Managing the Retreat from Rising Seas

State of Hawaii: Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable Coastal Areas in Hawaii



GEORGETOWN CLIMATE CENTER

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Managing the Retreat from Rising Seas: Lessons and Tools from 17 Case Studies

About This Report

As seas continue to rise and disaster events and extreme weather increase in frequency and intensity, climate change is driving state and local policymakers to evaluate strategies to adapt to various risks affecting many communities. In addition to protection (e.g., hard shoreline armoring) and accommodation (e.g., elevating or flood-proofing structures) measures, coastal governments and communities are increasingly evaluating managed retreat, where appropriate, as a potential component of their comprehensive adaptation strategies. Managed retreat is the coordinated process of voluntarily and equitably relocating people, structures, and infrastructure away from vulnerable coastal areas in response to episodic or chronic threats to facilitate the transition of individual people, communities, and ecosystems (both species and habitats) inland.

The aim of managed retreat is to proactively move people, structures, and infrastructure out of harm's way before disasters occur to maximize benefits and minimize costs for communities and ecosystems. For example, policymakers may maximize opportunities for flood and risk reduction by conserving wetlands and protecting habitat migration corridors and minimize the social, psychological, and economic costs of relocation by making investments in safer, affordable housing within existing communities. This report is composed of 17 individual case studies. Each one tells a different story about how states, local governments, and communities across the country are approaching questions about managed retreat. Together, the case studies highlight how different types of legal and policy tools are being considered and implemented across a range of jurisdictions — from urban, suburban, and rural to riverine and coastal — to help support new and ongoing discussions on the subject. These case studies are intended to provide transferable lessons and potential management practices for coastal state and local policymakers evaluating managed retreat as one part of a strategy to adapt to climate change on the coast.

Collectively, these case studies present a suite, although not an exhaustive list, of legal and policy tools that can be used to facilitate managed retreat efforts. Legal and policy tools featured include: planning; hazard mitigation buyouts and open space acquisitions, as well as other acquisition tools like land swaps and reversionary interests; land use and zoning; and Transfer of Development Rights programs. The case studies also highlight various policy tradeoffs and procedural considerations necessitated by retreat decisions. Each jurisdiction is confronting different challenges and opportunities and has different, perhaps even competing, objectives for retreat. In addition, stakeholders in each of these cases are attempting to balance multiple considerations, including:

protecting coastal ecosystems and the environment; fostering community engagement and equity; preparing "receiving communities" or areas where people may voluntarily choose to relocate; and assessing public and private funding options and availability. The case studies included in this report were selected to reflect the interdisciplinary and complex nature of retreat decisions and underscore the need for comprehensive solutions and decisionmaking processes to address these challenging considerations.

Where possible, all of the case studies share a consistent organizational format to allow easier cross-comparison of strategies, processes, and takeaways:

- The Background section introduces state or local context for each case study, including the risks and hazards facing each jurisdiction and its road to considering or implementing managed retreat strategies.
- The Managed Retreat Examples section focuses on the legal and policy tools that have been designed and implemented to support managed retreat strategies on the ground.
- The **Environment** section highlights how floodplains and coastal ecosystems have been restored, conserved, and protected as a part of comprehensive managed retreat strategies to provide ecosystem and community benefits, like reducing flood risk and creating community assets such as parks and trails.
- The Community Engagement section summarizes how affected residents have been contributing to planning and decisionmaking processes for climate adaptation and managed retreat.
- The Funding section identifies how the programs, plans, and projects discussed have been funded by federal, state, and local government and private sources.

- The Next Steps section captures the anticipated future actions that jurisdictions may take in implementing these managed retreat strategies.
- The **Considerations and Lessons Learned** section concludes with the primary takeaways from each example that other coastal state and local policymakers and communities may consider when developing or implementing their own managed retreat strategies using these legal and policy tools.

The case studies in this report were informed by policymakers, practitioners, and community members leading, engaging in, or participating in the work presented in this report. No statements or opinions, however, should be attributed to any individual or organization included in the *Acknowledgements* section of this report. It is also important to note that the programs and planning processes described in each case study are ongoing and the content included in this report is current as of early 2020. Future updates about these case studies will be captured in Georgetown Climate Center's online resources on managed retreat.

These case studies were written to support Georgetown Climate Center's Managed Retreat Toolkit, which also includes additional case study examples and a deeper exploration of specific legal and policy tools for use by state and local decisionmakers, climate adaptation practitioners, and planners. For future updates about these and other case studies and the Managed Retreat Toolkit, please visit the **Managed Retreat Toolkit** and the **Adaptation Clearinghouse**.

State of Hawaii: Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable Coastal Areas in Hawaii

Executive Summary

In February 2019, the State of Hawaii Office of Planning, Coastal Zone Management Program (CZMP), published a report: *Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable Coastal Areas in Hawaii* (report). CZMP drafted the report in response to a request for the state to evaluate the potential for a managed retreat program in Hawaii. In developing the report, CZMP designed and implemented a three-phased approach that consisted of conducting background research; evaluating how retreat could apply in four different area typologies; and convening an interdisciplinary symposium to engage experts and stakeholders. As a result, CZMP concluded that it is not currently possible for Hawaii to develop a step-by-step plan to implement managed retreat for areas in the state threatened by sea-level rise and other coastal hazards; however, the report contains recommendations for potential next steps, including assembling an interdisciplinary committee to work towards achieving a statewide consensus about a managed retreat vision and efforts to formulate a retreat strategy. Both Hawaii's three-phased approach and the final report provide helpful examples of how one state designed and implemented a comprehensive process led by its CZMP to evaluate the potential for retreat. These examples may inform planning and policy actions for managed retreat in other jurisdictions.

Background

Since 2018, the State of Hawaii has been undertaking several evaluation studies and proposed policy actions relative to managed retreat. The Hawaii State Office of Planning, Coastal Zone Management Program (CZMP) designed a project to evaluate how and whether the state should establish a managed retreat program and policies to protect vulnerable people, properties, and resources threatened by sea-level rise and other coastal hazards. In February 2019, CZMP, under the parameters of the state's Ocean Resources Management Plan (ORMP)¹ from 2013 - a statewide plan that guides the state's ocean and coastal resource management priorities - published a report: Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable Coastal Areas in Hawaii (report).2 The report aimed to assess the feasibility of managed retreat in Hawaii as an adaptation strategy to climate change, sea-level rise, and other coastal hazards.

Managed Retreat Examples

Planning for Retreat

In the report, CZMP outlines actions Hawaii could consider in order to support managed retreat. The findings include both international and domestic managed retreat approaches and recommendations concerning the present feasibility of managed retreat in Hawaii. The report was the result of a three-phased approach:

 Background research consisting of a literature review;

COMMON THEMES IN MANAGED	TOP AREAS IDENTIFIED IN THE BACKGROUND RESEARCH
RETREAT PROGRAMS	NECESSARY FOR A MANAGED RETREAT PROGRAM
Social/Cultural/Historic/Education	Community Participation
Planning	Comprehensive Planning for Retreat
Resiliency	Determine whether to Retreat, Accommodate and/or
	Protect
Regulatory/Legal	Incorporate Retreat into State and County Land Use and
	Shoreline Management Laws
Economic	Need for Funding for Retreat
Shoreline Management/Public	Preservation of Open Space and Wetlands after Retreat
Access	Occurs

Crosscutting Themes for Managed Retreat Programs.

This table organizes the six common themes and top areas that, according to Hawaii's Coastal Zone Management Program, cut across all the diverse case study examples identified during the background research phase. The common themes and top areas were used as a common metric to compare different questions and retreat strategies for each of the four Scenario Profiles prepared.

Credit: State of Hi. Office of Planning, Coastal Zone Mgmt. Program, Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable Coastal Areas in Hawaii: Final Report 21 (Feb. 2019).

- 2. Development of four "Scenario Profiles" or area typologies to demonstrate the need for different retreat tools and considerations across the state; and
- A symposium on managed retreat with keynote speakers and expert panelists.

Phase One: Background Research

The purpose of the Background Research phase was to explore and assess different examples of managed retreat and apply these to the specific context in Hawaii. CZMP consultants conducted a literature review of different domestic and international place-based examples to assess the applicability and feasibility of managed retreat in Hawaii (i.e., what examples are most instructive or transferable for Hawaii). From the literature review, CZMP identified six crosscutting common themes that are important to establish a successful managed retreat program and six corresponding top areas or actions necessary to implement those themes. For example, in order to effectively plan for retreat (Common Theme #3), the state and local governments should include retreat as a part of different comprehensive plans (Top Area #3).

Phase Two: Scenario Profiles

In the second project phase, CZMP consultants created four "Scenario Profiles" or area typologies (characterized based on differences in geography, environment, and human development or land-use features):

- Scenario Profile One: Resorts, Hotels, and Condominiums;
- Scenario Profile Two: Urban Areas;
- Scenario Profile Three: Single Family Homes; and
- Scenario Profile Four: Critical infrastructure.

The purpose of this phase was to explore how managed retreat might be conducted in Hawaii given unique settings and different typologies. For example, the retreat strategies and timelines for unpopulated areas with open spaces might not be as effective for an urban area abutting cliffs with little space to relocate people and development.

Phase Three: Symposium

In January 2018, CZMP held an all-day symposium in Honolulu to further explore the potential for managed retreat in Hawaii. Among others, CZMP invited local speakers serving on four panels covering the topics (and mirroring the six common themes above) of: finance, tax, and economics; insurance; legal and policy; and open space, public access, and social justice. The purpose of this phase was to apply what was learned in the previous phases and engage various stakeholders to identify challenges and potential opportunities to inform any future state actions.

Community Engagement

The report was the result of an effort led by CZMP and an Action Team assembled under the ORMP to achieve two of the ORMP's management priorities or goals. Knowledge sharing was a key component of the process with more than 200 stakeholders, including decisionmakers, government agencies, private industries, researchers, community groups, and private citizens, contributing to each of the three project phases. Scenario Profile Four: Scenario for Critical Infrastructure (O'ahu)



Next Steps

In the final report, CZMP states that, despite the state's current interest in managed retreat, it is not yet possible for Hawaii to develop a step-by-step plan to implement managed retreat due to various unknowns and competing priorities identified, including homelessness, food sustainability, and energy neutrality. Instead, CZMP acknowledges in the report that, in order to achieve a more detailed understanding of retreat and what it would entail, the state should continue efforts to evaluate and invest in the potential for a retreat program. For instance, CZMP recommends that the state, through the ORMP framework, continue to explore the possibility of managed retreat in Hawaii and work with other agencies at the state and county levels and interested stakeholders to develop "balanced approaches" that address the issues identified in the report. CZMP also recommends funding different place-based projects in areas representative of the four Scenario Profiles because there is not a one size fits all solution to managed retreat.

Scenario Profile Four: Scenario for Critical Infrastructure (Oahu).

This image illustrates one of the four Scenario Profile area typologies for critical infrastructure on the island of Oahu. Policymakers can create different typologies for their own jurisdictions to inform the development of potential strategies that account for the unique characteristics of an area, including geography and existing land uses.

Credit: State of HI. Office of Planning, Coastal Zone Mgmt. Program, Assessing the Feasibility and Implications of Managed Retreat Strategies for Vulnerable Coastal Areas in Hawaii: Final Report 33 (Feb. 2019).

Considerations and Lessons Learned

Hawaii's approach and report may be useful for other coastal policymakers considering retreat as they demonstrate how learning from other examples and the unique elements of different jurisdictions can be used to inform individual approaches for managed retreat. Overall, CZMP found that any future state actions on retreat should proceed in accordance with a clear strategic plan to maximize long-term goals to protect people, property, and the environment. The culmination of the three phases for this project revealed the complexities in creating managed retreat strategies and the need for leadership, cohesion, and thorough assessment, which can serve as a model for other jurisdictions.

Endnotes

- 1 Georgetown Climate Ctr., *Hawaii Ocean Resources Management Plan*, ADAPTATION CLEARINGHOUSE, **https://www.** adaptationclearinghouse.org/resources/hawaii-ocean-resources-management-plan.html (last visited Dec. 18, 2019).
- 2 STATE OF HI. OFFICE OF PLANNING, COASTAL ZONE MGMT. PROGRAM, ASSESSING THE FEASIBILITY AND IMPLICATIONS OF MANAGED RETREAT STRATEGIES FOR VULNERABLE COASTAL AREAS IN HAWAII: FINAL REPORT 21 (Feb. 2019), available at http://files.hawaii.gov/dbedt/op/ czm/ormp/assessing_the_feasibility_and_implications_of_managed_retreat_strategies_for_vulnerable_coastal_areas_in_ hawaii.pdf.

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