Location:** _____

Thank you for attending the Climate Choice Forum. Please take a few minutes to complete this survey. Your responses will help us evaluate the Environmental Issues Forum (EIF) initiative and make necessary improvements.

1. Why did you want to participate in this Climate Change forum?

2. What did you hope to get out of the forum?

3. What is your feeling when you hear about climate change? Please describe your feelings in a couple sentences. (Anxious, depressed, hopeful, confused, community needs to do more, powerless, difficult to address, willing to take actions, or not real....)

4. Have you tried anything to address climate change in your home or community? If yes, what have you tried? If no, would you be willing to try anything?

5. Please read each item below and state your level of agreement or disagreement with each of the following statements. If you do not believe climate is changing, please mark X on each line.

Adapted from Climate Change Hope Scale (Li & Monroe, in review).

-3 = Strongly disagree 1 = Slightly agree
 -2 = Disagree 2 = Agree
 -1 = Slightly disagree 3 = Strongly agree
 0 = Neutral X = I do not think climate is changing.

Strongly disagree
 Disagree
 Slightly
 Neutral
 Slightly agree
 Agree
 Strongly agree
 I do not think climate is changing.

a.	I believe people will be able to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
b.	Even when some people give up, I know there will be others who will continue to try to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
c.	If everyone works together, we can solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
d.	I am willing to take actions to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
e.	I believe more people are willing to take actions to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
f.	I know that there are things that I can do to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
g.	I know what to do to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
h.	Climate change is beyond my control, so I won't even bother trying to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
i.	Climate change is so complex we will not be able to solve problems that it causes	-3	-2	-1	0	1	2	3	X
j.	The actions I can take are too small to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X

Thank you for completing the survey!

Appendix C
Climate Choice Forums Post-Survey

ID: _____ **Date:** _____ **Location:** _____

Thank you for attending the Climate Choice Forum. Please take a few minutes to complete this survey. Your responses will help us evaluate the Environmental Issues Forum (EIF) initiative and make necessary improvements.

1. Now that you have attended the forum, how do you feel about climate change? Please describe your feelings in a couple sentences.

2. Would you be willing to try anything new to address climate change in your home or community in the future? If yes, what actions would you like to take?

3. What did you like about this forum?

4. What can we improve about this forum?

5. Please read each item below and state your level of agreement or disagreement with each of the following statements. If you do not believe climate is changing, please mark X on the statement.

Adapted from Climate Change Hope Scale (Li & Monroe, in review).

- 3 = Strongly disagree 1 = Slightly agree
- 2 = Disagree 2 = Agree
- 1 = Slightly disagree 3 = Strongly agree
- 0 = Neutral X = I do not think climate is changing.

Strongly disagree
Disagree
Slightly disagree
Neutral
Slightly agree
Agree
Strongly agree
I do not think climate is changing.

1.	I believe people will be able to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
2.	Even when some people give up, I know there will be others who will continue to try to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
3.	If everyone works together, we can solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
4.	I am willing to take actions to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
5.	I believe more people are willing to take actions to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
6.	I know that there are things that I can do to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
7.	I know what to do to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
8.	Climate change is beyond my control, so I won't even bother trying to solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X
9.	Climate change is so complex we will not be able to solve problems that it causes.	-3	-2	-1	0	1	2	3	X
10.	The actions I can take are too small to help solve problems caused by climate change.	-3	-2	-1	0	1	2	3	X

Thank you for completing the survey!

PART II

ENVIRONMENTAL ISSUE FORUMS: AN INSTRUCTIONAL STRATEGY FOR ENVIRONMENTAL EDUCATION

Deliberative Discourse: The Kentucky Professional Environmental Educator Certification Course

Billy Bennett
Kentucky Environmental Education Council
Frankfort, KY

Wesley Bullock
Kentucky Environmental Education Council
Frankfort, KY

Background

The Kentucky Environmental Education Council (KEEC) is a small (2 full-time staff) state agency that is charged with coordinating environmental education efforts across the Commonwealth of Kentucky. One of the programs that they conduct is the Professional Environmental Educator Certification (PEEC) course. The PEEC course consists of four workshops, each lasting three days. Average work time outside of class is estimated to be between 30-60 hours. Assignments are submitted in class or by email. One of the key components of the course is participation in an Environmental Issues Forum (EIF).

Professional environmental educators need a tool to address the “wicked problems” or issues that have solutions that are not easily agreed upon within a group of people with diverse perspectives. Using an expanded version of the Environmental Issues Forum, participants in the Professional Environmental Educator Certification (PEEC) course learn how to use an instructional tool for approaching environmental issues. Students are required to do research on the issue prior to the forum and write a two-part paper concerning their research and reflecting on the effect of participation in the forum.

Methods

1. During Workshop 2, all participants engaged in an Environmental Issues Forum. The forum was led by a trained, neutral moderator using a discussion guide that frames an environmental issue by presenting the overall problem and then

three or four broad approaches to the problem. In this case, the NIF Energy forum was used as this was prior to the release of EIF materials.

2. Prior to Workshop 2, the participants researched their perspective on the issue and wrote Part 1 of the Environmental Issues Forum Paper. Part 1 of the paper consisted of:
 - a. An articulation of the participant's position on the issue prior to researching sources (What was their position on the issue before researching sources? Have they thought much about the issue before? How firm was their position?)
 - b. Critical analysis of the accuracy and reliability of two sources (at least one of which was published within the last 2 years) that they used in their research (How reliable did they believe each source to be? What specific characteristics of each source supported this conclusion?)
 - c. An explanation of how that research changed their position. (Did their research change their original position? If so, what specifically did they learn that changed their position? If their position did not change, what specifically in their research confirmed their position?)
3. During Workshop 2, all participants participated in a forum and worked through the issue as a group by:
 - a. Reviewing background data, research, information pertinent to the issue;
 - b. Considering each approach—3 or 4 different ways of looking at the issue;
 - c. Examining what appeals to them, concerns them, and also what the costs, consequences, and trade-offs may be that would be incurred in following that approach;
 - d. Finding common ground for action.
4. After Workshop 2, participants wrote Part 2 of the Environmental Issues Forum Paper. Part 2 of the paper:
 - a. Summarized the environmental issue
 - b. Described the values that influenced their position and the positions of other participants (What values shaped their position? What values did other forum participants express? Did they infer values that participants did not express; if so, what specifically about their position implied an unstated value?)

- c. Described how their position on the issue changed over the course of the research and forum (Did the forum change their original position? If so, what specifically did they learn that changed their position? If their position did not change, what specifically in the forum confirmed their position?)
- d. Explained the common ground for action that resulted from the forum (What consensus did the forum reach? Which option presented by the forum materials is closest to the agreed action? Were parts of other options included in the agreed action?)
- e. Designed a plan to carry out that action (What specific steps would they take toward the agreed action? What information from the research and forum supports this plan?)
- f. Critiqued that plan, to include probable outcomes and consequences (How likely was their plan to succeed? What information from the research and forum contradicts their plan? What are the possible negative outcomes to their plan?)

Results

After the forum, participants reported increased understanding of the issue and increased appreciation for different viewpoints on the issue. As an example, below is an excerpt from the reflection paper written by one of the course participants:

C. Change in Position

"After conducting the research and participating in the forum, my position did not change dramatically. Initially, my opinion was that a combination of all three options was necessary to ensure a continuing supply of energy for future generations, with an emphasis on consuming less and investing in renewable energy sources. The group discussion helped confirm my belief because there are so many stakeholders with opposing values, a multi-faceted approach will be necessary to reach a compromise.

However, the group discussion also forced me to realize that consuming less is not as realistic as I would dream it to be. While I still believe that consuming less is necessary for a sustainable future, this may be the most difficult option of the three. Reducing our consumption by any significant

amount will require a sea change of the American lifestyle. Although there have been great improvements in this area over the years, convincing the 300 million people in this nation to make a lifestyle change in order to see long-term benefits is simply harder said than done.

After the research and forum, I learned that while there are many challenges to fulfilling these solutions, some strategies are more realistic than I had originally assumed. For example, through my research I noticed that there were many articles explaining how renewable energy infrastructure has improved in recent years. My assumption prior to reading these articles had always been that renewable energy infrastructure would always be too expensive to maintain, but now I am more optimistic that this option is realistic.”

D. Common Ground for Action

“The overall consensus of the group was that a combination of two options – consuming less and increasing renewable energy sources – is the best solution for our nation and for the world. It was quickly realized in the group that the issue is quite complicated, and there would be no simple solutions. In order to bring about nationwide change, multiple values and perspectives need to be addressed. Solutions which only speak to certain special interest groups will not be well received by the general public. For example, those who value the environment above the economy may advocate for consuming less as the best option, while those who value the economic prosperity of our nation may prefer to increase the amount of energy produced in our own country.

In addition, choosing only one option will not lead to long-term sustainability. Even if our country is able to decrease consumption significantly, we will never stop consuming energy. Due to our exponential population growth, demands on our energy sources will grow exponentially as well. These needs should be both expected and planned for if we want our population, infrastructure, and technology expansion to be sustainable.

We also agreed that while we prepare our infrastructure to make the switch to renewable energy sources, we should decrease our dependence on foreign oil. Using resources from within our boundaries will not only improve our economy and strengthen the value of the U.S. dollar, but it will allow us to end relationships with nations mired in war and conflict.

Our group also discussed a fourth option: changing our nation's infrastructure on a broader scale in order to lessen our dependence on nonrenewable resources other than fuel for personal transportation. We recognized that while transportation is responsible for the majority of our nation's energy costs, Americans use nonrenewable energy in almost every other aspect of our lives as well. For example, even if Americans reduced the amount of miles driven daily by half, we would still need to fuel the electricity needed to run our homes and businesses, as well as transport food and other goods across the country. Revolutionizing the food and agriculture industry could be just as beneficial as reducing the amount of miles we drive."

Discussion

The deliberative discussion within the framework of the environmental issues forum proved to be a valuable addition to the certification course in Kentucky. The forum results were not a true representation of general public viewpoints as this was a self-selected group of likeminded individuals. There was a small group of the participants that felt uncomfortable vocalizing dissenting opinions at first. However, after the process began many reported that they were able to share their thoughts with the group. A number of participants singled out the forum as their favorite activity in the workshop, and many expressed appreciation for being introduced to the deliberative process as a way to approach environmental issues. Overall it was a success and will become a fixture in the instruction for participants.

Comparing Deliberation and Debate as Instructional Strategies

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Introduction

The Environmental Issues Forums (EIF) are modeled on the National Issues Forum and are a collaborative effort between the Kettering Foundation and NAAEE. EIF is designed to provide tools, training, and support for engaging communities in meaningful, productive discussions about sticky environment issues. Having worked in the environmental field for forty years grappling with and teaching about environmental issues, the potential of using a deliberative democratic method for helping people find common ground to productively take action on divisive issues was obvious.

Course Changes Initiated

After attending an EIF moderator's training at the 2104 North American Association for Environmental Education (NAAEE) annual conference, I initiated changes in the curriculum for two courses--Environmental Issues and Teaching Environmental Education. Both courses are part of the Environmental Education Endorsement program at Eastern Kentucky University. The program is accredited by NAAEE as a Distinguished University Program.

Environmental Issues Course

Traditionally, instructional strategies for teaching environmental issues have included analyzing players' positions, values and beliefs through a dichotomous lens. Players have a "pro" or "con" outlook on the issue. Conventionally, a debate format has often been used to explore the different sides of an issue. The majority of the nationally recognized curriculum projects such as Project WILD, Project Learning Tree and Project WET include an activity that is essentially a debate format for exploring an issue related to environment. In the Environmental Issue course, a structured debate over a prominent environmental issue in our state had always been included as a major assignment. I wanted to determine if students' responses would be different after participating in the debate versus the deliberative dialogue approach while learning about and potentially taking action on an environmental issue. I initiated this change in spring 2015 before the Environmental Issues Forums were fully developed. Consequently, I used National Issue Forums already developed by Kettering and related to a selected environmental issue.

Due to the Kentucky's economic base, the sessions were organized around energy, using the *America's Energy Future* issue guide for the forum. After completing both instructional formats for addressing the topic (e.g., debate and deliberation), the students reflected on the differences in the two approaches. Table 1 displays response to the reflection questions. Although the class size was small (n = 10) and all participants chose to take an Environmental Issues course, there are several unexpected results. First, the majority of the students believed that a person's viewpoint was more likely to be understood in a debate format. This may be due to the fact that in a traditional debate each "side" has a designated amount of time to voice their opinion and give a rebuttal. Secondly, the majority of the students felt that they actually learned more factual information about the issue by doing the debate.

Table 1: Reflection Question Responses

Questions	Traditional Debate	Issues Forum
In which format is it most likely that everybody's opinion is heard and respected?	0%	100%
In which format is it most likely you will understand someone else's perspective?	66%	33%
I learned factual information about that natural and social systems connected with an environmental issue better by participating in a	66%	33%
A controversial environmental issue is more likely to be resolved when participating in a forum	0%	100%
It is more likely that I will think differently about an environmental issue after participating in which of the following?	0%	100%

In spring 2016, the *Climate Choices* EIF was incorporated into the Environmental Issues course without comparing it to a debate. Faculty at the University of Wisconsin Stevens Point and Eastern Kentucky University collaborated on a study to determine if this forum and related aligned instructional strategies and assignments would make a difference in students' climate literacy. This study is detailed in a separate manuscript in this collection.

Teaching Environmental Education Course

Teaching Environmental Education is essentially a methods course where students learn the instructional strategies as well as develop their teaching skills. In summer 2016, an *America's Energy Future* forum was used again as an example of an instructional strategy appropriate for teaching about environmental issues. Although the students participated in the forum, we did not compare it with a debate experience.

Conclusion

Based on these experiences, the EIF will continue to be used in these two courses both as an example of appropriate environmental education instructional strategies and as a way to help students look at environmental issues. Due to the fact that most students in these courses have similar viewpoints on environment issues, using a forum does not always get the kind of interaction that you would expect when using it with the general public. Despite that, the idea and process of using a deliberative dialogue method to promote civil discourse is needed now more than ever in our public conversation about environmental as well as many other societal issues.

Climate Literacy: Using Deliberative Forums in Two College Courses

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Introduction

Environmental Issue Forums (EIF) are designed to provide tools, training, and support for engaging communities in meaningful, productive discussions about wicked environmental issues. These forums, through the use of deliberative dialogue, have the potential for helping people find common ground to productively take action on divisive issues. They provide an alternative to the traditional debate method in helping people analyze different aspects of complex issues. This study was developed to analyze how introducing EIF in university classes may affect student knowledge, attitudes, and behaviors related to climate change.

Methods

Faculty members from the University of Wisconsin-Stevens Point (UWSP) and Eastern Kentucky University (EKU) participated in a workshop using EIF during the fall of 2014 at the North American Association for Environmental Education (NAAEE) annual conference. In the fall of 2015, they participated in a related workshop at the same conference. During the conference, the research team met to discuss plans to implement EIF in courses and develop the research plan. During January of 2016, the team again met to align the two courses prior to the start of the spring term and initial implementation.

The two courses used the same environmental action project assignment, included the same content and activities related to climate science and climate change, utilized EIF as part of the course, and asked students to host a forum, present a current event, and take a climate literacy assessment at the beginning and ending of the semester. The courses,

however, were different in a couple of ways. For one, students enrolled in the course at UWSP were undergraduates, met face-to-face three times a week, and the course met a degree requirement. Students enrolled in the course at ECU were in-service teachers or biology majors, working on a certification in environmental education, and/or taking the course as an elective. Additionally, it was offered as a hybrid online course, meeting in person only eight times during the 16 week semester. The course instructors at both institutions had taught their respective courses in previous semesters.

Two sources of data were collected. For this study, we assessed student climate literacy at the start and end of the semester. Students enrolled in the target courses at either UWSP or ECU took an online survey through Qualtrics. Existing documents (AASHE, 2012; Leiserowitz et al., 2014; NOAA, 2009; WCEE, 1994) were adapted and combined to create the survey. The survey included questions that assessed student knowledge, attitudes, and behaviors related to climate change. Demographic information was also collected. At the end of the semester, students also responded to questions specific to the Environmental Issues Forum.

Results

Climate literacy survey

Results from the climate literacy survey were analyzed and the statistically significant items are detailed here. Questions related to behavior and attitudes were analyzed using an independent samples *t*-test. This test compared the mean of the pre-test with the post-test responses from all students. Knowledge based questions were compiled into a single score and then analyzed using an independent samples *t*-test.

Students were asked 11 questions about their environmental behaviors through the use of statements and a Likert response scale ranging from never (1) to almost always (5). One of those (*I write or call politicians to express my views about environmental issues*) was found to have a change that was statistically significant [pre-test ($M = 1.59, SD = .90$) and post-test ($M = 2.08, SD = 1.08$); $t(102) = -2.50, p = .01$, two-tailed]. The magnitude of the differences in the means (mean difference = $-.49$, 95% *CI*: $-.87$ to $-.10$) was moderate (eta squared = $.065$). In other words, student responses at the end of the class indicated that they would contact a politician more than at the start of the class.

Student attitudes were assessed through 33 questions/subquestions—five of these items had responses that were statistically significantly different between the pre- and post-survey (Table 1). From the start of the class to the end of the class, students became more certain that climate change is taking place. Students also responded that they were more worried about climate change at the end of class as compared to the start of class. Additionally, there were three proposed actions that students felt more favorable toward at the end of class than at the beginning: charging fossil-fuel providers a carbon fee, requiring states meet a low-emission standard, and preventing people from living in vulnerable areas.

Table 1: Significant items related to attitudes.

Survey item	Pre-		Post-		df	t	p, two-tailed	Mean difference	95% CI		Eta square
	M	SD	M	SD					lower	upper	
Which of the following statements most accurately reflects your view on climate change? Responses ranged from "I am very sure that it is happening" (1) to "I am very sure it is not happening" (5).	1.31	0.54	1.11	0.32	86.10	2.34	0.02	0.20	0.03	0.37	0.05
How much does climate change worry you? Responses ranged from "very much" (1) to "not at all" (4).	1.52	0.69	1.25	0.52	98.12	2.62	0.03	0.27	0.03	0.50	0.05
Encourage Americans to decrease energy consumption by charging fossil-fuel providers a carbon fee, which is repaid as dividends to households, EVEN IF this burdens poor Americans by increasing cost of basic necessities in the short term. Responses ranged from "strongly oppose" (1) to "strongly favor" (5).	3.21	1.34	3.93	1.02	94.40	3.03	<.01	-0.72	-1.20	-0.25	0.09
Require that states meet a national low-emission standard (with a percentage of energy needs coming from renewable sources) EVEN IF it displaces workers and harms communities that rely on fossil fuel industries. Responses ranged from "strongly oppose" (1) to "strongly favor" (5).	3.55	1.17	4.19	0.96	94.00	-2.88	<.01	-0.64	-1.08	-0.20	0.08
Use zoning, building codes, relocation, and insurance rules to keep people from living and building in vulnerable areas, EVEN IF this would infringe on property rights and impose larger economic burdens on some property owners. Responses ranged from "strongly oppose" (1) to "strongly favor" (5).	3.56	1.25	4.14	0.98	94.00	-2.58	0.01	-0.59	-1.04	-0.14	0.07

A score for knowledge was created by combining nine questions/subquestions for a single score. The score was then analyzed using an independent samples *t*-test. The difference between the mean scores was not significant.

Climate Choices questionnaire

The Climate Choices questionnaire asked questions about the use of the EIF itself. Responses to the open-ended questions were analyzed using content analysis focusing on two categories--positive or negative responses. Table 2 indicates the results.

Table 2: Results of open-ended questions

Question	Total
Do you feel that you were listened to by your facilitator? This could mean the course instructor in the initial forum or fellow students in the community forum. Explain why or why not.	96% positive
During both forums, the participants were broken into groups. Do you feel that the process that led to group responses was fair? Why or why not?	86% positive
How willing are you to abide by the group's final position even if you personally have a different view?	73% positive
On a rating scale of 1 to 5 (not at all--to a lot), how helpful was it for you to discuss the issues with other participants?	Ave = 4.2
How much did attending the sessions change your understanding about climate change?	70% positive
How much did attending the sessions change your opinion about climate change?	27% positive

Discussion and conclusion

The results from the climate literacy survey indicated that some student attitudes and behaviors were positively influenced throughout the course of the semester. Some of the items in the survey can be seen as direct links to the *Climate Choices* forum. Based on the results, it appears that this forum has a positive influence on student understanding about climate change.

The results from the open-ended *Climate Choices* questionnaire indicate that the majority of the participants at both universities felt that the EIF was a fair and positive way to discuss climate change, although the EIF sessions had very little effect on their opinion of climate change. This result might well be a result of self-selection since participants were pre-disposed to positive environmental outlooks as evidenced by their college major or their choice of these courses as an elective.

Based on this research, utilizing EIFs in the university classroom is advantageous in that it provides students with the opportunity to see the deliberative democracy method. In the future, other faculty members may want to incorporate EIFs in their classes in order to achieve these objectives.

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PART III

ENVIRONMENTAL ISSUES FORUMS AND THE CREATION OF A STATEWIDE PROGRAM FOR CIVIC ENGAGEMENT

Florida Cooperative Extension Service Launches a Public Issues Program: CIVIC -- Community Voices, Informed Choices

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Background

The Cooperative Extension Service in Florida is coordinated through University of Florida/IFAS and Florida A&M University, the two land-grant institutions in the state. State specialists work with Regional and County Agents to develop programs and create resources to share information and build skills to improve the quality of Floridians' lives. In many states, Extension programs are returning to their historic roots by helping residents build skills to improve their own lives through civic partnerships at the community level (Peters 2002). At the same time, they must continue to provide the most relevant and credible research-based information to answer questions of community concern.

Developing CIVIC to Fill a Need

Recognizing the diversity of perspectives and contentious political discussions characteristic of today's community discourse (or lack thereof), Florida Extension is developing a new program, called CIVIC, to inspire residents to become more knowledgeable and active in resolving community-based problems. The program brings together agents and specialists working in natural resources (e.g., water, climate, wildlife) with those from community development (e.g., nutrition, poverty, housing) to strengthen a community's capacity to explore problems, find resources, partner with organizations, deliberate possible solutions or paths forward, and create viable recommendations. The program uses the Kettering Foundation's National Issues Forum materials and process for

deliberative discussions as one potential activity among a range of community engagement approaches.

Communities are faced with a variety of complex challenges. For some issues, there is broad agreement about the most viable solutions. For others, there may be widespread belief that something should be done, but little clarity about the specific actions that should be taken or strategies that should be implemented. In these cases, an Extension program might offer information, examples of how others have resolved similar problems, and links to local resources. Other issues, however, are fraught with disagreement. People may disagree on the facts, or not trust the science that supports these facts. People may disagree on which factors should be given priority in decisions that cannot maximize all interests, such as the economy, environmental protection, or community safety, for example. The different values that underpin perceptions help explain the fundamental difficulties in addressing these contentious issues (Haidt, 2012; Kahan, 2015). A public issues civic engagement program, in turn, must venture into subjective, values-driven territory to succeed in achieving lasting long-term outcomes.

At the same time, people want to participate in meaningful ways to improve their community (Kaplan and Kaplan, 2009). Through CIVIC, Extension agents can help build capacity in their communities to increase partnerships and enable people to obtain information, weigh costs and benefits, and discuss options. For some difficult issues, community deliberative discussions can be an important step forward, helping people better understand why alternative solutions are appealing to different people. In some cases, discussing the options can help people find common ground, areas of agreement, and ultimately, a few solutions.

The Kettering Foundation developed an effective model for community deliberation, the National Issues Forum program, which has recently been expanded with NAAEE, creating the Environmental Issues Forum initiative. CIVIC is modeled off these national programs, but only in part. The deliberative discussion is one of a suite of program activities that agents can employ to help residents address issues. Our standard offering of workshops, field trips, demonstrations, and training programs are also reasonable strategies for building knowledge, offering skills, and empowering residents and communities. As CIVIC grows, we plan to adapt NIF materials to Florida and assemble our own sets of fact sheets and documents to support programs on target topics. Extension agents could facilitate the development of small working groups of interested citizens and experts who could explore reasonable alternatives and make recommendations to those who could implement

change. Each issue will likely have a different set of opportunities for local actions and a different set of partners who could be involved. A close working relationship with community leaders will be helpful.

In addition, each community may start the process at a different point along a continuum of awareness to action, depending on how important the issue is, what is at stake, and the community's capacity to address issues. The program will provide suggestions for agents to assess the needs in their community, identify and frame issues, build awareness, and build citizens' capacity to participate in decision making.

The goal of the CIVIC program is to strengthen a community's capacity to work toward solutions to local problems and slow or prevent the emergence of new ones. This can be achieved by offering Extension programs that:

- Increase awareness of local issues and potential solutions
- Provide information about local issues and potential solutions
- Enable people to discuss options and choices framed through value positions, also known as deliberative discussion
- Support partnerships of organizations, agencies, businesses, and volunteers who wish to work toward the resolution of local problems
- Build individuals' leadership skills
- Contribute to a growing network of individuals and organizations that aim to strengthen the community

The state CIVIC program leadership team coordinates four subcommittees:

- **Materials Development:** Activities include consolidating available resources, creating an online library for resources, developing "placemat" summaries of issues, and hosting a writing retreat. Pilot activities have focused on water quality and poverty.
- **Evaluation and Research:** Pre- and post-participant surveys are being developed to enable agents to summarize the ways people change beliefs, attitudes, and behavior over the program period. Common metrics for community capacity, social capital, engagement, and satisfaction will be measured in participating counties to create a state report.
- **Professional Development:** Agents will be able to attend training programs to build facilitation skills and find partners to provide content or process expertise. Participation in the Florida Natural Resource Leadership Institute and other trainings or certification programs can provide additional skills in conflict management and facilitation. Our first state-wide retreat was held in July 2017. The next, in spring 2018, will focus on facilitation and moderating skills.

- **Funding, Promotion, and Marketing:** This team will oversee development of website, logo, vision and mission as well as the process for distributing funding to agents who propose CIVIC activities, and identify district champions to help others learn about CIVIC.

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<https://vimeo.com/69903586>