Coastal Resiliency Master Class (Dec 9) Notes

Sea Level Rise Data

Data Sources:
1. Tidal Marsh Migration by MNAP
2. Coastal Resilience by TNC
3. Coastal Risk Explorer by TNC in Maine
4. LiDAR (for topography) -- easily accessible through the Coastal Risk Explorer
5. NOAA Technical Report 83

Panel

- Sea level rise and impacts on marshes in Maine (*Pete Slovinsky*)
  - Two main causes of sea level rise are volumetric increase and thermal expansion
  - Sea level can change abruptly due to changes in the Gulf Stream and North Atlantic Oscillation
  - With 1ft of sea level rise the frequency of inundation (tides higher than 12’) rises from about 3 hrs a year to approximately 50 yrs per year
  - How to use data to map potential marsh migration
  - Topography stays static
    - LiDAR simulations use bathtub approach assuming topography doesn’t change
    - Therefore snapshot data isn’t always accurate
  - Scarborough Marsh
    - Conversion of mostly high marsh to low marsh with just 1ft of SLR
    - With higher SLR, marshes will convert to open water
  - SLAMM model
    - Future integration with marsh accretion data
  - Steep sloped boundaries around marsh diminish marsh migration opportunities
  - NOAA Technical Report 83

- Maine’s Tidal Marshes: Present and Future (*Kristen Puryear*)
  - Change in low marsh sees a decrease in Spartina alterniflora and an increase in bare ground, water, and dead vegetation
    - Useful in gauging and predicting how marshes are changing
    - Developing protocol for vegetation monitoring method
  - MNAP data accounts for impervious surfaces unlike the bathtub model
  - About 30% of future marsh migration space is conserved
  - Coastal Undeveloped Blocks
    - Shows marsh migration space and restoration opportunities
- Shows large, connected areas of future marsh and buffers
- MNAP has also developed an analysis of marsh migration potential associated with Coastal resilience blocks, available through Kristen

- Maine Risk and Resilience Tools (*Jeremy Bell*)
  - coastalresilience.org
    - "Future habitat explorer": marsh migration
    - "Coastal risk explorer": road inundation
  - Coastal Risk Explorer
    - Includes land parcels where data was available online
      - In addition with MNAP data, you can find parcels of land that will have future marshland

**Case Study**
- 12 Rivers Conservation Initiative
  - Data used:
    - MNAP Marsh Migration
    - TNC Coastal Resilience
  - Data used together and overlaid
    - Marsh migration buffer zones
    - Different factors for ranking and difference in scale between the 2 data sets (the highest ranking of the 2 data sets was the one that was used)
    - All data applied with a 1 meter of SLR scenario
    - After that, Coastal Risk data for road inundation was applied
      - E911 road data (DOT, local, and private)
      - Tidal crossings and culverts overlaid (more detailed data soon)

- Woolwich Tidal Restoration Project
  - Culvert passage blocking full tidal range of the upstream waterway
  - LiDAR surface not always accurate because of the difficulty of data gathering

**Managing Multiple Funding Sources**

**Panel**
- Maine Natural Resources Conservation Program (*Bryan Emerson*)
  - What makes a "good" MNRCP project?
    - Projects involving wetland restoration and enhancement tend to have a higher likelihood of being funded
    - Projects that address issues of both wetlands and uplands
    - Areas under threat of development
    - Proximity to other protected land/areas of focus for conservation
    - Prioritization of resources (e.g. coastal projects since there have been a lack of them recently)
Fish passage projects?
- Program has moved away from projects solely focused on fish passage/stream projects, more focused on wetlands
- A good project could involve issues of fish passage and wetlands (e.g. culverts)

MNRC doesn’t prohibit forestry, but certain conditions must be setup
- Harvesting cannot occur in wetlands and a buffer around wetlands

MNRC doesn’t require or prohibit recreation and public access

Long term protection should be addressed

MNRC cannot fund invasive species removal projects as restoration projects
  - Provides compensation for natural resource impacts
  - Money comes on a region by region basis

Coastal Projects
- Program is focused on a shorter time frame so program can’t take credit for future marshland (marsh migration)
- Tidal barrier removal/improvement
- Enhancement of wetlands (reestablishing vegetation)
- Potential future projects (things MNRCP have yet to do but are hoping to see projects cover):
  - Eelgrass restoration
  - Living shorelines
  - Other subtidal restoration
  - MNRCP likes to see additional funding sources but it isn’t necessary
  - mnrcp.org has a list of all past projects, current funding available in regions, and current priority resources
  - You can contact Bryan Emerson to field projects for MNRCP funding
  - Can mitigation funds be applied to the same location?
    - The project has to add something that the previous one didn’t have
  - No matter what percentage of funding comes from MNRCP, their stipulations still apply
  - What funding sources’ demands take precedent?
    - Case by case basis
    - Example: York River

USFW (Chris Meaney)
- Key priorities:
  - Coastal resilience
  - Aquatic connectivity
  - Landscape scale conservation
  - Species and habitat resilience in the face of climate change
    - As well as community resilience and infrastructure
      - And how that affects fish and wildlife
What works:

- Multiple benefits to fish and wildlife as well as community and recreational opportunities
  - Recreational hunting and fishing background of agency
- Leveraging different pots of money within the agency
  - A shared vision can help secure funding
- Priority species
  - Can help to bring in different funding sources
  - E.g. salt marsh sparrow
    - Components of coastal resilience included

Coastal Wetlands Conservation Act

- Up to 1 million in funding
- Tends to not be as competitive

Small funding can catalyze further funding

Keen interest in coastal resilience and marsh habitats

“Coast Wise” developing guidance for approaching design of tidal restriction from an ecological perspective

USFW acquisition areas (refuges)

- Each refuge has its own acquisition space
- Funding pot strictly for refuges
  - Ranking system based on parcel

Maine Farmland Trust (Adam Bishop)

- Many farms along the coast that possess land with qualities desirable for a coastal resilience project
- NRCS’s Federal Agricultural Easement Program
  - Need for a tool to access more of this grant money
  - RCCP proposal for 5 years of funding
    - Much of the land MFT applied for funding for RCCP is also land desirable for marsh migration and coastal resilience projects
- Pot of about 4 million dollars allocated for work on this land for the next 4 years that falls at the intersection of agricultural land and wetlands
  - Target acreage number: up to 1000 acres
  - Planning for about 6-8 projects
  - Money is there for the whole coast of Maine and more local land trusts
    - “Farmland with high quality marshland”
- Parcel must have 50% agricultural soil and 33% open land (somewhat flexible)
- Farmland isn’t in the marsh migration area but the parcel contains both so these two aspects of land protection can coexist
- Looking for farmland conservation projects that can also work for marsh migration and coastal wetlands
- Seemingly competing priorities actually contain mutual benefit
- MFT acquired a farm and split it into 3 parcels, one parcel went to a farmer, one went to USFW, and one parcel met high value wetland criteria and KELT used NACA funding to purchase it from MFT
- MFT focused on soliciting projects
  - 2 pools of RCCP money (broader Maine and a more targeted area in Washington county)
- Looking for farms adjacent to migration space
- Farm does not have to be in active production
  - Must have open land available for cultivating
- Private funders interested in coastal resilience?
  - Climate funders are not land acquisition focused, more focused on mitigation
- Securing municipal funding
  - Emergency response access could incentivize municipal funding
- Gaps in funding for acquisition or restoration?
  - Lack of available planning/background research funding
  - Rural communities would rather spend their more limited tax dollars elsewhere
  - Raising funding for acquiring parcels that have been split between coastal area and upland where the coastal area is already acquired can be difficult