Planning for Climate Change in Addison County Towns

Community Partner: Caroline Paske, Hazard Mitigation Planner, Vermont Emergency Management

<u>Vermont Emergency Management (VEM</u>) is the state agency that works with county and local governments to ensure there are systems in place to respond to climate-related threats and emergencies. Caroline Paske, a Hazard Mitigation Planner with VEM, works alongside regional and town planners in Addison County to draft <u>Local Hazard Mitigation Plans</u> (LHMPs). The intent of LHMPs is to reduce long-term vulnerability of municipalities to threats and challenges¹, including those exacerbated by climate change, through a process of engagement aligning community values, needs, and resources. They focus on both the built and natural environment.

LHMPs are required by <u>FEMA</u> for towns to receive certain types of emergency funding, requiring local towns (often volunteer committees) to write these plans every 5 years. Essential to the LHMP process, towns must reach out to local stakeholders for input and guidance on their plan. This can be a daunting process for small, rural towns who often do not have dedicated staff for this work. While stakeholder engagement was always a requirement, new FEMA requirements are much more detailed in terms of who needs to be engaged and how. This team will work with Caroline and local town committees to design a guidance document outlining strategies for public and stakeholder outreach for this updated LHMP process. This guide will be used to help communities effectively involve numerous stakeholders in the writing of their plan, including but not limited to: public works department, emergency management, local floodplain administration, regional planning, elected officials, neighboring communities, representatives of businesses, schools, and community-based organizations that work directly with or provide support to vulnerable populations or frontline communities with essentials such as housing and healthcare.

This team will gain a deep understanding of the 1) people, places, & local, regional, and state government entities involved in the field of Vermont hazard mitigation; 2) opportunities and challenges of hazard mitigation planning, policy development, and decision making; and 3) collaborative efforts necessary to bolster Addison County communities in the face of climate change.

Goals of the project:

- Gain an understanding of the importance of and challenges to public engagement and participation in planning processes and identify potential solutions
- Gain an understanding of the threats of climate change and natural hazards, specifically flooding and heat, within an Addison Co/Vermont context and develop strategies for how these can be communicated during the planning process
- Generate ideas for hazard mitigation/ climate change adaptation projects
- Develop creative content for outreach and educational material for a nuanced audience

¹

https://vem.vermont.gov/plans/LHMP#Why%20should%20your%20community%20do%20Hazard%20Mitigation%20Planning

Exploring the Feasibility of a Freshwater Mussel Restoration Program

Community Partners: Kathy Urffer, Connecticut River Conservancy

The restoration and protection of our watersheds and river corridors, includes the protection of living organisms critical to the ecological health and function of our rivers. Your community partner, Kathy Urffer of the Connecticut River Conservancy (CRC) is interested in assessing the feasibility of a freshwater mussel restoration program within the Connecticut River watershed.

Freshwater mussels are one of many endangered species on the planet and yet provide critical ecological function including; filtering sediments and toxins and being a food and habitat source for other critical species and organisms¹.

There is currently no freshwater mussel restoration program in the Connecticut River watershed, even though there are twelve freshwater mussel species, eight of which are listed as either endangered or threatened on the state and/ or federal level². This team will research the feasibility of developing such a program and provide recommendations for doing so. Project work would include, but not limited to:

- Investigating the global and local context of freshwater mussel restoration efforts
- Understanding the elements of a feasibility study and the nuances of a pilot project
- Connecting with resources and experts in the field who are involved in similar projects
- Researching the opportunities and challenges of program development
- Mapping out program components, partners, timelines, funding sources, program evaluation techniques etc.

Project goals:

Research the feasibility of implementing a pilot freshwater mussel restoration program within the Connecticut River watershed, including:

- Identify social/political/ecological opportunities and barriers within a CRC context (what, where, when, why, how)
- Identify national, state, regional, and local partners and potential stakeholders (funding, resources, land access, scientific knowledge, skills, staffing needs etc.)
- Provide case studies highlighting insights and successes of similar programs
- Identify and understand permitting requirements within CRC context
- Become familiar with feasibility analysis in the context of similar restoration programs
- Identify funding sources that support similar programs in other watersheds.
- Gain experience developing program ideas, researching precedents, writing proposals
- Become familiar with best practices for community engagement/community engagement tools

¹ <u>https://www.youtube.com/watch?v=jAcqipo0aSw</u>

² Mighty Mussels of the Connecticut River (ctriver.org)

Building Community Understanding and Support for Dam Removal

Community Partners: Kassia Randzio, Development and Operations Director and Alaya Morning, Office Manager and Facilitator, Vermont River Conservancy

Derelict dam removal is essential to the restoration of the ecological health and function of river corridors.¹ With a grant from the Lake Champlain Basin Program (LCBP), the Vermont River Conservancy (VRC) has hired engineers to determine the feasibility of removing four dams on the North Branch and Winooski Rivers in Montpelier, Vermont. While this is an important step in VRC's efforts to mitigate flood risk, increase in-water recreation opportunities, and restore aquatic connectivity, the project must garner community support and financial backing to successfully remove the dams. This team will leverage communications tools – from digital content, to story maps, to educational handouts – to help translate the "technical" case for dam removal into compelling communications that will help gain public buy-in for dam removal, ultimately benefiting community flood resilience, fish passage, water quality, and the area's outdoor recreation economy.

The team will dig into the political and social dynamics at play with river restoration, specifically as it relates to the four dams in Montpelier, Vermont. This project will glean site-specific content from the engineering feasibility studies, which will include sediment load and contaminants, hydrology, geomorphology, aquatic organism passage, and more. This team will become familiar with the global and local context of dam removal, the necessity and nuances of community participation in decision-making and problem-solving, as well as understanding the who, what, and how of relaying scientific information to various audiences. Team members can expect to hone community outreach and engagement skills as well as communication and marketing skills. Efforts could include developing a community survey, interviewing, understanding and synthesizing engineering reports for public understanding, drafting policy recommendations, and/or drafting a legislative report for a specific committee.

Goals of the project:

Develop public-facing outreach and engagement content for community engagement regarding dam removal; that content will include knowledge and communication of:

- a) the global, local, historical, and current context of dam removal
- b) the social, political, and environmental context of this project
- c) best practices and tools for community engagement

¹ https://vnrc.org/removing-derelict-dams/

Conserving and Restoring the Otter Creek

Community Partner: Hayley Kolding, Southern Vermont Conservation Manager, Vermont River Conservancy

The much storied Otter Creek is the longest river in Vermont. Its watershed includes land incorporated within 20 towns. Otter Creek, like all rivers, has been central to people, land, and wildlife in these places for millenia. Thoughtful planning, land use, and conservation is essential to ensuring the health of the Otter Creek and the towns, roads, industries, agriculture, and overall livelihoods of those living within its watershed.

This team will work with Hayley Kolding of the <u>Vermont River Conservancy</u> to identify priority areas for restoration and protection within the Otter Creek watershed by analyzing stream dynamics and ecological data overlaid with a sociopolitical and economic lens. Team members will learn the fundamentals of stream dynamics, or the way that streams respond to water and sediment regimes depending on their physical characteristics and landscape setting. Anticipated learning outcomes include:

- Become familiar with the Vermont context of watershed and river corridor planning
- Understand the fundamentals of stream dynamics and stream ecology
- Recognize the fluvial processes at work in a stream reach based on visual observations and stream geomorphic assessment data
- Learn mapping and analysis methods used for river corridor planning
- Explore the challenges and opportunities of river corridor restoration and protection
- Reflect on best practices for engaging with stakeholders and partner organizations
- Identify ways for river corridor planning to address the needs of vulnerable socio-economic groups within a watershed
- Develop recommendations for priority areas for watershed restoration and protection
- Practice communicating the importance of watershed restoration and protection to a public audience

Project Goals

Vermont River Conservancy has a range of needs in this area, and students will meet early on with Hayley to discuss the areas of work outcomes that are the best fit for the skills and interests that they bring to the table. The full range of project needs include:

- Compiling relevant data sources, including geospatial data and reports
- Analyzing and ground-truthing stream geomorphic assessments
- Identifying impacts of land-use and extreme weather events
- Creating a list of top-priority stream reaches and parcels for conservation and restoration by implementing VRC's subwatershed-scale site prioritization protocol
- Preparing an assessment of ecological conditions and opportunities for restoration at two to three priority sites using field work and geospatial data
- Communicating the process and findings through an ArcGIS StoryMap (see example <u>here</u>) to help community leaders, funders, and landowners understand why certain parcels are priorities for conservation and restoration work
- Creating additional community engagement materials, including blog posts