

Who, when, and why of coastal relocation post Hurricane Sandy

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**2016
SOCIAL
COAST
FORUM**

“If we stick to former paradigms we are bound to be defeated in every battle. The point is not to prepare plans and tools to avoid surprise, but to be prepared to be surprised.”

- *Lagadec, 2008*

COASTAL CLIMATE CHANGE ADAPTATION

PROTECTION

ACCOMODATION

RELOCATION

ISSUES

3RD U.S. NATIONAL CLIMATE ASSESSMENT

- “As sea level rises faster and coastal storms, erosion, and inundation cause more frequent or widespread threats, **relocation** (also called (un)managed retreat or realignment), while not a new strategy in dynamic coastal environments, may become a more pressing option.
- Up to 50% of the areas with high social vulnerability face the prospect of ***unplanned displacement*** under the 1 to 4 foot range of projected sea level rise.”

RELOCATION IS...

- Different from migration, displacement, resettlement

“A **permanent** and irreversible **voluntary** movement of the **whole or part of the community**, from the original to a new location due to sudden or gradual climate change impacts that differ from the usual variability, guided by the **integrated** and **anticipatory planning support**.”

IN THE REGION | CONNECTICUT

To Repair the Shore, or Retreat?



Christopher Caputo

IRENE WAS HERE Tropical Storm Irene damaged many shoreline houses on Cosey Beach Avenue August. Some owners have rebuilt; others lack the wherewithal.

By LISA PREVOST

Published: May 3, 2012

State lawmakers have begun to grapple with that question as they consider how to plan for the effects of climate change and rising sea levels on coastal development. But they have temporarily put aside the more delicate question of whether homeowners in Connecticut's most vulnerable shoreline areas ought to rebuild at all, after a bill before the Environment Committee prompted a great deal of concern.

That legislation, proposed by the Connecticut chapter of the Nature Conservancy, called for **“a fair and orderly legal process to foster strategic retreat of property ownership, over a period of several decades,”** in coastal areas subject to erosion or repetitive structural damage.

The words **“retreat”** and **“orderly legal process”** sparked suspicions that the bill was laying the groundwork for the seizure of private homes by eminent domain.

POST HURRICANE SANDY • MARCH 2013



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SOME ARE BRAVING IT OUT...



MANY PROBLEMS REMAIN....





January 24, 2016-Manasquan, NJ

Bob Bielk/Asbury Park Press, USA Today



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Bob Bielk/Asbury Park Press, USA Today

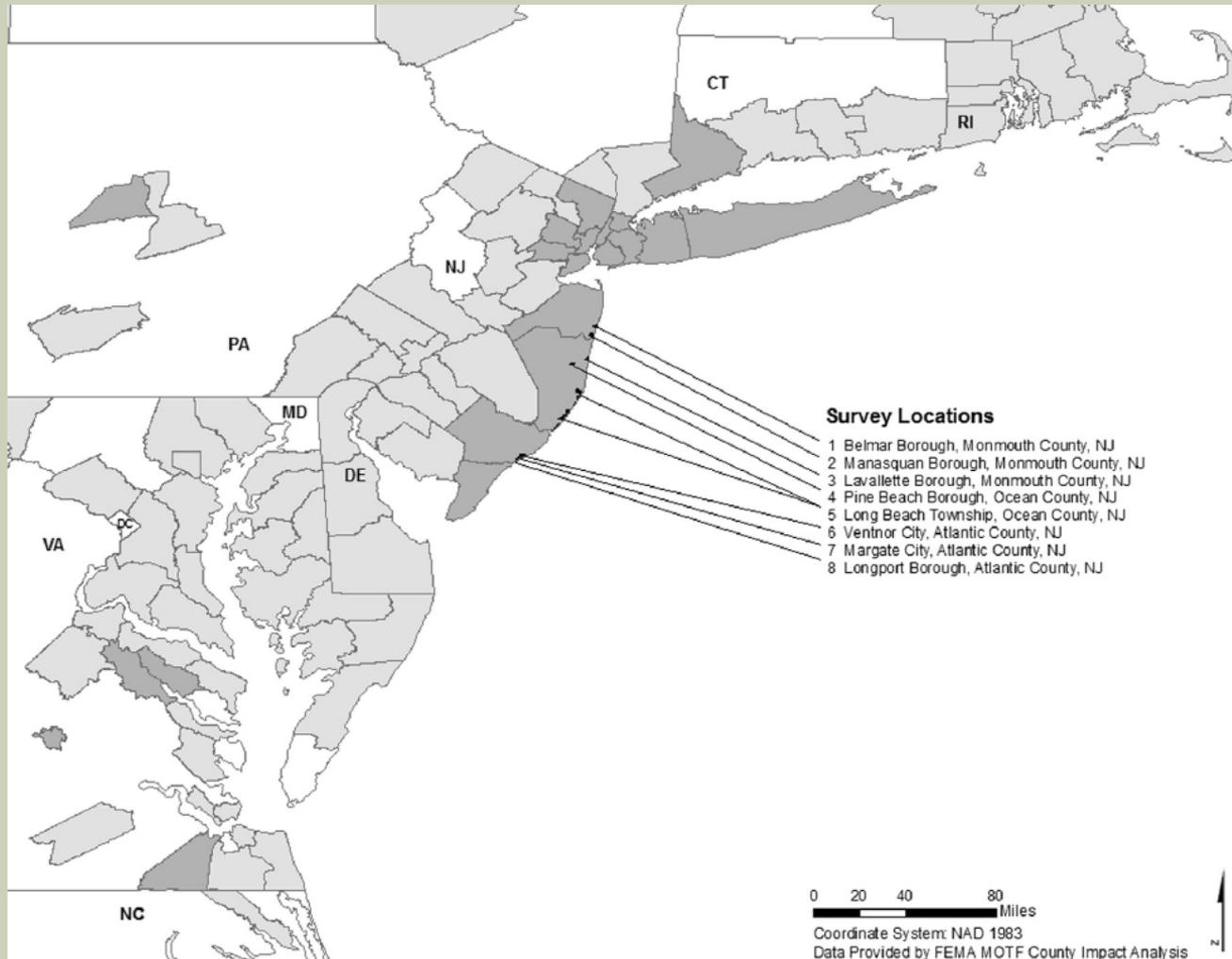


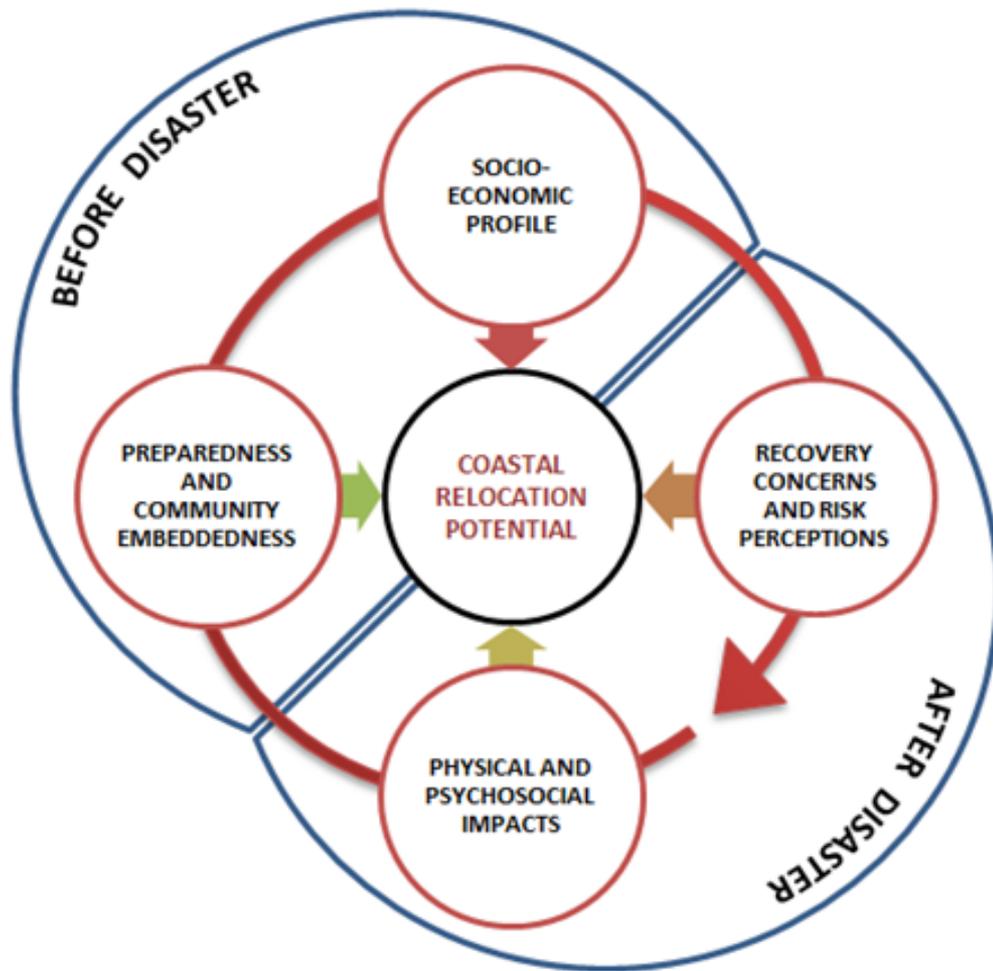
AVOIDING MISTAKES FROM THE PAST

- Overconfidence in technology/engineering solutions
- Choosing only short-term solutions
- Avoiding wicked problems until they escalate
- Lack of accountability and inertia
- Not believing it could happen



POST HURRICANE SANDY SURVEY





POST HURRICANE SANDY SURVEY

Response preferences for the stress measure

Causes of stress in the aftermath of Hurricane Sandy

- 1 Rebuilding and recovery
- 2 Recurrent hazards
- 3 Filing insurance claims
- 4 Loss of personal belongings
- 5 Mold and corrosion
- 6 Future in this community
- 7 Looting and crime
- 8 Moving somewhere else

POST HURRICANE SANDY SURVEY

Response preferences for the recovery concerns

Concerns driving consideration of relocation

- 1 Insurance rate increase
- 2 Tax increase
- 3 Tidal inundation and frequent flooding
- 4 Crime increase
- 5 New FEMA advisory maps
- 6 City rebuilding requirements
- 7 Uncertainty when flooding will occur
- 8 Neighbors, friends, family move out
- 9 Strangers in the neighborhood
- 10 Construction crews and activities

POST HURRICANE SANDY SURVEY

Response preferences for the relocation drivers measure

Would consider relocation in the future if:

- 1 Crime becomes worse
- 2 We have two or more floods in the next few years
- 3 Insurance cannot cover full reconstruction
- 4 Services and amenities do not restore their full function
- 5 We have one more flood in the next few years
- 6 School system deteriorates
- 7 I am offered financial compensation(buyout)
- 8 Businesses do not reopen
- 9 I am offered with comparable housing in similar community elsewhere
- 10 Neighbors, friends, and family move out
- 11 I am provided with free legal service
- 12 I receive assistance with finding a new job elsewhere
- 13 I can move together with my neighbors

BEING MORE STRESSED WITH

- Younger overall more stressed with most factors
- Gender, income, property/flood insurance not important
- Employed: recovery, future in community, loss
- Educated: filing assistance claims, mold/corrosion
- Shorter length of residence: recovery, filing assistance claims
- Displaced for longer and had more damage stressed with most post-disaster issues

MORE CONCERNED WITH

- Males: insurance
- Younger with almost all (tax, insurance, FEMA advisory maps, rebuilding rules, strangers, crime)
- Employed: strangers in the neighborhood
- Educated: strangers, crime, frequent flooding
- Income not important
- Flood insurance (Yes): New FEMA advisory maps, crime
- Property insurance (Yes): Construction, others moving out
- Displaced for longer: insurance rate increase
- More damage: new FEMA maps, rebuilding rules, frequent flooding

WOULD RELOCATE IF

- Younger: crime, schools, services and amenities, insurance inadequate, finding new job
- Employed: finding new job
- Educated: crime, services/amenities, 2 or > floods
- Income, time in displacement not important
- Flood insurance (Yes): 2 or > floods
- Property insurance (Yes): finding new job, legal advice
- Shorter length of residence: ALL
- More damage: 1 or </2 or < floods, others moving out, crime, schools

CONCLUSIONS

- Gender and income unimportant
- Disaster experience makes difference
- Threshold levels differ
- It is already happening under the radar
- The major shifts in attitudes and actions, as well as the ability to “think the unthinkable” needed
- More research needed on *when, why, how, where* of relocation
- Overcoming barriers and identifying opportunities

EXAMPLES: ALASKA, LOUISIANA

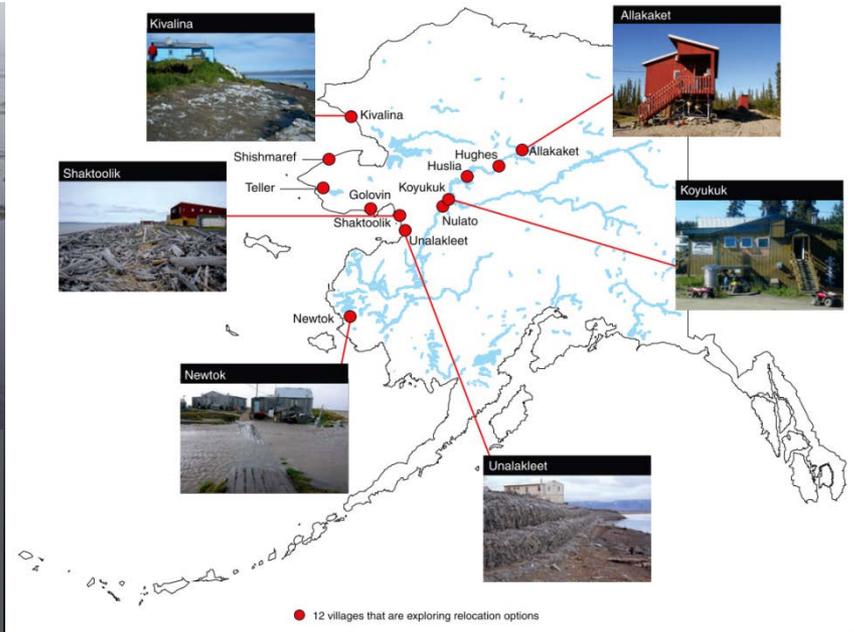


Isle de Jean Charles
Ted Jackson / The Times-PicayuneThis 2008

RESETTLEMENT AS A RESILIENCE STRATEGY And the Case of Isle de Jean Charles



Version 1.0 | October 2015



● 12 villages that are exploring relocation options

Sources: GAO (analysis); Pitney Bowes Business Insight (map).

Bronen, R. (2015) Climate-induced community relocations: using integrated social-ecological assessments to foster adaptation and resilience. *Ecology and Society* 20(3):36

OTHER EXAMPLES: NY BUYOUT

- NY Gov. A. Cuomo's Buyout and Acquisition Program (\$171m):
 - Full pre-storm fair market value in 500-year floodplain damaged >50%
- Incentives:
 - 5% staying locally (within County)
 - 10% for very high risk/enhanced areas
 - 10% for collective relocation
- Purchased 1,200 properties:
500 open space, rest resold



Staten Island Alliance/Klawana Rich

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