

# Accelerating Risks and Longer-Term Adaptation: If and When Resilience isn't Stationary

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# resilience **noun**

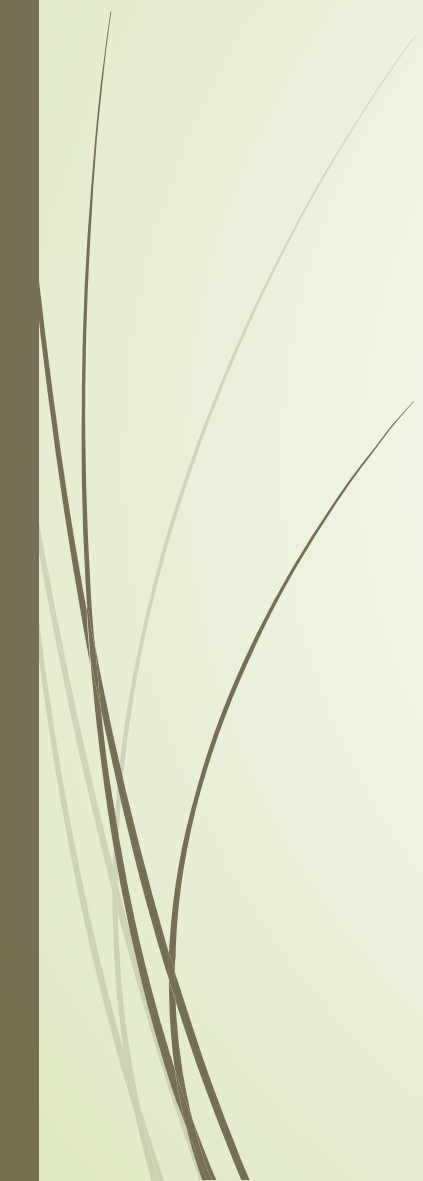
re·sil·ience | \ ri-'zil-yən(t)s  \

## **Definition of *resilience***

- 1** : the capability of a strained body to recover its size and shape after deformation caused especially by compressive stress
- 2** : an ability to recover from or adjust easily to misfortune or change



# Plan of the Talk

- Unfortunate Truths (as I see them)
  - Public Policy Principles for Finance in Long-term Transitions
  - Proposal: Buyouts with Rentbacks
- 



# We are buying time, not crafting permanent solutions

- ▶ Buying time will be effective for a while
- ▶ At some point (with great uncertainty, 30 -250 years) it won't – coastal property will become an uninsurable risk
- ▶ The resulting outmigration will be different than what we've seen before
  - ▶ More people, more value in the built environment
  - ▶ Bigger environmental problems from abandonment
  - ▶ Much better foresight about what is coming down the pike (Thanks a lot, Science!)

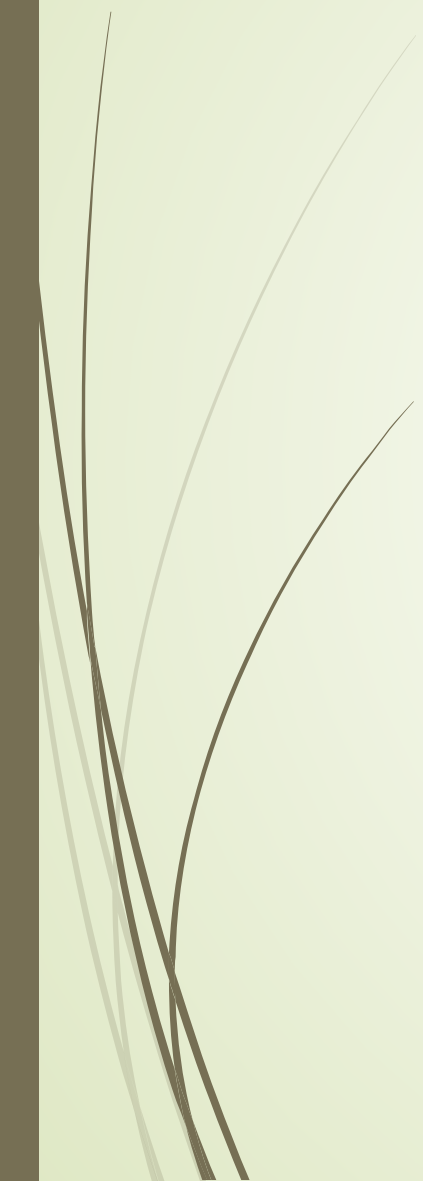


# Individuals and businesses will make the final choices

- ▶ Some will leave next year, some will choose to wash away with their homes – but most will be somewhere in between
- ▶ Choices will depend on myriad social and individual factors
- ▶ Retreat is highly unlikely to take place in a way directly dictated by policy of planning
- ▶ But both public policies and market signals will play critical roles for those choices



# The transition is critical!

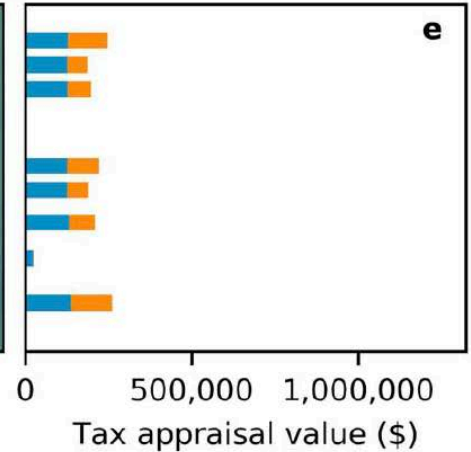
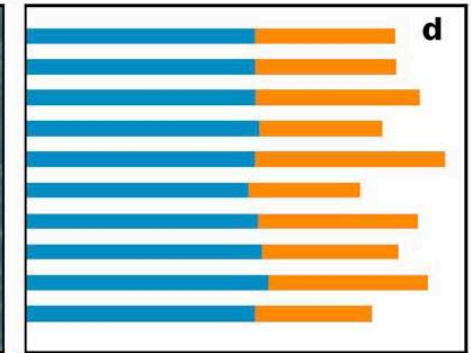
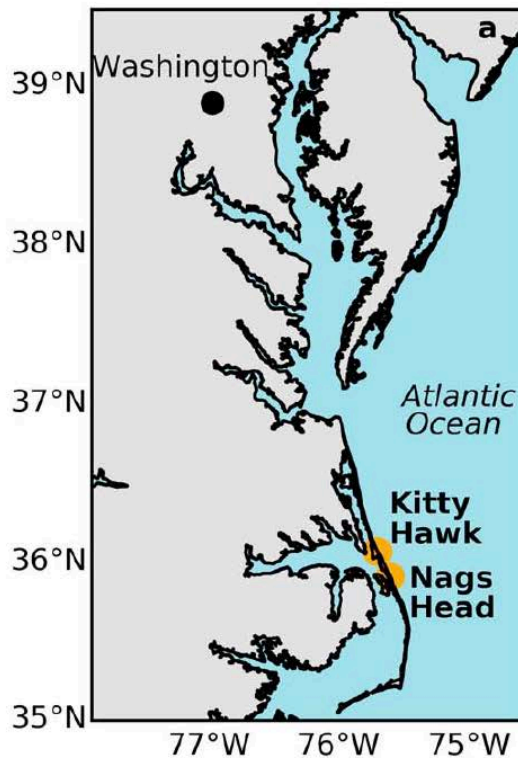
- Ability to retain social and cultural capital
  - Economic costs – magnitude of built assets stranded
  - Adjustments to local government finance and services
  - Environmental and economic costs of damage caused by abandoned capital
  - How painful and dangerous it will be for people to relocate (all at once is probably bad)
- 



# Risk reduction investments can set counter-productive expectations

- Reducing the risks and costs of living at the coast gives market signals that increase investment in the built environment
- Which in turn increase the economic and political case for the next round of public investments
- Which can lead to a longer timeline and a more disruptive and expensive transition

# Example: Beach Nourishment – Property Value Feedback









# Principle: Make the market tell the truth

- ▶ Don't subsidize individual risk reduction
- ▶ Local infrastructure should be financed locally
- ▶ Don't subsidize insurance
- ▶ *Recognize that this is both technically and politically difficult*



# Principle: Neutral Transfers and Aid

- ▶ Resources will (and IMHO should) be transferred to both specific demographic groups and communities
- ▶ Those resources should not be biased toward maintaining or returning to the *status quo*
- ▶ And could favor options that improve relocation outcomes (e.g. buyouts)




# Principle: Adaptive Engineering and Clear Signals

- ▶ Tying future engineering to observable phenomena (like sea level rise) offers real advantage in guiding expectations and decisions
- ▶ Analogous to parametric bonds or crop insurance design, but with longer timelines
- ▶ *Huge problem here is the ability to make credible political commitments*




# Principle: “ A Crisis is a Terrible Thing to Waste”

- ▶ Storms and floods that cause extensive property damage disrupt the costs and benefits of discontinuous change
- ▶ Human nature and policy history have always biased response toward “we are not giving in to nature – we’re rebuilding”
- ▶ Changing the conversation and expectations about disaster response – and resilience -- to consider relocation and other responses is desirable



# Resulting Issues for Finance Decisions in the Longer Run

1. When is investing in (buying) time no longer worth the cost?
2. The specifics of major transition matter a lot
  - ▶ Gradual vs. sudden
  - ▶ Value of lost capital
  - ▶ Social disruption
3. Using public resources to reduce short term impacts could have negative unintended effects on transition dynamics



# Policy Proposal: Buyouts with Rentbacks (BWR)

- ▶ What's the proposal
- ▶ What problems does it (potentially) solve or ameliorate
- ▶ Drawbacks and challenges
- ▶ Next steps



# Policy Outline

- Public or regulated private entity buy properties (with partial public funding)
- Rents back to seller, who can choose to live there for some period of time
- At some point
  - Rental agreement ends
  - Property is retired
- Remediation / Salvage occurs



# Policy Outline

- ▶ **Where does the money come from, and what is the price**
  - ▶ Future rent receipts
    - ▶ Pdv of rents less expenses
    - ▶ Current FEMA policies require destruction of structures
    - ▶ This is a different context than repetitive-loss flooding
      - ▶ Happens earlier in the risk path
      - ▶ Designed around community transition, not individual properties





# Policy Outline



- ▶ **Where does the money come from, and what is the price**
- ▶ sources of compensation for coastal residents
  - ▶ Buyout funds
  - ▶ Resources for climate-proofing individual properties
  - ▶ Resources for risk reduction at community and regional levels
    - ▶ Protecting property
    - ▶ Protecting infrastructure
- ▶ Potential savings from remediation after abandonment



# Determining price!?

- ▶ Present discounted value of rents less expenses
- ▶ Other sources
- ▶ Transfers
  
- ▶ Could minimize upfront financial cost by giving “free” rent
  
- ▶ Influenced by real estate market fundamentals
  
- ▶ *Existing buyouts generally occur when property has been (repeatedly) damaged by climate events*
- ▶ *Existing policies largely buy out at some version of pre-disaster market value for an undamaged property*
- ▶ *This policy requires a different model*

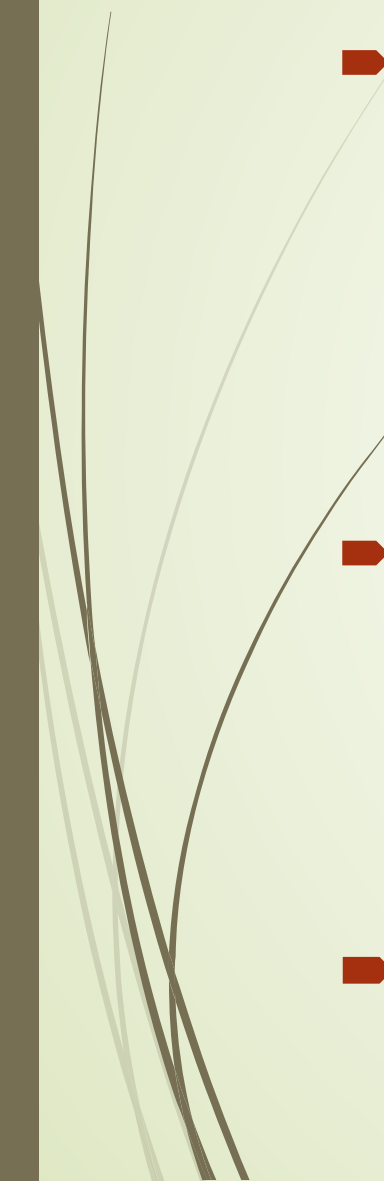


# Policy Outline

- Residents (whether owners or current renters) continue to reside in their property if they wish to
- They can leave at any time (with normal notice)
- Rules and decisions for when the property is no longer rented

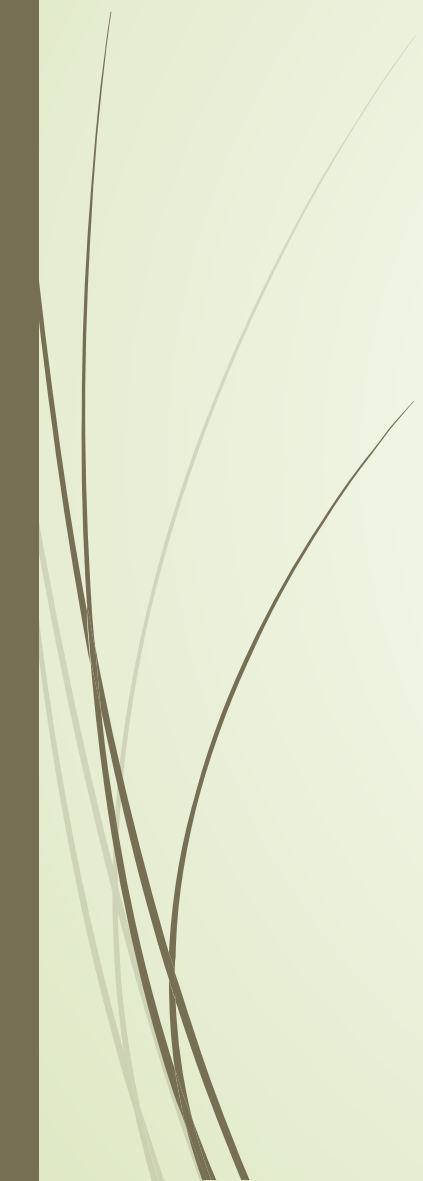


# Policy Outline

- ▶ Who owns the houses after buyout
    - ▶ Local government (public housing model)
    - ▶ Private investors
  - ▶ Who manages properties after buyout
    - ▶ Local government
    - ▶ Contracts with management companies
  - ▶ Mixed models
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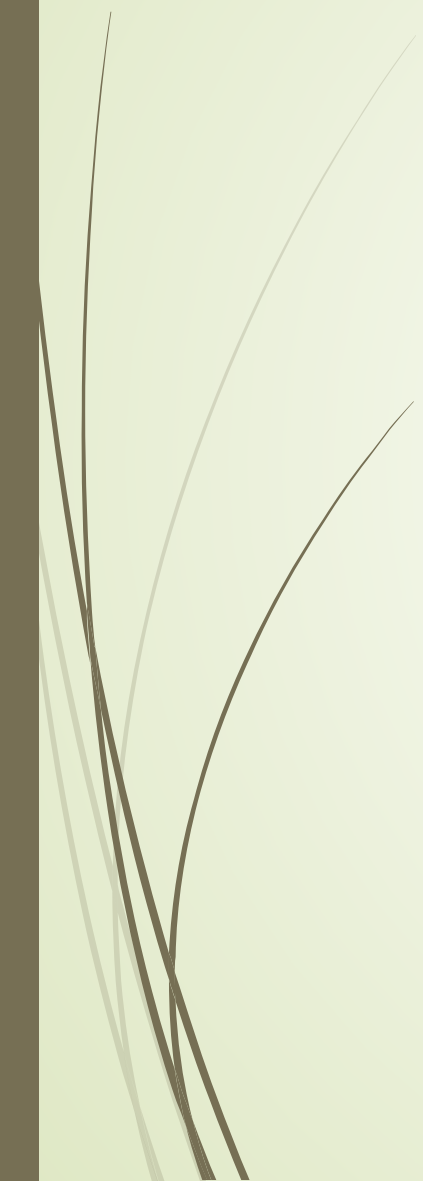


# When does it start?

- ▶ Earlier in the risk calculation than existing buyout programs
  - ▶ Start determined in conjunction with when the program ends
  - ▶ Determined by some combination of observable climate signals, modeling, and experience
- 



# When does it end?

- ▶ Some combination of
    - ▶ When original tenant leaves
    - ▶ When house is damaged to some specified level
    - ▶ When some observable climate signal (or risk mitigation signal) is observed
- 



# Advantages

- ▶ Buyouts generally have advantages
  - ▶ Neutral resource transfers
  - ▶ Achieve equity and social goals
  - ▶ Remove at-risk properties from future disaster-related expenditures

And adding “rentbacks” makes the policy (arguably) more financially and politically feasible

- ▶ Adding rentbacks has other significant advantages not related to just making buyouts more feasible and likely



# Policy Advantages: buyouts are a mechanism for relatively neutral financial transfers


- ▶ Transferring resources without biasing recipients is challenging
  - ▶ Historical means – post-disaster assistance, subsidies to engineering and infrastructure, insurance subsidies -- tend to be biased against relocation
- ▶ buyouts provide a means of transferring resources in a way that
  - ▶ Does not bias people toward staying
  - ▶ Does not bias people toward all leaving at the same time
- ▶ **buyouts could serve a mechanism for aggregating diverse sources of finance**






# Policy Advantages: transferring remediation responsibility

- ▶ Individual owners abandoning property are very unlikely to be financially and operationally responsible for remediation
- ▶ Performance bonds *could* ameliorate this
- ▶ Buyouts could price remediation into buyout pricing
- ▶ And economies of scale and timing could result in better remediation outcomes
  
- ▶ Buyouts add a longer time horizon and more predictable flow of properties to be abandoned, potentially enhancing efficiencies in remediation/salvage

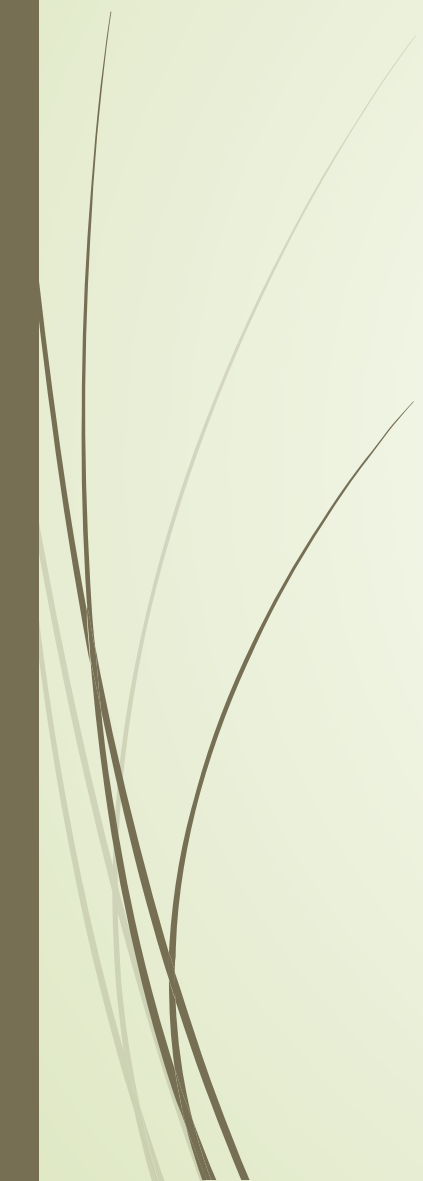


# BWR makes buyouts more feasible / probable

- ▶ Rental income provides an additional source of finance
- ▶ Flexibility in timing makes homeowners more likely to accept buyouts
- ▶ Moving the timeline forward from “everything is already trashed” makes buyouts generally more effective in managing transitions



## BWR-specific advantage: breaking the public investment – private investment positive feedback

- If the same entity is making decisions about risk reduction and real estate maintenance/investment, then these decisions can be made jointly and the sequential, path-dependent spiral is interrupted.
  - Removes one source of uncertainty from relocation and reduces crash risk
- 



## BWR-specific advantage : separating financial decision/considerations from relocation decisions


- ▶ As real estate markets increasingly price in risk, resident owners may feel may trapped by loss of wealth and hope/expectation that things will improve
- ▶ Or may feel pressure to sell early to try to "time the market" and leave early, resulting in possible crash / collapses
- ▶ Individual property owners are very likely to more risk-averse and loss-averse than governments or pools of investment capital



## BWR-specific advantage : separating financial decision/considerations from relocation decisions

- ▶ Decision points will increasingly come after climate events with
  - ▶ “clumping” of relocation
  - ▶ Financial hardship making successful relocation problematic

BWR allows residents to separate the wealth decision (and fear of loss) from the relocation decision




## BWR-specific advantage: Smoothing demographic and local finance change

- ▶ Lessen sudden (post-storm and/or real-estate-collapse) spikes in relocation
- ▶ Allows both short-term and residential rentals (to support tourism)
- ▶ Rentals will either stand in for (public ownership) or provide (private ownership) property tax receipts in a relatively predictable path toward demographic and service contraction



# Drawbacks/Challenges

- Inherent difficulties of public ownership of rental property (public housing)
- Policy and political difficulties of aggregating and financing diverse sources of buyout funds
- Arbitrage / corrupt outcomes (lack of transparent pricing and accessible process)
- Holdouts (degree of coercion / application of eminent domain)



# Next steps (if this idea has any value at all)

- ▶ Start to identify triggers for when buyouts should occur
- ▶ Explore feasibility of private investment as a means of implementation and rental management
- ▶ Explore how coastal populations might react to the idea, depending on
  - ▶ Timing
  - ▶ Price
  - ▶ Contract terms (rental price and parameters)
  - ▶ Optics
  - ▶ Other implementation parameters





# Why consider policies like this one?

- ▶ If our analysis about the importance of transition from climate-proofing to relocation is correct
- ▶ **Then**
  - ▶ lots of outcomes with very bad characteristics are possible
    - ▶ Mass relocation on short time scales
    - ▶ Significant loss of wealth and social capital
    - ▶ Crashes with large capital losses
  - ▶ This policy (or something with similar features) *could* ameliorate some of these very bad characteristics of mass relocations