A Model for Engaging the Community in Learning About Hazards
Nurture Nature Center is a non-profit organization in Easton, PA, that has been working to educate the public about flooding. NNC has undertaken several projects with NOAA and NWS, including its “Focus on Floods” education campaign, to understand and share information about how the public perceives and acts upon flood risk.
Flooding: A Familiar Tale

A history of flooding – and forgetting flooding
Identifying the Need

Federal, state and local agencies have worked with NNC to identify the key learning goals for flood risk communication:
Floods happen. Lessen the loss.

Sign up for alerts. Have a plan. Evacuate when told.
Communicate with family and friends. Know your river’s flood stage. Prepare a family go kit. Designate an alternate route home. Plan an alternate route home.

www.focusonfloods.org

A project of the Nurture Nature Foundation in cooperation with the National Weather Service.
Sharing Education, Learning Community Needs

- Television and Radio PSAs
- Website
- Exhibits and displays
- Professional and Classroom Materials
- Professional Development Conference
- Outreach
Flood Forums combine:

• High-quality basic flood education
• with in-depth dialogue
• about community-specific topics
Environmental Issues Belong to the Entire Community.

About 100 science centers and museums around the world now have access to our Rising Waters program about global flooding.
People want to discuss these issues with their neighbors.
FOUR-PART CLIMATE SERIES:

LECTURES AND QUESTION SESSIONS

Dr. Sahagian, a climate expert from Lehigh University, will present the latest thinking and take any and all questions from audience members. Here’s your chance to ask questions, discuss with your friends and neighbors what this region might look like for generations to come.

Climate 101: The Nature of Climate, Tuesday, January 24 — 7pm to 9pm
- Climate history - ever changing climate in a restless world
- Natural climate variability - what causes change
- What people do to affect climate - emissions and land use
- Greenhouse effect - how it works

Climate 102: A People Planet, Thursday, January 26 — 7pm to 9pm
- History of human activity
- Observations of global change since the industrial revolution
- Projections of future climate - IPCC and what it's all about
- The "climate controversy" - fact and fiction

COMMUNITY ART WORKSHOP

Earth as Art: Examining Our Footprint from an Aerial Perspective
Saturday, January 21 — 10am to 1pm

The first of two hands-on, free public workshops exploring visions of land use as modern art that will culminate in the collaged painted mural to be on display at the Nurture Nature Center.

Art instructor and environmentalist Tom Marshfield will lead twelve workshop participants through a presentation that the human impact (or footprint) on the land we inhabit. Attendees will also be treated to a presentation of global climate change science by a "Sphere," an imaged globe awarded by the National Oceanic and Atmospheric Administration. An discussion will be held to explore communicating a sense of place through abstract art.

No fine art skills necessary — just a willingness to express yourself! Each attendee will paint a small canvas to be used in a mural for display at the Nurture Nature Center. All supplies provided.

VALLEY-WIDE FORUM

The Future of the Lehigh Valley: What Will Climate Changes Mean for the Future?
Thursday, February 9 — 7pm to 9pm
- Global climate change and how it affects PA
- Projections of future climate impacts on PA
- Implications of climate change and land use on flooding potential in PA

All events to be held at the Nurture Nature Center. To register, contact Kate Brandes at 610-253-4432 or kbrandes@nurturenature.org.
Chicken Dialogues:

A community forum about backyard chickens

Join Nurture Nature Center for a special presentation and ensuing discussion about raising backyard chickens in urban areas.

When: August 8 from 6:00 to 8:00 PM

Where: Nurture Nature Center
518 Northampton Street
Easton, PA • 610-253-4432
www.nurturenaturecenter.org
Flood Forums

~ Science education
~ Community involvement and deliberation in flooding issues
~ Report to Decision-Makers
~ Feedback on Programming
Flood Forums combine:

• basic flood education
• with in-depth dialogue
• about community-specific topics
What We Learned

• **Listen First:** People Want to Share Their Stories: Go to where they are, and ask about their experiences.

• **Discuss What Matters First:** Immediate, Local Risks Can Open People to Learning Science

• **Honor What the Public Knows:** Residents in Flooded Communities Have Meaningful Knowledge to Share with Decision-Makers. Share their feedback: it will invite further participation.
FROM RISK TO RESILIENCY:

Our engagement model calls on principles from:

- **Deliberative Democracy**
  - Authentic deliberation as education tool

- **Natural Hazards Research**
  - Risk communication

- **Appreciative Inquiry**
  - What is/What might be/What should be
  - Strengths-based vs. Problem-focused
Why local environmental risks are an important vehicle for science learning:

- Risk matters to people in the place where they live (affects homes, businesses, or communities);
- People see and experience local risks in their daily lives;
- People are already talking about and concerned about these issues;
- Risk is central to shared community purpose and brings together people from all walks of life;
- Risk motivates science learning and engagement; and
- By starting with issues people care about, science curiosity and learning naturally follows.

Marcellus Misinformation: Misperceptions about the Environmental Impacts and Benefits of Natural Gas Extraction in Pennsylvania

A Presentation by Professor Dru Germanoski at Nurture Nature Center
March 28 from 12:00 p.m. to 1 p.m.

Department Head of Geology and Environmental Geosciences at Lafayette, he is also the Chair of the Lafayette College Environmental Initiative. Professor Germanoski's primary research interests are on the effects of sediment load, climate, and land-use on river dynamics and channel morphology. He has studied rivers in Alaska, Arizona, Colorado, Mississippi, Montana, Nebraska, Nevada, Pennsylvania, and Bolivia. Over the past fifteen years he has been working with an interdisciplinary team of ecologists, geomorphologists, and hydrologists studying the effects of climate change and land-use activity on small mountain streams in central Nevada. Professor Germanoski is a two-time winner of the Student Government Superior Teaching Award, recipient of Marquis Distinguished Teaching Award, the Thomas Roy and Lara Forrest Jones Faculty Lecture Award for excellence in teaching and scholarship, and the Mary Louise VanArtsdalen Prize for outstanding scholarly achievement. Dr. Germanoski has been lecturing publicly about Marcellus Shale for the past year.

Two examples of timely topics that address local environmental risks for NNC audiences: above, the highly controversial natural gas drilling using a fracturing technique and right, a program about hurricanes following the devastating hurricanes Irene and Lee.
How to reach out to and develop programs for communities:

When people feel welcome and comfortable they are open to learning things that help them to address a common interest.

Demonstrate that you value the community’s knowledge and experience. Shared stories help make people feel their experiences matter. Value people’s voices by:

- Gathering the knowledge and experience (stories) of your community before planning science learning;
- Using community knowledge to inform program development; and
- Using interdisciplinary exhibits and art to help draw non-scientists into conversation and science learning, especially if the exhibits and artwork reflect community experience or include community contributions.

“You are invited to come to listen or to get up and tell about how the river impacts you.”
— Nurture Nature Center Science Director

“This program is for people like me.”
— Forum Participant
Interdisciplinary exhibits and art can help draw the community into the discussion.

Use visuals that reflect an understanding of the common areas of concern and/or interest to maximize discussions among community members, scientists and non-scientists. Below, an illustration of a common floodplain scene allows for neutral, non-personal community discussions about the challenges associated with floodplain properties.

Add to your array of forum tools with visuals such as photographs, diagrams and illustrations based on local issues that can be used to demonstrate risk topics that concern a variety of related issues. Use imagery, storytelling and other creative means to maximize public engagement, draw out items for discussion and to help the viewer connect with their emotions involved in a topic.

“IT used to be farmland here. Now there are many trees. The water is better, I think.” — Forum Attendee
Make an effort to promote and recruit. Be inclusive.

Reach the public through personal community connections and neighbor-based outreach. Use a combination of talking person-to-person, personal emails, hand delivered flyers, phone calls and social media outlets. Post information in libraries, coffee shops, community centers, and churches.

Offer a variety of programs and settings.

Hold events in familiar community settings that people are already familiar with (fire halls, churches, community centers) or make your own meeting place welcoming.

Try different formats for the same topic (art exhibits, lectures, films, potlucks, community discussions, family events) to attract a wide array of people with different needs and/or interests.

Know your audience and develop programming accordingly:

- Community-wide forums reach the general public and address risks faced by the whole community. Information and discussion continues at home and within communities.
- Audience-specific forums reach groups that 1) regularly interface with the public (example: teachers) and 2) whose work is affected by the local risk issue (examples: firefighters and emergency managers). Engaging these leaders in learning helps information reach a wider range of people because they pass information through their work and existing community networks.
Make events open to the public, inclusive and free, if possible.

Science learning through dialogue and interaction is active and involves participants in the learning process. New ideas are put forth not only by experts in the room, but also by fellow community members. This sharing of ideas can help transform thinking on a topic both for community members and experts. An open structure requires flexibility on the part of the facilitator. A balance between planning and flexibility is important.

Having snacks at the table helps to set up a welcoming and comfortable environment for attendees.

“I want to learn how we should act when there’s a flood, and how we can help our community.”
— Forum Attendee
Who is the trusted source for your information?

Where do you host your meetings?

Can you co-brand the meeting with trusted sources of information (fire departments, local EM offices, local watershed groups?)
Use friendly language

Take a strengths-based approach in your communication

Help translate program names and acronyms into meaningful terms

Make room for the language of the community in your dialogues
What are other communities in our state doing? How many much are neighboring communities saving through CRS?

What is being done nationally for dam and levee safety? How does our community fit into that picture? Are we doing better, or worse?

Are neighboring communities or other locations adding more freeboard to ordinances, or regulating to .2% line?
Provide ideas for building community resiliency in the face of environmental risks and natural disasters.

- **Provide possible solutions** to an environmental risk to give the community a sense of hope for the future and a vision to work toward.

- People have a natural inclination to rebuild after disaster. **Use their human desire to seek solutions as a platform for science learning** – educate people about possible resolutions that could lead to stronger, more resilient communities.

  "What we as a community need to do during a catastrophe—come together to help one another clean up and help residents directly involved get back on their feet and start fresh and new."

  — A 28-year old female firefighter from Lower Mt. Bethel

---

**Sample Forum Question:**

If we can expect wetter conditions in the future and therefore more flooding, how do you think local communities should prepare?

Please rank the following from 1 (lowest priority) to 5 (highest priority):

- Build infrastructure (sewer, water, etc.) that can handle increased storm water
- Develop better flood warning and preparedness systems
- Restrict building in the floodplain
- Better protect existing housing in the floodplain
- Other

Comments: __________________
_______________________
_______________________

---

**Floods happen. Lessen the loss.**

Sign up for alerts. Have a plan. Evacuate when told.

- Communicate with family and friends.
- Know your river’s flood stage.
- Prepare a family go kit.
- Designate a meeting place.
- Sign up for warnings and alerts.
- Stay clear of floodwaters.

[www.focusonfloods.org](http://www.focusonfloods.org)

A project of the Nature Future Foundation in cooperation with the National Weather Service.
Ask people to create a joint response to risk to be delivered to someone who can do something about the risk.

When program participants know that their time and opinions are valued, it makes the experience meaningful.

- **Talk to decision makers before the event.** Base what you ask of participants, in part, on what information decision makers need to know.

- **While promoting the event,** let potential participants know **how their voice will be heard.** People like to know that their input will be communicated to others who might be able to do something about the issue at hand.

- **During the event,** remind participants that **their opinions matter** and tell them how you plan to share their feedback with decision makers.

- **After the event,** give feedback to decision makers and distribute a summary of the event through public channels of communication.

---

**“Add your voice to the discussion. Be heard by local decision makers.”**

— Nurture Nature Center Science Director

---

**Focus on Floods: The Lehigh Valley Community Response to Flooding**

Hear what Lehigh Valley communities had to say about life along the river and local flooding. Add your voice to the discussion. Be heard by local decision makers.

**REGISTRATION NOW OPEN**

**September 23, 2010 - Afternoon and Evening Events**

12:00 - 2:45pm The Gold Room at the Grand Eastonian Suites Hotel, 140 Northampton Street, Easton, PA

Funding: Food Stories and Photos Exhibit  
- Keynote Speaker Marshall Foushee  
- As well as a Summary of Focus Project Results  
- A Share Flood Stories and Questions and Discussion Period  
- Guest Scientists fund to answer questions: David Broner, PhD and Dust Johnson, PhD
The crowd is here. Now what do we do?

1. Welcome - setting the stage

2. Presentation: Who is the speaker? What is the education topic? What is the deliberation? Who are the findings going to?

3. Series of questions with time for quiet reflection, deliberation and report-out

4. Final report dissemination: Who gets it?
Purpose of Forum

• Let’s learn about how dam safety is affecting our community
• Let’s talk about strategies for improving dam safety
• Let’s identify our flood risk zones
• Let’s learn about floodplain management strategies that can make our community safer
• Let’s prioritize action steps for our Community Rating System program/emergency action plan
Discussion vs. Debate

• Pursue understanding, rather than agreement
• May have to agree to disagree
• When answering questions:
  • We want your view
  • You don’t need to come to consensus
• Table facilitators will help ensure everyone has a chance to talk, and will report out on findings
Ground Rules for Good Discussion

• Listen to what others have to say
• Give everyone a chance to speak
• Ask questions
• Focus on subject
• Keep on schedule
What is your experience with flooding (why did you come today)?
Write Down Thoughts – 2 Minutes Remaining
Write Down Thoughts – 1 Minutes Remaining
Discussion –
6 Minutes Remaining
Question 2 for Discussion
(6 minutes)

- Of the strategies proposed today, which preparedness/mitigation strategy are you most likely to take?
  a) Develop an emergency evacuation plan
  b) Install flood vents on my property
  c) Sign-up for weather alerts/community notifications
  d) Purchase flood insurance
Write Down Thoughts – 2 Minutes Remaining
Write Down Thoughts – 1 Minutes Remaining
Discussion – 
6 Minutes Remaining
Question 3 for Discussion (6 minutes)

• Which is the most important step our community can take for improving safety during acute flood events?
  a) Adopt Nixel (reverse 911)
  b) Distribute briefings on social media
  c) Use alarm warning system
  d) Establish more evacuation centers
Write Down Thoughts – 2 Minutes Remaining
Write Down Thoughts – 1 Minutes Remaining
Discussion –
6 Minutes Remaining
Question 4 for Discussion
(6 minutes)

• What planning initiative is the most important for our community to take to reduce future flood losses?
  a) Invest in a community warning system
  b) Increase buy-outs of repeatedly flooded properties
  c) Adopt a floodplain ordinance with stricter elevation standards for new construction
  d) Preserve riverfront properties as recreation spaces
Report out

- Hear how groups varied in their answers
- Can tally results as you go, or in the final report
- Thank everyone for their valuable input
- Tell them next steps – where will their feedback go, and when?
Forum Checklist:
Forums address real community interests and needs.

1. Develop idea for forum
   a. Form idea based on people’s local interests and questions about local environmental risk

2. Discuss topic idea with community decision makers
   a. Gauge interests, perceptions

3. Plan forum
   a. Recruit science experts
   b. Develop format
   c. Advertise and create outreach strategy (on the ground approach – person-to-person communication, flyers, door knocking, personal emails, social media, mainstream media, etc.)

4. Promote, promote, promote and follow-up
   a. During promotion, let people know that their feedback during the forum will be shared with decision makers (incentive for attendance)

5. Develop questions for forums based on community/decision-maker feedback

FROM RISK TO RESILIENCY:

Rachel Hogan Carr
Nurture Nature Center
rhogan@nurturenature.org
610-253-4432 x 101