

---

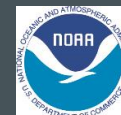
# COMMUNITY RESILIENCE INDICATORS AND METRICS

SABINE BAILEY

NOAA DIGITAL COAST FELLOW

SABINE.BAILEY@TNC.ORG

04.20.23



# BENEFITS TO COMMUNITY-DRIVEN PROJECTS

How can benefits to communities be meaningfully integrated and evaluated as part of nature-based projects?

Why?

Local Ownership and Agency

- Improves the success and longevity of projects

Shared decision-making and co-collaboration

- Builds trust, relationships, and networks
- Strengthens adaptive capacity

# DEFINITIONS

## Community Resilience

The ability to prepare for, respond to, and grow from adversity to move toward a self-defined and more vibrant community

## Indicators

Quantitative or qualitative factors that provide a means to measure changes

Example: Car ownership

## Metrics

A means of assessing the size, amount, degree, or quality of something

Example: # of cars owned

# EXAMPLES OF COMMON INDICATORS

## Vulnerability

Population without HS education

Population with limited English ability

Households without vehicle

Unemployed labor force

Income inequality

## Vibrancy

Education attainment

English language competency

Transportation access

Employment rate

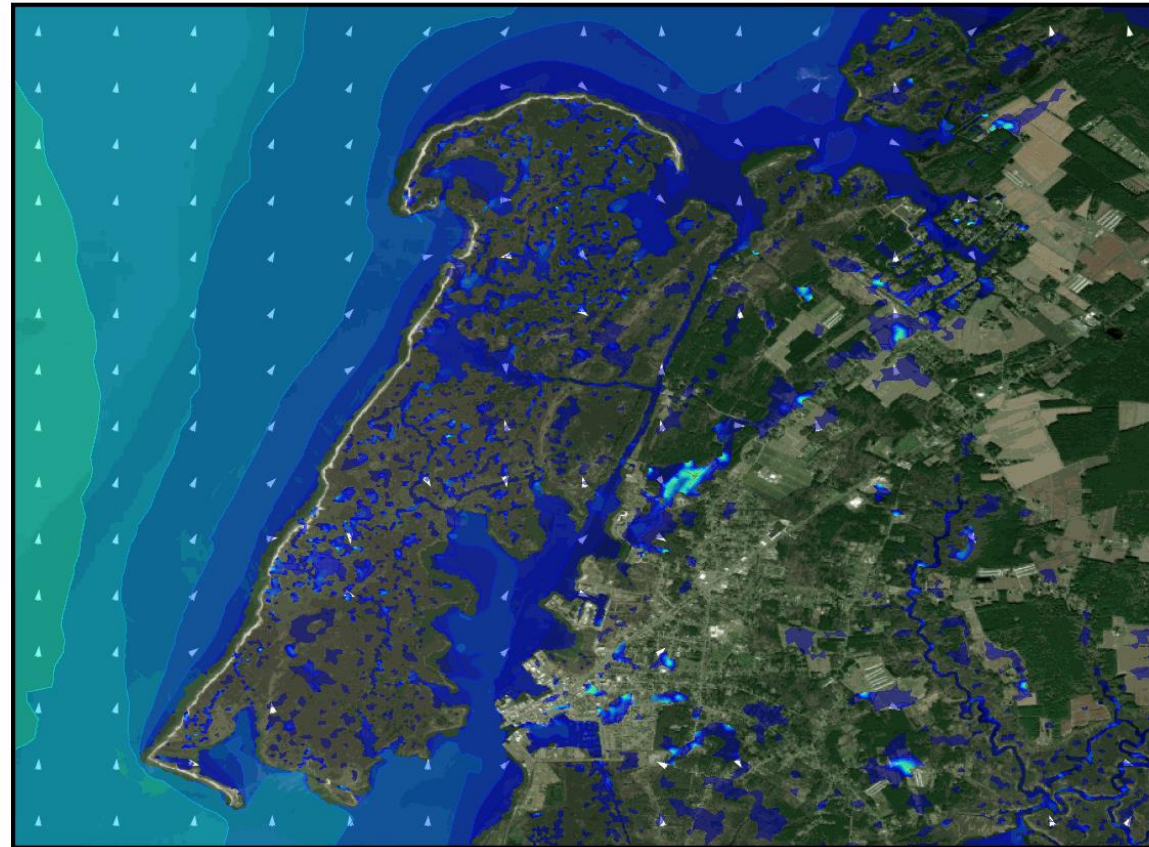
Gender income equality

# CRISFIELD COMMUNITY RESILIENCE GOALS

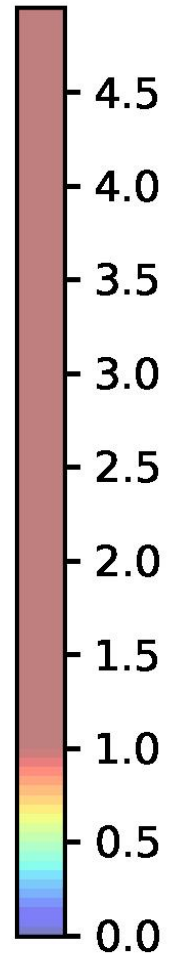
Ecosystem Services	<b>Recreational opportunities</b>	Cultural and eco-tourism, green space creation
Climate Resilient Infrastructure	<b>Resilient infrastructure</b>	Flood safe physical infrastructure, reliable access to roadways and internet, improved civic capacity to uplift community
	<b>Flood safe and affordable housing</b>	More affordable housing (especially for low-income retirees), diversity of housing options (accessible options)
Adaptive Community Capacity	<b>Enhanced community spaces</b>	Protect existing community spaces, create new ones
Community Vibrancy	<b>Job creation and training</b>	New industries, revitalize existing industries, employment opportunities, youth
	<b>Youth development</b>	Youth pathways and economic opportunities to invest and stay in Crisfield, recreational opportunities

# CRISFIELD FLOOD ADAPTATION PROJECT

- Community-identified marsh restoration to reduce storm surge
- Ecosystem services
- Climate resilient infrastructure
- Adaptive community capacity
- Community vibrancy

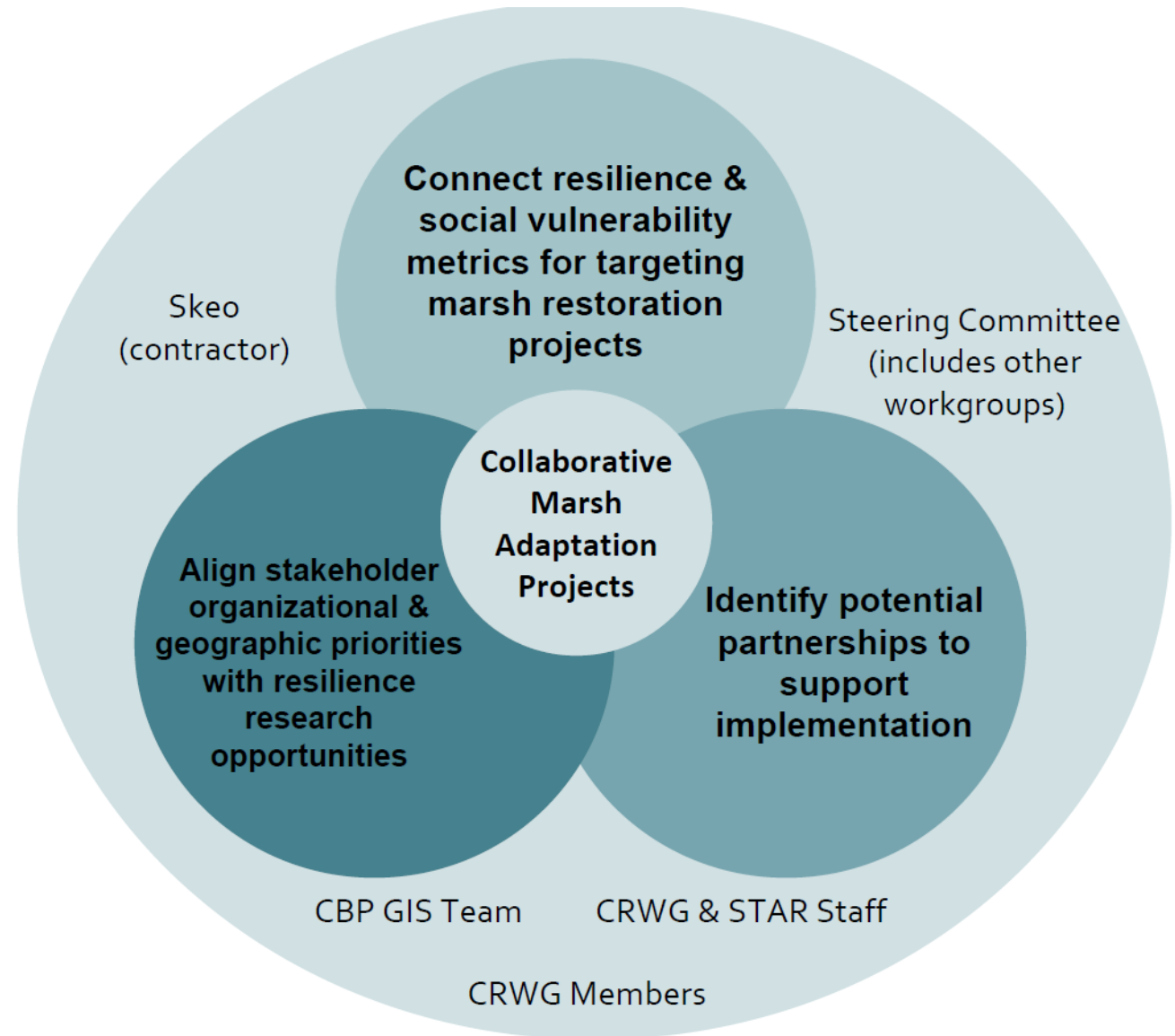


Wave Height (feet) - Arrows indicate wave direction



# GIT-FUNDED PROJECT: PARTNERSHIP- BUILDING FOR COLLABORATIVE MARSH ADAPTATION

- Workshop to identify projects and identify partners for 2 focus areas in MD & VA



# CATEGORIES OF INDICATORS

Ecosystem Services	Climate Resilient Infrastructure	Adaptive Community Capacity	Community Vibrancy
Nature-based benefits to the community	Design and ability of infrastructure to withstand and recover from climate change impacts	Ability for the community to respond to climate change impacts	Opportunities for the community to flourish



# ECOSYSTEM SERVICES INDICATORS

Natural flood buffers and protection

Water quality improvement

Habitat for commercial fisheries

Blue carbon sequestration

Access to green space, outdoor recreation, and culturally important sites



© Jay Fleming

# ECOSYSTEM SERVICES APPLICATION EXAMPLE

Indicator	Natural flood buffers and protection
Metric(s)	# of people protected from flooding # of buildings protected from flooding
Method	GIS modelling + ground truthing

# CLIMATE RESILIENT INFRASTRUCTURE INDICATORS

Access to necessary goods/services (as defined by the community)

Access to evacuation routes

Exposure of critical infrastructure to storms

Housing and real estate safety and security



© Jay Fleming

# CLIMATE RESILIENT INFRASTRUCTURE APPLICATION EXAMPLE

Indicator	Access to evacuation routes
Metric(s)	Linear feet of road with reduced flooding # people able to access evacuation routes
Method	GIS modelling + ground truthing; survey/interview

# ADAPTIVE COMMUNITY CAPACITY INDICATORS

Education and gained knowledge and skills

Community flood preparedness

Ability for the community to be part of decision-making

Existence and growth of local champions

Access to funding



# ADAPTIVE COMMUNITY CAPACITY APPLICATION EXAMPLE

Indicator	Existence and growth of local champions
Metric(s)	# of community-based organizations Amount of time involved with the community
Method	Records; survey/interview



# COMMUNITY VIBRANCY INDICATORS

Local employment opportunities

Engagement in alternative/improved livelihood programs

Social equity and diversity

Sense of identity and belonging

Community cohesion and support network



© Jay Fleming

# COMMUNITY VIBRANCY APPLICATION EXAMPLE

Indicator	Community cohesion and support network
Metric(s)	# of people attending community meetings # of shared resources Likeliness to connect with neighbors
Method	Records; surveys/interviews



# VARYING TYPES OF METRICS

Indicator	Metrics		
	Process	Outcomes	Impact
Existence and growth of local champions	# of community-based organizations	Amount of time involved with the community	Increased social capital
Access to services/goods (as defined by community)	Linear feet of road with reduced flooding	# people able to access services/goods	Increased resource capital
Education and gained knowledge and skills	# of people attending workshop/training	# people with increased flood literacy	Increased intellectual capital
Ability to be part of the decision-making process	# meeting open to the community	Perceived influence in decision-making process	Increased political capital

# SCALABILITY

Project-based Indicators

Chesapeake Bay Indicators

Natural flood buffers and protection  
Access to necessary goods and services  
Community flood preparedness  
Local employment opportunities

# BAY AND COMMUNITY RESILIENCE

Protecting the Bay's  
unique mosaic of  
culture, nature, and  
communities



---

# THANK YOU

## QUESTIONS?

[sabine.bailey@tnc.org](mailto:sabine.bailey@tnc.org)

