



## FROM RISK TO RESILIENCY:



**Better Communities  
Through Science Learning  
About Local Environmental Risks**



## ▶ About Nurture Nature Center

The Nurture Nature Center (NNC) is a science-based organization that combines science, art, and community dialogue to get people talking and thinking critically about environmental issues in their communities. NNC has grown and developed in response to the needs of the community and was designed by and for community participation.

March 2013

## Why you should read this book:

### Do you want to:

Engage a broad cross-section of your community in science learning to help them make informed decisions?

Help your community become more resilient?

### If so, read on:

This guide describes an overall approach that Nurture Nature Center (NNC) takes in preparing public programming that focuses on community dialogue. This approach draws on principles of appreciative inquiry, public hazards education, deliberative democracy and public engagement in science. NNC has primarily used the discussion forum model in its work, and many of the examples shown throughout the guide are drawn from that format. Tips for putting together your own forum are available at the end of the guide, but the principles and ideas illustrated here could be used in an array of programming that involves your community and a topic that's personal to community members.

The premise of this guide is simply to start with the needs of your community when thinking about science learning. NNC uses environmental risk topics (flooding, drought, dam removal, air and water quality concerns, etc.) that the local community is already concerned about to engage them in science learning. These issues present an opportunity for science learning that promotes community resiliency because people are interested in learning more about environmental risks that affect their homes, businesses or neighborhoods.

Communities want to understand the science behind an issue, not for the sake of science itself, but because the issue affects them personally. **Importantly, this approach reaches people who don't see themselves or their families as science learners.** Providing information about topics that are already important to people elevates the level of service provided by informal science learning institutions. By using environmental risk topics as a segue to science learning, we build on existing community interest and connections and build common understanding between the general public and scientists.

<sup>1</sup>Pfefferbaum, B., Reissman, D., Pfefferbaum, R. & Gurwitsch, R. (2005). Building resilience to mass trauma events. In L. Doll, S. Bonzo, J. Mercy, & D. Sleet (Eds.), *Handbook on injury and violence preventions interventions*. New York: Kluwer Academic Publishers.

### Community Resiliency

is the ability of community members to take meaningful, deliberate, collective actions to remedy the impact of a problem (to interpret the environment, intervene, and move on).<sup>1</sup>

### Environmental Risk:

A threat to the environment that poses a real or perceived risk to the people who live there.



## 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

THE NURTURE NATURE CENTER  
518 Northampton St.  
Easton, PA 18042

Join us for a Brown Bag Lunch Presentation -

### 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, Missouri, 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 Lura 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.

Join us at **The Nurture Nature Center**  
518 NORTHAMPTON STREET • EASTON, PA • 610-253-4432

SPECIAL PRESENTATION AND OPEN HOUSE



Sponsored by the PA Department of Conservation and Natural Resources to honor the Delaware River as the PA "River of the Year." The first of a two-part speaker series held at the Nurture Nature Center.

## What's Up With the Weather?

A look back at the 2011 hurricane season, and a look forward to Winter 2012

Using Science on a Sphere visualizations and National Weather Service data, WS Meteorologist Gary Szatkowski will review the eventful 2011 hurricane season, and describe the meteorological conditions that created the two wettest months in record in the region. Given that recent history, what can we expect for Winter 2012?

Thursday, November 17, 2011 - 7:00 p.m.





# How to identify local environmental risk topics:

- ▶ Watch the local newspapers, *talk with community members*, and ask local environmental organizations.
- ▶ Local risk issues could be immediate and urgent (flooding, drought, sinkholes) and/or could be issues that communities struggle with over the long term (exposure to radon, poor air or water quality).
- ▶ Issues that concern communities may not always be covered in the news and they may be outside the realm of the local conservation community.



Talk with community members to understand the history of the issue in the community. Encourage them to share their histories — their stories.

*“The local risk can be urgent or one struggled with over the long term.”*

— Nurture Nature Center Science Director

## Water Weary

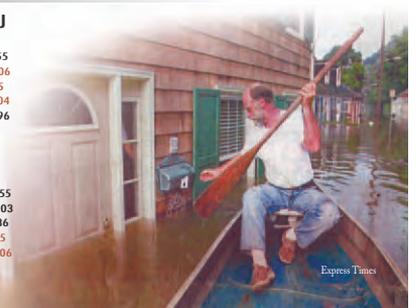
### RECORD FLOOD LEVELS

*“It’s becoming a way of life – and this is no way to live.”*

*Express Times, 2006*

#### DELAWARE RIVER AT:

<b>Easton, PA</b> <b>Floods at 22 feet</b> (1) 43.70 feet on 8-19-1955 (2) 38.10 feet on 10-10-1903 (3) 37.20 feet on 4-4-2005 (4) 37.09 feet on 6-28-2006 (5) 33.45 feet on 9-19-2004	<b>Belvidere, NJ</b> <b>Floods at 22 feet</b> (1) 30.21 feet on 8-19-1955 (2) 28.60 feet on 10-10-1903 (3) 27.24 feet on 4-4-2005 (4) 27.16 feet on 6-29-2006 (5) 25.00 feet on 3-19-1936	<b>Tocks Island, NJ</b> <b>Floods at 21 feet</b> (1) 37.40 feet on 8-20-1955 (2) 33.87 feet on 6-28-2006 (3) 33.24 feet on 4-3-2005 (4) 30.34 feet on 9-19-2004 (5) 28.40 feet on 1-20-1996
<b>Riegelsville, PA</b> <b>Floods at 22 feet</b> (1) 38.85 feet on 8-20-1955 (2) 35.90 feet on 10-10-1903 (3) 34.07 feet on 4-3-2005 (4) 33.62 feet on 6-29-2006 (5) 32.45 feet on 3-19-1936	<b>Frenchtown, NJ</b> <b>Floods at 16 feet</b> (1) 27.79 feet on 8-20-1955 (2) 24.40 feet on 10-10-1903 (3) 23.60 feet on 4-4-2005 (4) 23.40 feet on 6-29-2006 (5) 21.93 feet on 3-19-1936	<b>Stockton, NJ</b> <b>Floods at 18 feet</b> (1) 30.44 feet on 8-20-1955 (2) 27.74 feet on 10-11-1903 (3) 27.00 feet on 3-19-1936 (4) 26.79 feet on 4-4-2005 (5) 25.39 feet on 6-29-2006



# 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.



People are encouraged to share their "voice" through ways of communicating that are comfortable.



*"This program is for people like me."*

— Forum Participant



*"You are invited to come to listen or to get up and tell about how the river impacts you."*

— Nurture Nature Center Science Director

nurture nature center

# river stories

thursday, december 1  
7:00 - 10:00 pm

Todd Stone, keynote speaker

To celebrate the Delaware's designation as Pennsylvania's 2011 River of the Year, the Nurture Nature Center and Delaware Canal State Park invite you to come to an evening of River Stories. Our keynote speaker, Todd Stone, is president of Gallop Run Watershed and an accomplished river artist and speaker. You are invited to come just to listen or to get up and tell about how the Delaware River impacts you. No previous experience with storytelling is necessary, just a willingness to share your experiences. If you are willing to have your story recorded, it will be preserved in the Nurture Nature Center archives.

In addition to keynote Todd Stone, we've confirmed that author Mary Shuler, who wrote *Devastation on the Delaware: Stories and Images of the Deadly Flood of 1955*, will be sharing a brief story about how writing that book affected her life. And, Stephen Flowers, owner of *Suddenly Somerset* the Salton in Easton and a riverside resident, will talk about his experience with the regional floods profoundly changed his life, and how he learned to love the river again.

If you know you'd like to share your story, please email [rhagan@nurturenature.org](mailto:rhagan@nurturenature.org). Or, just come and listen.

Photo: Mark Lumbert / AP  
Artist: Todd Stone

Special evening  
Author: Mary Shuler

DELAWARE RIVER  
RIVER OF LIFE

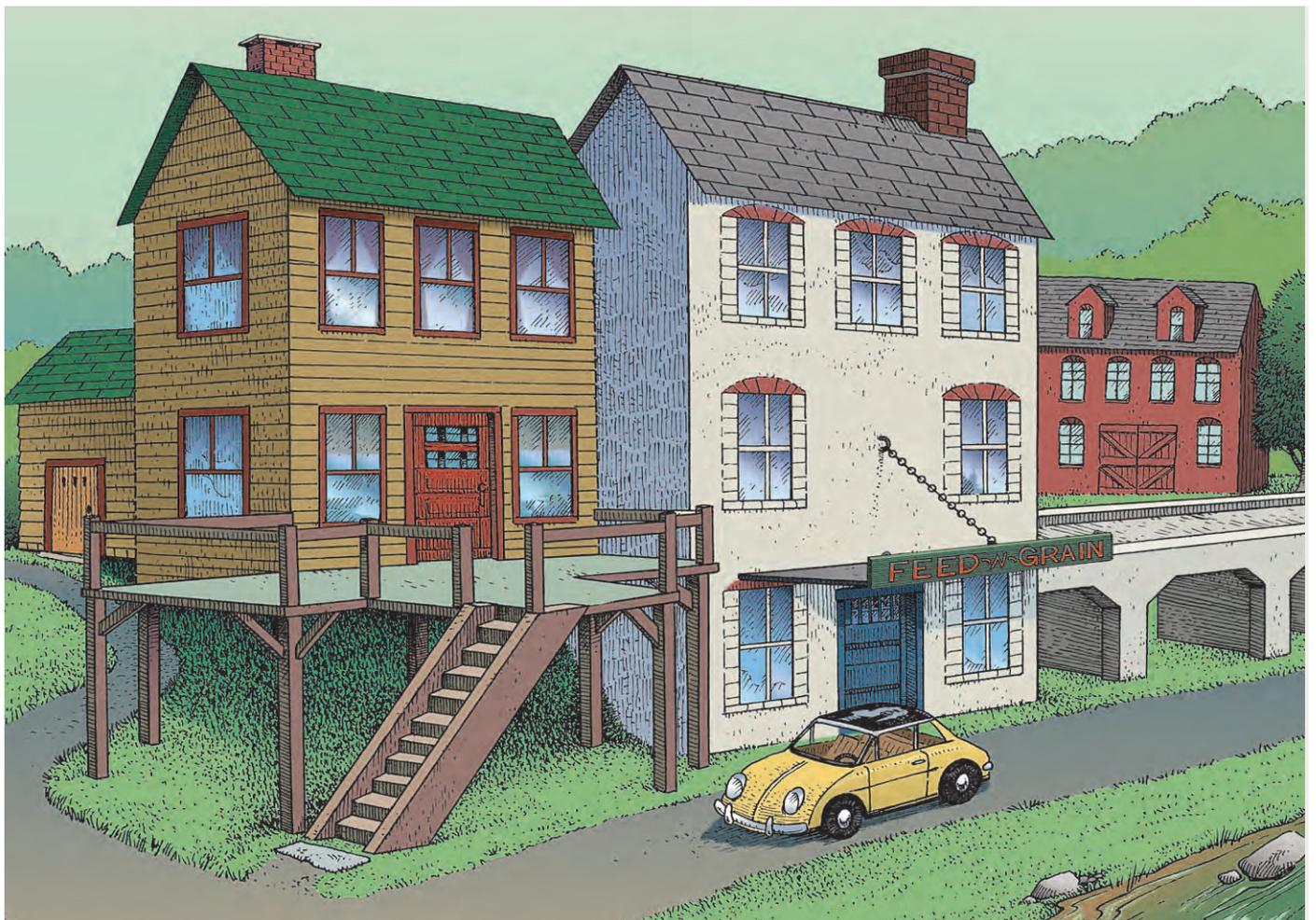
THE NURTURE NATURE CENTER

## 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.



Above: Community nature journaling workshop.  
Below: Illustration by Tom Maxfield.



## Use exhibits and displays to enhance forum discussion.



Illustration: Tom Maxfield

**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

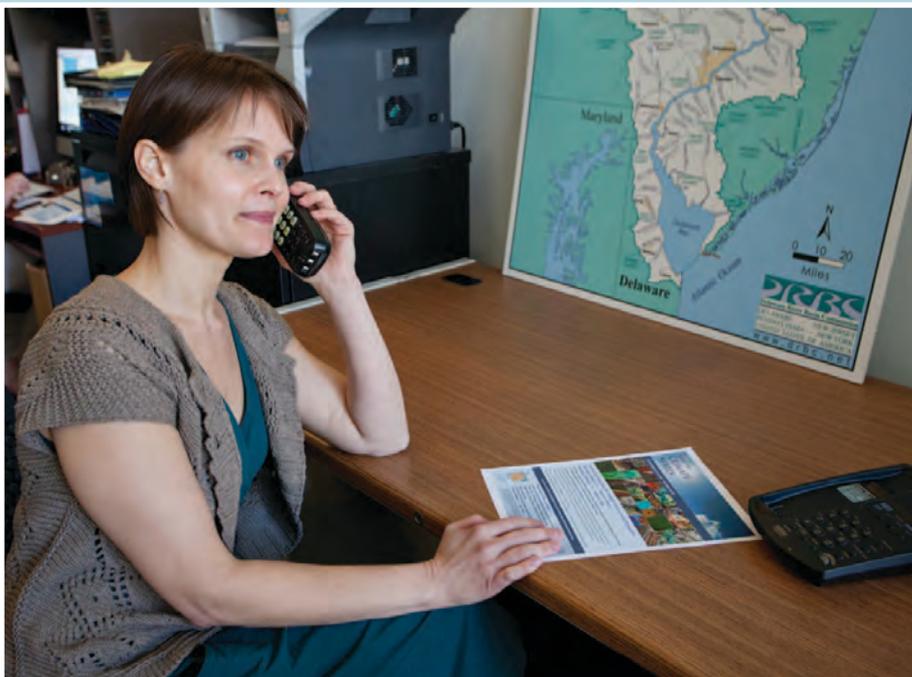
## Make an effort to promote and recruit. Be inclusive.

**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.



*"Become part of the conversation."*

Encourage community members to help you promote your program in their neighborhood. Neighbors reaching out to neighbors can be an effective marketing tool and will help you find your audience.



# 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.

**For professionals involved in Emergency Preparedness**

## EXTREME WEATHER: MOVING FROM RISK TO READINESS

(lessons learned from Irene, Lee and more.)

March 15, 7:00 - 9:00pm  
Nurture Nature Center  
518 Northampton Street, Easton PA

Scientists say we can expect more extreme weather events.  
Is your community **READY?**  
Join us for a program and discussion.

August and September 2011 were the wettest months in Lehigh Valley history.

**PROGRAM WILL FEATURE:**

- Rising Waters Science on a Sphere® Presentation (developed in partnership with the National Weather Service)
- Hear from Northampton Co. EM Services Director
- New technology for Emergency Managers (forecasting tools, inundation mapping, communication aids)
- Refreshments will be provided.

Please RSVP by March 8th.  
Contact Kate Brandes at 610-253-4432 or kbrandes@nurturenature.org

**THE NURTURE NATURE CENTER**

Nurture Nature Center began to address the repetitive flooding in the Delaware River Basin and has grown into a center for community education and discussion about flooding and water resource issues.

518 Northampton Street, Easton PA 18042 610-253-4432 www.nurturenaturecenter.org

## THE NURTURE NATURE CENTER

### TEACHERS' FORUM Act 48 Continuing Education Workshop

#### RISING WATERS: Weather and Climate - a global and local view

Date: April 16, 2012  
Time: 8:00AM - 4:00PM  
Location: Nurture Nature Center at 518 Northampton St., Easton, PA  
Capacity: 30 Teachers (most appropriate for middle & high school teachers)  
Registration Deadline: April 9, 2012  
Lunch will be provided!

A total of six (6) Act 48 Professional Development Activity Hours will be granted to PA and NJ certified teachers upon completion of the course.

## RISING WATERS: Weather and Climate - a local and global view

The workshop will include instruction, discussion, and activities conducted by:  
Nurture Nature Center (NNC) • Delaware Canal State Park • Northampton County Conservation District (NCCD)

The day will include 1) a presentation on Nurture Nature Center's premiere exhibit, Science on a Sphere®; 2) a demonstration about how art can be used to generate interest in climate and other science issues; 3) a facilitated discussion about teaching climate in the classroom; and 4) a hands-on workshop led by the Delaware Canal State Park on Land Use and Watersheds. The goal of the workshop is to introduce educators to resources available at Nurture Nature Center and incorporate teaching strategies that integrate science, art, and dialogue to inspire critical thinking about science. Each educator will be provided with various resources and supplies that can be used in the classroom.

The workshop will provide educators with curriculum based material. The content of this workshop meets the Pennsylvania Academic Standards for Science & Technology and Environment & Ecology for grades 4 through 12, including such topics as unified themes, earth sciences, watersheds, environmental health, and humans and the environment.

Workshop topics:  
Weather  
Precipitation  
Climate  
Flooding  
Land Use  
Watersheds

Call or email NNC with questions (610) 253-4432 kbrandes@nurturenature.org  
Registration and a \$15 fee are required for the workshop. Please complete the attached form to register.

Financial support for this project is provided under award NA10SEC0080020 from the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration (NOAA) or the U.S. Department of Commerce.

Engaging specific audiences such as teachers and community leaders like emergency managers or municipal officials in the learning process allows for a wide reach through 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



# Provide programs for all members of a community, regardless of where people stand on an issue.

**Offer neutral programming.** Do not advocate for one side or the other on an issue. By presenting the science and avoiding opinions, your programming will be inclusive, rather than exclusive.



Natural warming cycle? Why don't people just get that the planet is warming? IT'S ALL POLITICAL. OZONE HOLE?

## FOUR-PART CLIMATE SERIES:

Weren't scientists warning us in the 1970s that an ice age was coming? Aren't there bigger things to worry about? If the planet is warming, then why is it so cold? Why do so many scientists disagree? What can I do anyway?

### LECTURES AND QUESTION SESSIONS

Dr. Sahagian, a climate expert from Lehigh University, will present the latest thinking and take any and all questions.

**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 its all about
- The "climate controversy" - fact and fiction



Dr. Sahagian

## Present science information in ways that are useful to the community:

- ▶ Provide facts that people care about and that apply to their lives.
- ▶ Offer practical information.
- ▶ Facilitate the exchange of facts and knowledge between the community and scientists.

Knowing your river's flood stage is the first step in flood preparedness.

## What's your number?

FLOOD STAGE: \_\_\_\_\_ FT.

RIVER AND GAGE: \_\_\_\_\_

To find the flood stage of your nearest river or stream, visit the National Weather Service at: <http://water.weather.gov/ahps/>

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

A simple refrigerator magnet that encourages people to look up and post the flood stage at their closest stream gauge.



## Communicate science using common language and common interest.

Many people don't understand science as a scientist does. Translate scientific information into language and units that people can relate to in their lives. Use what the community knows as a point of entry to teach science. For example, if a person knows that the river reaches his first story window when the river is at a certain height, use this point to teach about flood risk.

- ▶ Work with scientific experts so that the information they provide is unbiased, relevant, and easily understood by a diverse audience.
- ▶ Scientists should serve as one of many expert voices in conversations about science and factors that mitigate risks.

### Discussion vs. Debate

- Pursue understanding, rather than agreement
- Have trained table facilitators that help moderate discussion.
- May have to agree to disagree
- Tell participants that:
  - You want their view
  - They don't need to come to consensus

### LANGUAGE BARRIERS

#### The words we use matter!

Scientist says:	Public hears:	Better choice:
Theory	Hunch, speculation	Scientific understanding
Positive Feedback	Good response, Praise	Vicious cycle
Uncertainty	Ignorance	Range
Values	Ethics, monetary worth	Quantities
Manipulation	Illicit tampering	Data processing
Scheme	Devious plot	Systematic procedure
Anomaly	Abnormal event	Different from average

After Somerville and Hassol, *Physics Today*, October, 2011

# Provide context to the local issue by looking at it from a global perspective.

If local issues are given a global context, community members realize that they are not facing the issue alone. This context increases community connection and systems understanding.

## Global to Local Food Issues

The forum had 80 participants from 12 municipalities and 98% agreed or strongly agreed that they are better informed about issues related to fresh food grown in the Lehigh Valley.

**THE NURTURE NATURE CENTER**

*Lehigh Valley Forum:*  
**LOCAL FOOD ECONOMY**

The Lehigh Valley is projected to continue to grow another 145,000 people by 2030 and yet the amount of open space and agricultural lands has decreased by 22% since 1975. Is there enough local fresh food to support our growing population?

**JOIN US, THURSDAY, JULY 26TH**  
6:30 - 9:00 PM to explore and exchange views on this timely topic.

**FREE!**

6:30-7:00 **ART RECEPTION**  
Community Art Exhibit, *Food for Thought*

7:00- 9:00 **FILM, SPEAKER & DISCUSSION**  
Premiere of New Movie for Science on a Sphere Exhibit: *Two Billion More Coming to Dinner*

**Featured Speaker:** Lynn Prior is the Director of the Greater Lehigh Valley Chapter of Buy Fresh Buy Local. Prior will be discussing the Lehigh Valley Fresh Food Access Plan (which is part of a Lehigh Valley Sustainability Plan underway by Envision Lehigh Valley (<http://www.envisionlehighvalley.com/>)).

**Discussion:** Give your views on the current state of fresh food in the Lehigh Valley and strategies to improve this economy in the future. Your feedback will be incorporated into the Lehigh Valley Fresh Food Access Plan.

**Free locally-grown refreshments, Veggies, beer tasting and more!**

Registration is required, call Kate Brandes at 610-253-4432  
Nurture Nature Center • 518 Northampton Street • Easton, PA 18042 • [www.nurturenaturecenter.org](http://www.nurturenaturecenter.org)



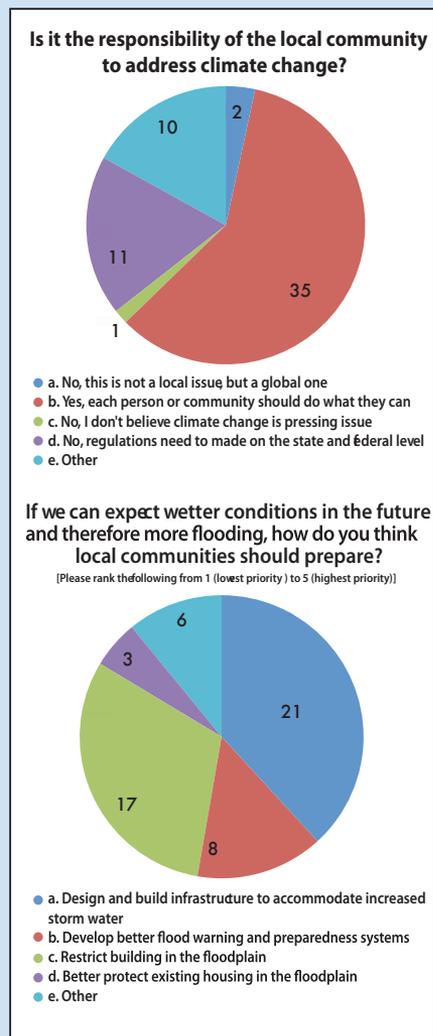
What is the most important factor to you when choosing Fresh fruit and vegetables?

<b>PRICE</b> ●●●●●	<b>CONVENIENCE</b> ●●●●●	<b>TASTE</b> ●●●●●●●●●●	<b>FRESHNESS</b> ●●●●●●●●●●●●●●
<b>LOCAL-GROWN</b> ●●●●●	<b>SUPPORT-Local Farms</b> ●●●●●●●●●●	<b>ENVIRONMENTAL CONCERNS</b> ●●●●●●●●●●	<b>OTHER</b> ●●●●●

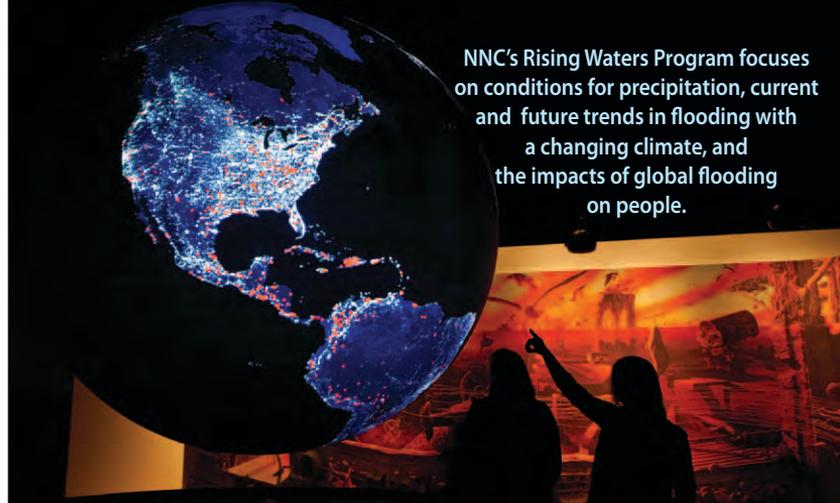
During this dialogue event, local food growers were invited to supply refreshments and attendees were invited beforehand to participate in a photo exhibit, "Food for Thought," which captured their ideas of fresh food.

## Climate Change Globally and Locally – A Climate Series

The data below includes feedback from 80 participants in an NNC dialogue event.



***"I am not alone."*** — Rising Waters Audience Member



NNC's Rising Waters Program focuses on conditions for precipitation, current and future trends in flooding with a changing climate, and the impacts of global flooding on people.

To give the local issue of flooding a global context, NNC developed a program called "Rising Waters" for NOAA's Science on a Sphere® exhibit (above). The program shows repeated flooding on a global scale.

VIDEO

*"It's very dangerous to live near a river; you don't know when the river can overflow. I want to know what I should do in case of a flood, where to go or who to call to ask for help."* — A 39-year old female who has lived in Easton three years

# 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 \_\_\_\_\_

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## 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 alerts. Plan an alternate route home. Listen for warnings and alerts. Stay clear of floodwaters.  
[www.focusonfloods.org](http://www.focusonfloods.org)

A project of the Nurture Nature 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



Join us!



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

Featuring: - **Flood Stories and Photos Exhibit**

- Light Lunch

- **Keynote Speaker Marshall Frech**

- An in-depth Summary of Forum Project Results

- A Short Flood Forum and Question and Discussion Period

- Guest Scientists on hand to answer questions: David Brandes, PhD and Dork Sabaogian, PhD



Your opportunity to speak with  
community decision-makers!

# 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

- a. Questions (and potential answers) are reviewed by staff, test audience, science experts, local experts
  - i. Multiple choice with optional write-in
- b. Reformulate questions as needed

## 6. Train table facilitators

- a. Keep discussion on topic and equitable
- b. No personal views expressed
- c. No questions answered (to maintain objectivity)



**7. Work with project evaluator to come up with meaningful criteria**

- a. Engagement
- b. Knowledge gains
- c. Intention to act



**8. Forum set-up**

- a. Round tables (5 to 6 people per table)
- b. Each table has a table facilitator
- c. Two to three room facilitators



**9. Hold event — presentation and/or science lecture and facilitated discussion with questions**

**10. Table facilitators report out to the whole room by summarizing main points of table discussion**

**11. Hold brief open floor discussion**

**12. Following forum**

- a. Develop decision-maker report based on answers to questions
- b. Distribute report to forum attendees, decision makers, and make available on website
- c. Use community discussion and evaluation results to inform next forum



# THE NURTURE NATURE CENTER

In partnership with:



National Weather Service  
Middle Atlantic  
River Forecast Center



LEHIGH  
UNIVERSITY



DA VINCI  
SCIENCE  
CENTER™



Prepared by the Nurture Nature Center under award NA10SEC0080020 from the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration (NOAA) or the U.S. Department of Commerce.