

# **Before and After a Crisis: Extending Readiness and Recovery for Families**

## **Alert, Evacuate and Shelter: Mapping Our Way to Safety**

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# Alert, Evacuate, and Shelter

Nearly 35 million people—12 percent of the nation's population—live in coastal communities from North Carolina to Texas that would be most threatened by an Atlantic hurricane, according to U.S. Census Bureau figures for July 1, 2006. In 1950, the equivalent figures were 10.2 million and 7 percent.

[www.prb.org/Articles/2007/PopWireJune2007.aspx](http://www.prb.org/Articles/2007/PopWireJune2007.aspx)



# Goals of AES

- **Using geospatial technology**
- **Developing partnerships**
- **Building teams nationwide**
- **Creating networks**
- **Keeping citizens safe**

# Training Sites

- **Virginia State University, Petersburg, VA**  
45 Attendees: 22 youth, 23 adults
- **University of Maryland, College Park, MD**  
32 Attendees: 13 youth, 19 adults
- **Brookhaven College, Farmers Branch, TX**  
27 Attendees: 12 youth, 15 adults
- **4-H Center, Jekyll Island, GA**  
31 Attendees: 14 youth, 17 adults
- **Louisiana State University, Baton Rouge, LA**  
39 Attendees: 17 youth, 22 adults

# Trainings

- **History of 4-H – youth leading the way**
- **Youth/Adult Partnerships**
- **Emergency Preparedness concerns**
- **Geospatial Technology**
- **Networking to help our community prepare**
- **Ensuring the safety of our citizens**



# Are We Ready?



- *Is our community ready?*
- *What roles can Extension Play*
- *How does technology fit in?*
- *What roles can 4-H play?*
- *Who should our partners be?*



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My Wonderful World.org

A National Geographic-led campaign



ESRI

# Who are the players?



- Sponsors
- Youth
- Extension Personnel
- Emergency Managers
- GIS Technicians
- First Responders –  
– Police/Fire

# Training Team

- Carol Benesh, Montana State University
- Tom Tate, USDA/CSREES
- Esther Worker, ESRI
- Frank Wideman, University of Missouri
- Nathan Mattox, University of Missouri
- Robi Gray, University of Georgia
- Howard van Dijk, Clemson University
- Debbie Stevens, William Penn University
- Joey Peters, MyStateUSA
- Susan Emmons, University of Nevada, Reno

# Youth/Adult Partnerships

- Youth as Objects
- Youth as Recipients
- Youth as Partners

Youth vs. Adult Perspective

The “Tabletop Exercise”

Poster Session

Curriculum

Publications in the works



YOUTH, ADULTS,  
& EMERGENCY  
MANAGERS  
WORK TOGETHER



# Geospatial Technology

- GPS
- GIS Mapping
- Spatial literacy

USING  
GEOSPATIAL  
TECHNOLOGY



# Community Service Ensuring Safety

DHS Hurricane Response Areas: Texas



DHS Hurricane Response Areas: Maryland



TO ENSURE  
THE SAFETY  
OF THEIR  
COMMUNITY



*"Hurricane, tornado, flood, or wildfire, the 4-H Community Readiness Network helps communities and families improve their ability to be prepared during an emergency. By using available technologies, 4-H youth educate community members and leaders about available local resources. By incorporating geospatial knowledge, youth assist in creating and distributing shelter and evacuation maps, needed resources for ensuring the safety and well-being of many."*

*USDA, Washington, D.C.*

# Evaluation

- Immediate Pre-post retrospective survey
  - 84% response rate
- Mid-project telephone survey
  - 50% team response rate
- Follow-up (one year to 18 months) survey
  - 25% response rate

Table 1. Ranking in Score Improvement on Topics Taught in a 5-state Emergency Preparedness Program.	N	Pre-Test	Post-Test*	Improvement in Scores	
Topics Used to Evaluate AES Trainings	Matched Pairs	Mean Scores	Mean Scores	Difference between pre and post	Ranking
How to use ArcView GIS software to create maps	132	1.77	4.12	2.35	1
Basic skills for using ArcView GIS software	135	1.81	4.09	2.28	2
How to link digital photography pictures to maps	133	1.71	3.88	2.17	3
Ability to download GPS coordinates	132	2.21	4.11	1.90	4
Role of a Teen CERT in a community disaster	127	2.13	4.02	1.90	5
How to engage community groups to assist with community preparedness	135	2.47	4.22	1.76	6
Incident Command System (ICS) as a universal language and process for responding to a disaster	127	2.37	4.10	1.73	7
Ability to collect GPS data	138	2.72	4.43	1.71	8
The community benefit of developing a 4-H SET (Science, Engineering, and Technology) club	135	2.70	4.39	1.69	9
Role of a Community Emergency Response Team (CERT) in community disaster	138	2.70	4.36	1.67	10
Rating code: 5 = strongly agree; 1 = strongly disagree	*Differences between pre-test and post-test scores statistically significant at p<.001				

<b>Table 1. Ranking in Score Improvement on Topics Taught in a 5-state Emergency Preparedness Program.</b>	<b>N</b>	<b>Pre-Test</b>	<b>Post-Test*</b>	<b>Improvement in Scores</b>	
<b>Topics Used to Evaluate AES Trainings</b>	<b>Matched Pairs</b>	<b>Mean Scores</b>	<b>Mean Scores</b>	<b>Difference between pre and post</b>	<b>Ranking</b>
I am prepared to help my community address emergency preparedness issues regarding natural and man-made disasters	137	2.65	4.30	1.65	11
Importance of geospatial technology in areas other than 4-H SET (Science, Engineering, and Technology) clubs	133	2.76	4.41	1.65	12
How geographic knowledge can benefit communities	139	3.19	4.67	1.48	13
I feel comfortable sharing emergency management information in my community	140	2.79	4.27	1.48	14
The capabilities of an alert system	140	3.11	4.51	1.40	15
Purpose of emergency preparedness in your community	136	3.39	4.65	1.26	16
The value of youth-adult partnerships	138	3.55	4.71	1.16	17
The importance of an alert system	142	3.71	4.78	1.07	18
Importance of personal and family disaster preparedness	142	3.69	4.70	1.01	19

Rating code: 5 = strongly agree; 1 = strongly disagree <sup>a</sup>Differences between pre-test and post-test scores statistically significant at p<.001

# Mid-Project Telephone Survey

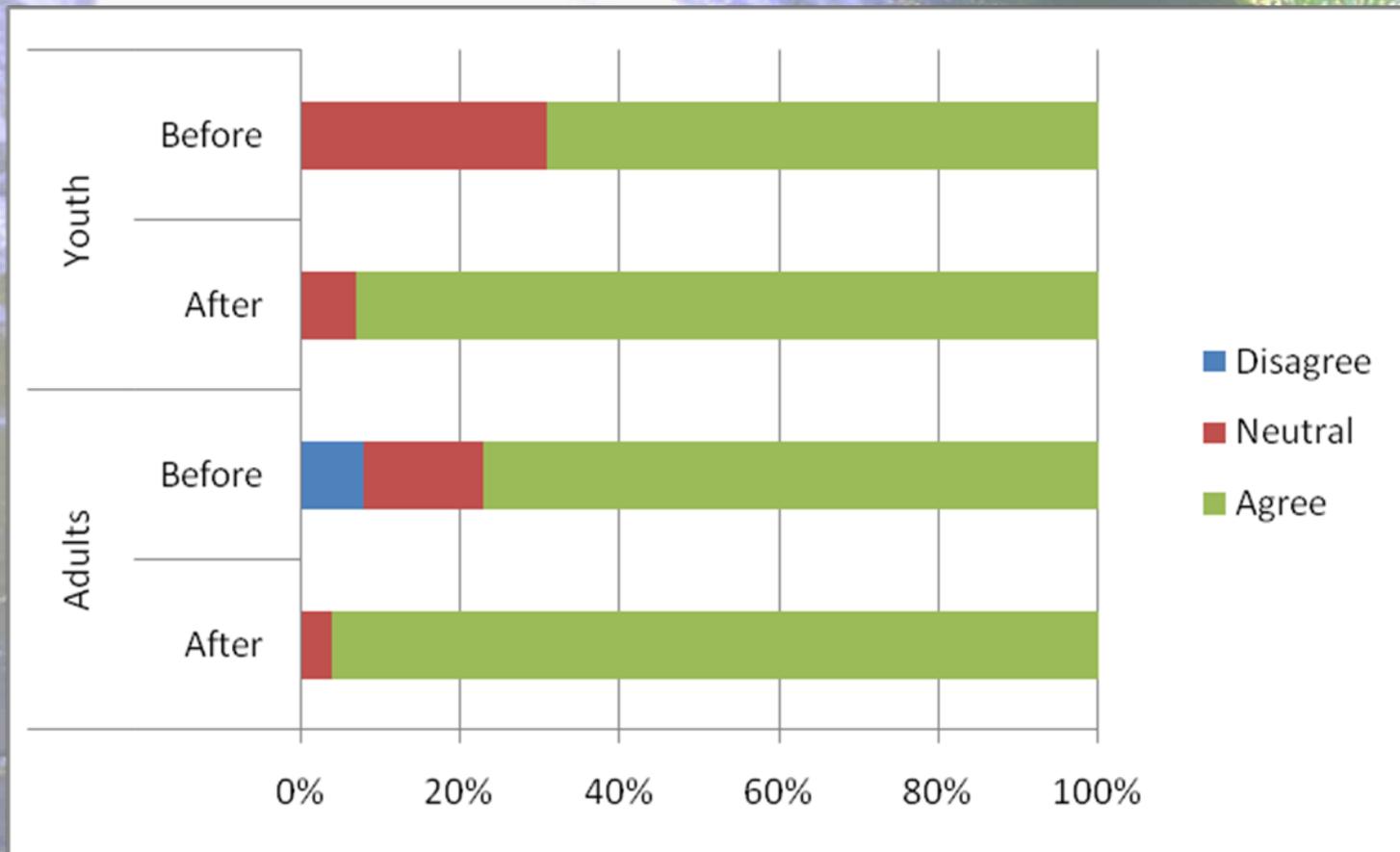
- *Passing out emergency preparedness information to community residents.*
- *Holding GIS Days to explain the importance of geospatial technology and to garner support for the project.*
- *Networking with Emergency Management personnel, County agencies, and First Responders*
- *“BRACE is a Hurricane expo where 3,000 people attend. At their planning meetings, information about us was brought up which allowed us to make contact with the county GIS person. We gave him a pamphlet and he took it to his bosses who gave him permission to do whatever is needed to help us. The county commissioner has given full support and he and the EOC chief officer have written letters for grant support.”*
- *“Our son has wanted to do something in wildlife management for the last 6-8 years with the last 3-4 years being focused on higher education in this area. Now he is planning on joining the Navy and going into intelligence or navigation, specifically to work with emergency preparedness.”*

# One year follow-up survey

- Opinion Scale
  - I would recommend this project to others
- Level of Involvement Scale
  - Youth are capable of assisting in emergencies
- Level of Knowledge Scale
  - Geospatial Technology
  - “I am proficient with GIS mapping”

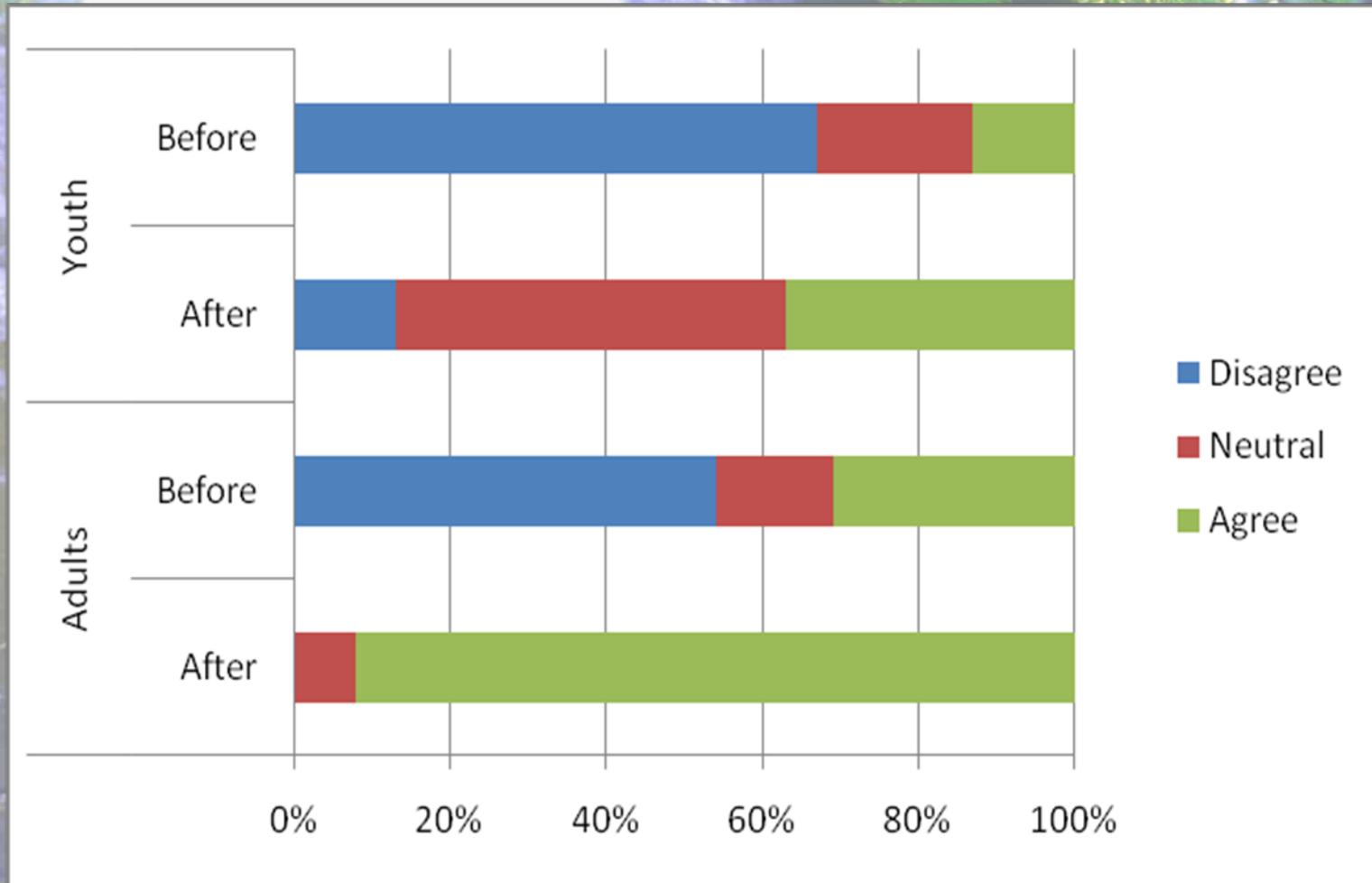
# Additional Findings

**Figure 2: Youth and Adults are Capable of Working Together to Benefit the Community (comparison of answers before and after the program)**



# Additional Findings

**Figure 3: I am Knowledgeable about CERT & Teen CERT (comparison of answers before and after the program)**



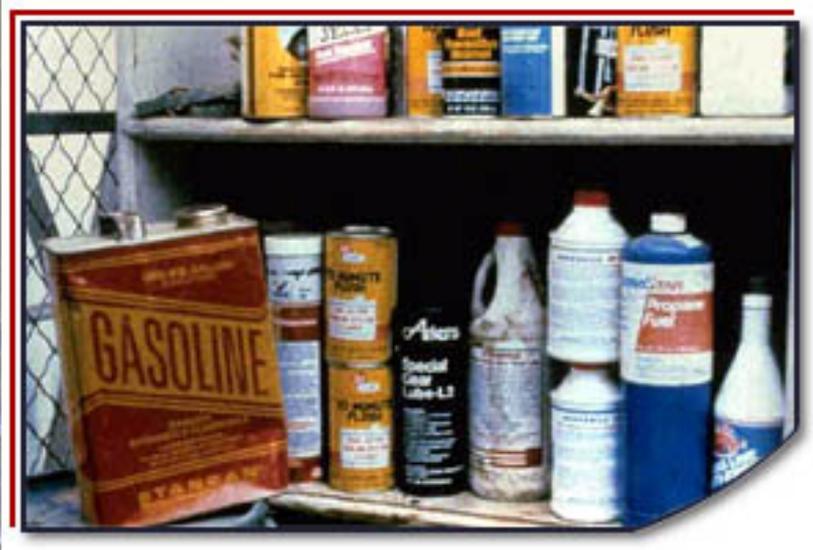
# 4-H Teen CERT Training





# Hazard Management

Familiarization of Utilities  
Using Fire Extinguishers  
Hazardous Materials



# Search and Rescue

Building Size-up  
Hazard Awareness  
Search  
Patient Transport  
Cribbing



# Disaster Medical

Triage

Treatment

Emotional First-aid

Moulage



# Terrorism & Animals

Observation skills  
Dealing with animals



# Teamwork

## Incident Command Organization



## Leadership Communication

# Summary and Recommendations

- Youth adult partnerships to assist communities
- Incorporation of geospatial technology
- Youth recognized as leaders
- Value of youth as important community resources

An aerial photograph of a tropical coastline. A large, bright white lagoon is on the left, surrounded by green vegetation and a dark blue sea. A bright yellow boat is visible in the lower part of the lagoon. The text "Thank You" is overlaid in the center.

**Thank You**

**Pam, Lynette and Marilyn**