Cape Cod Climate Action Plan: Natural Resources and Working Lands

Stakeholder Meeting Summary

Virtual Meeting No. 1 | October 19, 2020 | 9am-12pm ET

Meeting in Brief[1]

On October 19, 2020, the Cape Cod Commission (Commission) held a meeting to engage stakeholders on the topic of Natural Resources and Working Lands on Cape Cod to contribute to the development of a Cape Cod Climate Action Plan.

This meeting was the first of three planned meetings with the Natural Resource and Working Lands stakeholder working group.

The objectives of this first Natural Resources and Working Lands meeting were to:

- Orient the working group to the task and each other
- Discuss what is known about the sector's contributions to greenhouse gases (GHG) and vulnerabilities to future climate impacts
- Develop criteria for use in selecting among potential strategies and actions

This working group will help the Commission develop a plan that addresses the region's contributions to and threats from climate change. After hearing presentations from Cape Cod Commission staff on the Climate Action Plan process, climate hazards and vulnerabilities, and the results of the recent GHG Emissions Inventory, working group participants were split up into small groups to discuss how mitigation and adaptation priorities intersect with other Cape Cod priorities, and which criteria should be applied to prioritize the resulting climate action strategies.

To view the full presentation slides, please click here.

Introduction to the Cape Cod Climate Action Plan Process

Cape Cod Commission staff provided a brief presentation on the Cape Cod Climate Initiative and the process to develop the Cape Cod Climate Action Plan. This presentation covered an overview of the Climate Action Plan process and timeline, components of the Climate Action Plan as they pertain to mitigation and adaptation, results of the recent Greenhouse Gas (GHG) Inventory, varying community engagement pieces, and specific information relating to Natural Resources and Working Lands. In particular, Cape Cod Commission Deputy Director, Erin Perry, recognized the need to take action and address the region's contributions to and threats from climate change, with consideration of both adaptation and mitigation.

[1]For additional detail, please visit the Cape Cod Climate Initiative website: https://www.capecodcommission.org/our-work/climate-change/

ADAPTATION – WHAT WE KNOW TODAY ABOUT HAZARDS AND VULNERABILITIES

Cape Cod Commission Natural Resources Program Manager, Heather McElroy, reviewed risks of existing climate hazards relative to Natural Resources and Working Lands. She explained that over the next 80 years Cape Cod will experience increases in precipitation, rising temperatures, significant sea-level rise (SLR), and more extreme whether events. A series of maps displayed during the presentation helped illustrate the extent of flooding and SLR that could occur. Based on these predictions, she then highlighted the effects specific to Natural Resources and Working Lands, including (but not limited to):

- Warming ocean affecting marine species
- Ocean acidification altering shell formation in shellfish
- Drought exacerbating wildfire risk
- Drought and heat affecting harvests and local food supplies
- Warmer temperatures in winter heightening the risk of vector borne diseases (Lyme, West Nile Virus, etc.)
- Erosion of salt marsh mobilizing sequestered carbon in peat

Ms. McElroy then highlighted the following definition of adaption: *adjustments in human and natural systems that moderate harm or take advantage of beneficial opportunities* and provided some examples:

- Relocate buildings out of floodplains
- Habitat restoration and preservation
- Shift targeted and marketed fish catch

Participants then answered the following questions:

- How do these hazards/vulnerabilities intersect with other Cape priorities for better or worse (consider equity here)?
- What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding these hazards?

Below is a brief synthesis of the results of each of these conversations. Participants worked in three small groups to identify intersections between the hazards and vulnerabilities to Natural Resources and Working Lands that were presented and other existing Cape priorities. After identifying these priorities, working group participants were asked to consider which spheres of influence would be key to implementing adaptation actions identified by the working group and how the Cape Cod community at large plays a role in this.

Please see Appendix B for the record of these discussions by small group.

How do these hazards/vulnerabilities intersect with other Cape priorities (for better or worse)?

The following priority areas were identified in small groups:

- Conservation (e.g., salt marshes, Pine Barrens, and coastal grasses, etc.)

- Housing and Development (e.g., wastewater/water quality, floodplain management, etc.)
- Economic Development (e.g. shellfish protection, coastal development, etc.)
- Funding and Governance (e.g., zoning policy, tax incentives, regional/municipal coordination, etc.).

Working group members stressed the need to consider key areas as singular priorities that are important to manage, as well as for the co-benefits that exist when understanding their intersections. For example, protection and conservation of the Pine Barrens was noted as important in all three discussions both as its own effort, and to help mitigate the Cape's exposure to increased extreme weather events, contribute to carbon sequestration, and begin to address overdevelopment of the coast.

For detailed answers, please see the respective question in Appendix B.

What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding these hazards?

All of the small groups highlighted that the areas of authority and influence on the Cape with respect to Natural Resources and Working Lands span multiple levels that include the Cape Cod community as a whole. Working group participants identified action was needed from the municipal (zoning and development bylaws) to the federal level, the business community, faith networks and organizations, policy makers, the seasonal/second homeowners, and the education community (of particular importance for public education and communication). Of key importance was the necessity to have *regional* coordination and support. This particular piece was noted a high priority to work towards as integrating current efforts and the planning and development of what comes in the future is essential.

For detailed answers, please see the respective question in Appendix B.

Mitigation – What We Know Today about Regional Greenhouse Gas Emissions

Ms. McElroy reviewed the results of the regional GHG Emissions Inventory, focusing on the specific results relevant to Natural Resources and Working Lands on Cape Cod. Ms. McElroy explained that a GHG Emissions inventory is a comprehensive accounting of total greenhouse gas emissions for all man-made sources and was used to identify the sectors with the highest emissions. On Cape Cod, Transportation and Stationary Energy were the two largest sectors in terms of contribution to GHG emissions. She then noted that this inventory would be reproducible in the future and to continue to target mitigation actions at the high emitting sectors.

Ms. McElroy then provided the following definition for mitigation*: limiting or preventing greenhouse gas emissions and enhancing activities that remove these gases from the atmosphere*. Based on the results of the GHG Emissions Inventory, she then provided the working group with some examples of mitigation actions that could be implemented to reduce sector emissions:

- Planting trees

- Facilitating salt marsh migration
- Reducing fertilizer and pesticide use
- Improving bike access

Below are working group member questions and comments that followed Ms. McElroy's presentation. Working group member questions are bolded and answers from the Cape Cod Commission are italicized.

- **You spoke about the salt marsh migration, is this analysis considering the carbon sequestration potential of Herring River (~1,000 acres of degraded salt marshes)?**
    - *Yes, we did consider the fact that we have done a lot of work to restore highly restricted salt marshes and recognize there are benefits from this restoration. As a general comment, this inventory is limited by the availability of data. So, to some extent we may not have the best data nor the best formulas for translating these data into that metric ton Carbon Dioxide (CO_2) equivalent. We have done the best we can with the resources that we have. Moving forward, we know that we want this group to be thinking about things like the importance of salt marsh restoration and migration as SLR increases. In developing and updating the GHG inventory, we will want data sources and formulas to better refine some of these estimates.*
- **The science community has a lot of talk about coastal wetlands to sequester carbon, and I've seen in some instances there is greater value from coastal wetlands than forests. I think we need to preserve what we have and create more, but the absence of coastal wetlands seems to be particularly important for the Cape.**
    - *The bar graph only shows the largest emissions contributors, it does not indicate that these are the only sources, just the highest. There are some data within the land use category on sequestering carbon, but wetlands data was not available. We are hoping to better understand our wetlands sequestration potential in future iterations.*
- **In the context of this discussion, we are not sure what plants are appropriate for our particular environment, correct?**
    - *There is a balance that we want to manage. We want to find ways to restore the environment and do proper restorations that help sequester carbon, and we want to try and take those actions and make them priorities. However, we also do not want to take actions that are inconsistent with what the environment can support.*

Participants then answered the following questions with respect to mitigation:

- What other Cape priorities intersect, for better or worse, with efforts to decrease our emissions from this sector (consider equity here)?
- What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding Cape sources of emissions?

Below is a brief synthesis of the results of each of these conversations by question. Working group participants worked within three small groups to identify intersections between reducing emissions (e.g., through carbon sequestration) and other existing Cape priorities. Working group participants were then asked to consider which spheres of influence would be key to implementing mitigation actions developed by the working group and how the Cape Cod community at large plays a role in this.

Please see Appendix C for the record of these discussions by small group.

What other Cape priorities intersect, for better or worse, with efforts to decrease our emissions from this sector (consider equity here)?

Working group members stressed that it was important to acknowledge just how critical the intersections are for mitigation, and moreover that efforts to decrease emissions needed to move concretely away from a siloed approach. Mitigation actions in natural resources and working lands were seen as intersecting with the following existing priorities:

- Housing Development and Land Use Planning, including pushing development onto already degraded land
- Economic Development
- Water infrastructure and management
- Tourism and Recreation
- Transportation and Infrastructure Investment

For detailed answers, please see the respective questions in Appendix C.

What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding Cape sources of emissions?

Participants identified support to reduce emissions would be needed from the municipal to the state level. Other key actors would be the education community, conservation organizations, and historic preservation networks and/or commissions, as well as individual Cape Codders. Finally, *regional* coordination and support were noted as a critical piece to develop further. This coordination role was suggested as something that Cape Cod Commission as a convenor and organizer could potentially assume.

For detailed answers, please see the respective questions in Appendix C.

Developing and Prioritizing Criteria for Climate Action Strategies

Ms. McElroy, provided examples of actions that would simultaneously have adaptation and mitigation benefits. She noted that one way to prioritize actions would be to look at those at the nexus of adaptation and mitigation for Natural Resources and Working Lands, such as:

- Protecting open space
- Restoring tidal flow to salt marshes

- Smart land use – Transfer of Development Rights (TDR)
- Supporting local food production

Working group members were then asked to brainstorm about criteria that would be important in the prioritization of climate actions to include in the regional plan.

More specifically, participants were asked to think about and discuss:

- Important values that should drive the prioritization of actions to mitigate our impact and plan for resilience
- Key principles and considerations when making choices on what and where to focus actions in a context of multiple needs and limited resources

Working group members identified the following criteria:

- Education
- Coordinated Governance
- Equity

The working group discussed the critical importance and different facets of education and outreach efforts. Participants noted that it is key for Cape Cod's public and different constituencies (e.g., local politicians, policy makers, and second homeowners, etc.) to understand the fundamentals of climate change, and that they must receive information to become invested in long-term goals. Working group members also noted that the Climate Action Plan would be a critical way to distribute foundational information to educate the public in a logical flow: first transmitting the ecosystem-wide risks that will drive decision-making and subsequently illustrating the environmental differences that exist across the Cape.

Coordinated governance and equity were two other important criteria that emerged from the group, although there was limited time to discuss these in depth. They are noted here as items that require additional discussion.

PUBLIC COMMENT

No public comment was made during this meeting.

WRAP UP AND CLOSING

Cape Cod Commission staff thanked the working group members for their time and participation, reminding them to visit the Cape Cod Climate Initiative Website for further details.

CBI noted that it would send out a meeting summary to reflect back what was shared during the call and asked the working group to spend a little bit of time reviewing materials that would be shared in the future.

Working group members noted that the meeting had been a good start to the discussion, were glad to see the process involve a targeted Natural Resources and Working Lands component,

and reiterated again that all existing efforts should be coordinated into as holistic a process as possible.

Participants also suggested that the meeting time for this working group took place during the workday and requested this be taken into consideration. The Commission responded that they will be creating another group working on Communications and Education that will meet in the evenings.

APPENDIX A: LIST OF PARTICIPANTS

Participants	
First Name	**Last Name**
Cheri	Holdren
Greg	Berman
Casey	Dannhauser
David	DeConto
Rick	Francolini
John	Frost
Catie	Fyfe
Fred	Gaechter
Jane	Harris
DeeDee	Holt
Ian	Ives
Don	Keeran
Jake	McCumber
Maxine	Minkoff
Dennis	O'Connell
Brenda	Olson
Morgan	Peck
Avery	Revere
Carole	Ridley
Leonard	Short
Gerry	Stahl
Lilian	Woo

APPENDIX B: SMALL GROUP DISCUSSION SUMMARIES - ADAPTATION

Group 1

How do these hazards/vulnerabilities intersect with other Cape priorities (for better or worse)? (consider equity here)

• Salt marshes - infrastructure is in place that prevents salt migration backwards as SLR increases; balance b/w: allowing migration and working with a vulnerable community in the area
• Precipitation - impervious surfaces that allow for increased flooding - need for development economically tied with the effects of impervious surfaces
• Shell fishing - has broader impacts on Cape's economic standing;
  ○ Restoring native shell fishing (oyster reef restoration)
• Question: how will shifting waterfront affect the tax base (prop 2.5); tax base is adjusted annually and divided according to assessment; where will the burden of these shifts be - financial impact?
• Increased likelihood of major storms - cost of a storm would be on *current* work; how do you mitigate large expenses that could destroy the work that's already done (endangered species mgm't, recreation, water quality)?
  ○ Sandwich/beach nourishment - unintended consequences
• Additional cost of shore-front property ownership (public/private); combo of very wealthy estates increasing + floodplain area value depreciates (polarization of the economy)
• Threshold of cost to do the work vs. not doing anything
• Insurance costs -- the burden is on homeowners/FEMA also increase

What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding these hazards?
• Conservation Commissions - need to be considerate of all of these above • State influence (need this for continuity); can the county help regionally • Town gov't - comes down to $$ for everyone - how to shift political will?   ○ Community using its voice to push for change • Cape Cod Commission (?) has regional authority - to shift the threshold could blanket controls regionally vs. town-by-town (to mitigate the variation) > adding more enforcement regs at the regional level (+1); • Regional support: monetary, political (umbrella over the cape); regionally driven approach will be what unifies • Education community is key (student climate ambassadors = critical step)

Notes:

- Projecting SLR of 4-10ft - develop legislation regarding "smart development" (particularly in areas affected by flooding/SLR)

Group 2

How do these hazards/vulnerabilities intersect with other Cape priorities (for better or worse)?
• Societal and economic impacts • Housing • Overdevelopment • Need for funding and finances -- competing priorities
Notes: • Sea level rise, coastal erosion, storms that inundate our salt marshes are going to have environmental impacts as well as societal effects. Impacts on the economic development and jobs on the Cape. • Housing--if people want to live on the coast or people pushed into less safe lands due to lack of resources. • Overdevelopment is a problem. Clearing of woodlands and habitat. Continues to endanger saltwater and freshwater habitat due to overdevelopment.
What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding these hazards?

• Faith network/churches
• Policymakers -- politicians, state level as well as national level, and town level, and the County level
  ○ Also, a number of groups within each town that are concerned with these issues and brings people together
  ○ Commission needs to take stronger stands and show more leadership and lead by example
  ■ Would like to see more climate forward action on regulatory and planning aspects of responsibilities
  ■ New local bylaws and policies and strategies on the local level as well
• Schools and younger people; educating students and who we want to keep here on the Cape
• Cape Codders can make a difference through individual actions, community actions, sharing of what they know

- Some actions might be sacrificial, e.g., changing attitudes about lawn care
- Zoning changes
- Economic sanctions or benefits based on use of water and electricity, particularly in low income populations
- Citizen involvement in providing data gathered in pond monitoring, in volunteering for salt marsh restoration projects are very helpful in informing policies
- Communicating between the municipalities and the citizens, e.g., Chatham CAN
- Coordinating among municipalities

Notes:
We rely on science, but churches can address the moral imperative and have a wide audience.

Group 3

How do these hazards/vulnerabilities intersect with other Cape priorities (for better or worse)?
• Pinelands conservation connects well to climate threats (increasing fire hazard, forest pests - gypsy moths, southern pine beetle) • Policies to restore and enhance coastal resources - potential to play greater role in sequestration • Looking at wastewater and water quality issues together - how can water quality issues address climate and ensure water quality projects consider potential climate impacts (there is a lot of investment in this projects)
Notes: • Focus is on Pine Barrens conservation, not as visible with climate discussions, but critical for resource conservation; how does the upland area intersect with climate vulnerabilities? Sound forestry will minimize climate threats and result in carbon sequestration. • Importance of saltmarsh and coastal grasses to carbon sequestration; studies are tied to mangroves for most productive sequestration habitat. One of our biggest vulnerabilities is saltmarsh die back (leaves mud flats). As sea level rises, saltmarsh loses investment in peat and can't grow back. Education to preserve saltmarsh is needed (not seen as a productive habitat and need to protect what we have left). • Intersection of climate adaptation and resilience with exhibiting conservation concerns and habitat needs is essential. • Need local studies
What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding these hazards?
• Coastal zone management bylaws • Second homeowner summer population has large influence in conserving critical habitat - development along the coastline, could be more living coastline • Education and awareness around ongoing regional management efforts (better inform public); more cross network collaboration; what are the initiatives and why are they beneficial

APPENDIX C: SMALL GROUP DISCUSSION SUMMARIES - MITIGATION

Group 1

What other Cape priorities intersect (for better or worse) with efforts to decrease our emissions from this sector?

- Everything is interconnected - large affordable housing dev: water quality, tree cover, etc. >> pertinent to climate change (these things are all connected); how to develop affordable housing when cutting down tree cover (for example)? Hard to isolate - recognize these and plan around this
- Zoning and land-use planning - integrate a management plans and balancing needs
    - Just planting trees/increasing forest cover is counter to conservation needs; integration of all of these
    - Public funding would help to integrate these things
- Reallocation of existing assets:
    - degraded land (can we map this?) - how can we use lands that have already had some use, how can we use this to serve us better, before looking at conserved lands
    - "Owner unknown" lands (low hanging fruit)

Notes:

- Can we map degraded land to see how to utilize this?
    - Abandoned properties, unoccupied buildings, etc.?

What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding Cape sources of emissions?

- Local zoning/management planning to tie into larger regional plans; need different spatial scales (provide a matrix/way to move forward) - funding can reference plans to understand all the resources
- Cape Cod Commission - drive the local-level management planning AND integrating w/ regional and state initiatives
    - Regional support to drive the changes (towns at the individual level)
- Conservation orgs/commissions
- Town level - staffer who can work full time on issues of climate change
    - Established Municipal board (volunteer/sanctioned budget drives staff

Group 2

What other Cape priorities intersect (for better or worse) with efforts to decrease our emissions from this sector?

- Tourism – encouraging more people to come in their cars
- Real estate market and value of properties
- Jobs -- once population changes from less year-round residents, with less people to do jobs, is related to what's happening with the environment
    - Cost of living and impact of attempting to convert from fossil fuels to solar panels and heat pumps
- Water quality -- currently very expensive problem, which is money otherwise available to solving problems of climate change
    - Maximizing investments in infrastructure -- where to put infrastructure strategically in terms of water quality and where the Cape grows (future housing, future businesses)
    - Minimizing tree cutting
- Need economical and efficient public transportation to significantly reduce greenhouse gas emissions
    - Challenge to not mitigate transportation through accommodating more traffic (EV will require balancing solar development with deforestation)
    - EVs alone won't solve the problem with our huge tourist and second home economy
    - Need to get people moving without cars
    - Need to be strategic about bike paths -- make it more functional for commuting; incorporate bike paths along busier roads

What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding Cape sources of emissions?

- Cape Cod Commission with transportation issues; need to handle regionally and refocus transportation strategy
- Local regulatory boards -- guidance for revisions to make to bylaws (e.g., Stretch Code, passive houses)
    - Help towns think uniformly
    - Historic commissions reviewing solar farms, wind farms, etc.
- Conservation organizations embarking on specific plans for plantings and protecting uplands from SLR
    - Bringing all of the trusts together into a unified plan across the region
- Nature-based solutions and green infrastructure
    - Preserving our forests, reforestation, salt marsh restoration and migration, and wetland preservation
        - Requires funding -- need state and federal funding sources
        - State pushing nature-based solutions
            - Organizations need help to force state to allow credits for nitrogen in nature-based solutions
    - Nature-based solutions also drive down water quality infrastructure costs
- Historic commissions -- focusing on restoring what we have is better for the environment
- Green lawns -- cultural shift
- Conservation commissions
- State level legislation

Group 3

What other Cape priorities intersect (for better or worse) with efforts to decrease our emissions from this sector?
• Reducing personal automobiles without hurting tourism industry • Strengthening coastal zone management regulations to address development that has potential to limit sequestration • Development - prevent development of new lands that are sequestering carbon (redevelopment too); tradeoff is the economy • Solar installations that conflict with forested areas, for example, both good things but can be in conflict • Opportunity to promote bicycling - people are discovering outdoors
Notes: • Conservation Commissions - point where there is a lot of stress/potential to ensure that individual project decisions have cumulative impact - opportunity to help conservation commissions (give them tools and support, and help to build public awareness) • Public lands are not being managed efficiently; need to better maintain;
What are the key areas of authority and influence in this sector on the Cape? What can Cape players influence regarding Cape sources of emissions?
• Conservation Commission (Sandwich) has tried to implement regulations that limit development on barrier beaches - could use regional bylaw to assist local conservation commissions • Increase public education funding in school districts - students and adult populations - to increase understanding about the potential for land to mitigate climate change, along with other benefits
Notes: • Could benefit from a regional strategy to coastal management bylaws and regulations - both to support local conservation comms and to limit the disconnected nature of town by town bylaws and regs • Education - seek resources and funding for these efforts; show how much tree canopy the cape is losing/how it's changing?