Science of the Living City Seminars

Organized by the NYC Urban Field Station

Margaret McCabe

12/7/2016

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Science of the Living City

The Science of the Living City Seminars are a collaborative series that engages diverse partners around New York City to address a variety of issues related to urban social, biological, physical ecology, and quality of life in cities. Speaking to a wide professional and public audience, the seminars goal is to explore new knowledge and perspective while spreading environmental awareness.

The seminars rotate throughout New York City while featuring scientists, scholars, practitioners, land managers, designers and policy-makers. Lively discussions and debates allow for exciting new knowledge to spread. The series seeks to explore the "urban green" from every point of view, including ecology, biology, sociology, history, creativity, design, anthropology, geography, policy and more.

Science of the Living City Seminars are held monthly and more information on the series as well as past and future events can be found at http://www.nrs.fs.fed.us/nyc/slc/

New York City Urban Field Station

a partnership between the USDA Forest Service Northern Research Station and New York City Department of Parks & Recreation

presents

a Science in the Living City seminar on

Social Media and other "Big Data" for Advancing a Systems Understanding of Benefits of Urban Green Space

Wednesday January 6, 2016, 12:00 - 1:30 pm

Parsons, The New School
2 W 13th Street, Manhattan
Bark Room M101

Timon McPhearson, Ph.D., Assistant Professor of Urban Ecology, The New School

Dr. Timon McPhearson is Assistant Professor of Urban Ecology at The New School's Environmental Studies program, Director of the Urban Ecology Lab, and research faculty at Tishman Environment and Design Center, where he works directly with designers, planners, and managers to foster sustainable and resilient cities. He investigates the ecology *in, of,* and *for* cities and teaches urban resilience, systems thinking, and urban ecology at the university. Dr. McPhearson is a contributing author to the UN Convention on Biological Diversity's *Cities Biodiversity Outlook*, a member of the Urban Climate Change Research Network (UCCRN), and co-leads the Future Earth Urban Platform (FEUP). He is Co-PI of the U.S. National Science Foundation (NSF) $12 Million "Urban Resilience to Extreme Weather Related Events" Sustainability Research Network (UREx SRN, 2015-2020).

Zoé Hamstead, PhD Candidate, Urban and Public Policy, The New School

Zoé Hamstead is a PhD student at the Milano School of International Affairs, Management and Urban Policy and an Environmental Protection Agency *Science to Achieve Results* (STAR) Fellow. She is an environmental planner by training, and teaches a civically-engaged Geographic Information Systems course at The New School. Her scholarship builds tools, indicators and frameworks for understanding social-ecological resilience and vulnerability in urban areas, with a particular focus on vulnerability to extreme heat events. In collaboration with Dr. Timon McPhearson and the Natural Capital Project, she is leading a project to assess the validity of using social media data as proxies for park visitation rates, and predict drivers of park use in New York City.

Please RSVP, or request additional information, at michelleljohnson@fs.fed.us.

THE NEW SCHOOL URBAN ECOLOGY LAB

http://www.nrs.fs.fed.us/nyc/

May 5, 2016 6:00-8:30 pm

Arsenal Bldg, 3rd Floor Gallery

830 5th Avenue, New York, NY

Reducing water pollution in a dynamic world:

the critical role of green infrastructure investments in enhancing the resilience of urban landscapes

Drawing from local, regional, and international case studies, this talk will explore the potential role that multifunctional green infrastructure (GI) systems may be able to play in promoting urban resilience. In the US context, GI is primarily funded as a stormwater reduction measure, and for this reason it must, at a minimum, provide this service reliably. Though research confirms that GI systems can, in fact, reduce runoff at the site, block, and watershed scale, much less is known about the other services these systems may provide in urban ecosystems, when they are strategically conceived, sited, and designed. Because GI programs are typically being implemented in the context of adaptive management, the opportunity for practitioners, researchers, regulators, and community leaders to work together to pilot, monitor, and verify new GI configurations is upon us. Doing so requires flexibility, creativity, and the institutional willingness to attempt new things.

Franco A. Montalto, PE, PhD is an Associate Professor in the Department of Civil, Architectural, and Environmental Engineering at Drexel University, where he also directs the Sustainable Water Resource Engineering Laboratory. His expertise includes urban ecohydrology, stormwater management, green infrastructure, hydraulic and hydrologic modeling, and cross-cutting topics in urban sustainability, adaptation, and resilience planning. In addition to his academic teaching and research he is the founder and president of eDesign Dynamics LLC, an environmental consulting firm based in New York City.

Science of the Living City

Seminar Series

Franco Montalto

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Natural Areas Conservancy

May 23, 2016 6:00-7:00 pm
Arsenal, 3rd Floor Gallery
830 5th Avenue, New York, NY

Why Trees Matter

A discussion of the value of trees in New York City and State, how residents can assess the value and services provided by their local trees and the likely threats to urban forests in the coming years.

Dr. David J. Nowak is a Team Leader with the USDA Forest Service, Northern Research Station in Syracuse, NY. His research investigates urban forest structure, health, and change, and its effect on human health and environmental quality. He has authored over 250 publications and leads teams developing software tools to quantify ecosystem services from vegetation (e.g., UFORE and i-Tree programs).

Science of the Living City

Seminar Series

David J. Nowak

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Natural Areas Conservancy

Oct. 4, 2016 6:00-8:00 pm

Brooklyn Bridge Park-Pier 6

Brooklyn, New York, NY

Public Food: A Science of the Living City Panel aboard Swale

Science of the Living City

Seminar Series

What if healthy, fresh food could be a public good? Community gardening has deep roots in many New York City neighborhoods, while new forms of urban farming – including entrepreneurial models, rooftop farms, and controlled environment agriculture – are also emerging and proliferating. Activists define food justice as access to healthy, fresh, affordable, and culturally appropriate food. Some argue that food justice is a right. Swale, a collaborative floating food project, is dedicated to rethinking New York City's connection to our needs for sustenance. Built on a 130-foot by 40-foot floating platform, Swale contains an edible forest garden. Functioning as both a sculpture and a tool, Swale provides free healthy food at the intersection of public art and service. With Swale, the creators want to reinforce water as a commons, and work towards fresh food as a commons too. Please join us in a conversation with community practitioners, city managers, and researchers about growing, foraging, and harvesting public food in public spaces.

- Mary Mattingly, Visual Artist, SWALE Creator
- Leenda Bonilla, Outreach Coordinator, Partnerships for Parks
- Lindsay Campbell, Research Social Scientist, US Forest Service
- Marla Emery, Research Geographer, US Forest Service
- Ray Figueroa, President, Director of Social-Ecological Community Development Projects at Friends of Brook Park and President, NYC Community Garden Coalition
- Bram Gunther, Co-director, NYC Urban Field Station, NYC Parks
- Brittany Quale, Project and Design Coordinator, GreenThumb

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Managed Retreat

How Do We Talk About It?

What is Managed Retreat?

As sea level rises, many neighborhoods built along the coast are becoming increasingly vulnerable to flood and destruction. In order to protect cities, a variety of mitigation techniques are being used such as seawalls, beach-fill and managed retreat. Many areas will use sea walls to hold off the rising seas and flooding, however, many times these fail or are overcome during a severe storm. Beach fill refers to dredging sand out from another area such as an inlet, and filling in an eroded beach. While this will temporarily keep the water at bay, the sand will continue to move, requiring this process to be repeated annually if not more. The third option, managed retreat, also known as planned retreat or managed realignment, is the act of moving away from the coastlines and allowing previously developed land to be turned into natural areas. In doing so, the shorelines can erode naturally which in turn allows for better protection from storm surges and flooding.

Managed retreat is a complicated process that requires communities to leave their homes and relocate to safer areas, cities and developers need to agree to allow the land to be turned into green space, and the long term cost benefit needs to be clear. For the communities, many times, these residents have lived in an area for generations and have a place attachment to their homes. City governments have supported managed retreat through buyout programs where the city will purchase high risk homes and neighborhoods and restrict the land to marshes or wetlands. In doing so, other nearby neighbors are more protected by the natural barriers put in place.

There are many challenges that come with sea level rise mitigation, and managed retreat in particular; however, as sea levels continue to rise, sea walls and barriers may not be enough to protect coastline properties and plans to retreat from the coastlines need to be implemented.

Literature:

Agyeman, J., Devine-Wright, P., Prange, J. (2009) Close to the edge, down by the river? Joining up managed retreat and place attachment in a climate changed world. *Environment and Planning A*, 41, 509-513

In the face of climate change, coastal retreat is becoming more inevitable as sea levels rise and shores erode further inland. While there have been successful relocations, many difficulties arise leading to tensions between community members and government. In this commentary document the authors discuss the importance of including residents in the discussion of managed retreat. They argue that more work needs to be done in order to create managed retreat programs that are successful. In order to do this, policies and plans need to bring human health into the picture and better understand the psychological, symbolic, and emotional aspects of healthy human habits. By definition, managed retreat is the relocation of communities and ecosystems so that nature can take over previously developed coastlines and avoid further infrastructure rebuilding. As well intentioned as this may appear, the feelings of the residents being relocated are hardly discussed. Agyeman, et al. define place attachment as "positively experienced bonds, sometimes occurring without awareness, that are developed over time from the behavioral, affective, and cognitive ties between individuals and/or groups and their socio-physical environment." Place attachment, place identity, and home are concepts that are inherently symbolic and emotional and need to be taken into consideration when managed retreat programs are being developed, which, according to Agyeman et al. are currently not.

In order for local authorities and scientists to avoid and reduce conflict with communities they need to listen to the residents and understand the relationship that exists between the people and their environment. As seen in examples in Louisiana, residents "felt largely shut out of the restorative process by local officials who listen[ed] only to scientists and government agencies

when making decisions about how to manage the land" when in reality it is the "residents' knowledge of place [that is] a valuable component not only useful but necessary for successful restoration (or managed retreat)."

A successful example of relocation is from Shishmaref, a traditional Inuqiap Eskimo village on the Chukchi Sea. Despite 650 community members having to relocate from a land that had been settled by these people for 400 years, they did so willingly. This success is perhaps because the villagers were all involved in the discussions and plans and voted to approve the managed retreat plan.

Leaving what is called home is not an easy feat emotionally, especially when faced with few other options, if any. It is important that the psychological and emotional aspects are considered when agencies begin to plan a managed retreat program for an area.

Allison, M. (2016) The Effect of Rising Sea Levels on Coastal Homes. *ZillowPorchlight.* 8/2/2016 http://www.zillow.com/blog/rising-sea-levels-coastal-homes-202268/

This article from Zillow Porchlight reviews the sea level predictions and how they are expected to affect millions of homes in the future. Sea walls for Manhattan may be possible because of the bedrock but in other locations such as Florida, this is not possible. People will need to leave. Flood insurance companies are looking to help homeowners in the face of flood and while sea levels are rising, people are continuing to move to the coast.

Rao, K. (2016) Climate Change and Housing: Will a Rising Tide Sink all Homes? *Zillow.* 8/2/16 http://www.zillow.com/research/climate-change-underwater-homes-12890/

This research article done by Zillow discusses the effects that rising sea levels does and will have on real estate. The study discusses and provides maps of future predictions and the housing market and they say that 1.9 million homes nationwide are at risk of being underwater by 2100. 1

in 8 homes in Florida and 1 in 10 homes in Hawaii are expected to be underwater if predictions are correct.

Siders, A. (2013). Managed Coastal Retreat: A Legal Handbook on Shifting Development Away from Vulnerable Areas. ***Columbia Law School, Center for Climate Change Law.*** **1-157**

This handbook provides potential tools, examples, information and lessons learned all regarding the various factors of Managed Retreat. Detailed information regarding the National Flood Insurance Program, Coastal Management Programs with various Management Acts discussed as well as case studies of different buyout programs across the country. Each section concludes with lessons learned from the potential tools they discuss in that section. The entire handbook focuses on the importance of addressing coastal erosion and sea level rising due to climate change and the actions that need to be taken and how they should be addressed.

Case Studies:

Oakwood Beach, Staten Island, NY succeeded because they reacted quickly and effectively post-Sandy due to strong community leadership. The unification of the community throughout the buyout process allowed it to speak with one voice and project a strong political message.
Aid:
Flood Victims Group
Oakwood Beach Buyout Committee
FEMA Hazard Mitigation Grants
Randy Douglas, Supervisor of upstate New York Essex County
Matthew Nelson, federal Department of Housing Urban and Development
Challenges:
Not everyone could afford to move. Residents whose homes lost value and now owe more than the appraisal are forced to stay and may have feelings of being left out and frustrations at their homes loss of value.
Funding for buyouts has become scarce and rather than one buyout it is happening in piecemeal fashion
Many residents in neighboring communities have also lost interest in moving as the memory of the threat fades, they no longer see the urgency or need to leave.

Sidney, New York- Located in upstate NY near the Catskill Mountains and the Susquehanna River. In 2006 major flooding from 14 inches of rain overflowed the river causing a 1 in a 100-year probability flood. 5 years later a second flood hit. No single individual or group spearheaded the effort though many members sought buyouts. Residents proposed building back a better, more resilient, and sustainable community. Amphenol Aerospace proved key driver for relocation- this company was relocating and taking jobs with it.
Aid:
Hazard Mitigation Grant Program
The Long Term Community Recovery-FEMA funded
NY Rising Community Reconstruction Program, HUD Community Development Block Grant Disaster Recovery Program
Challenges:
Uncertainty: Cost of living out of most residents reach. Need assistance. New plan to raise houses changed the minds of many
Relocation area estimated $100million-also expected to be a high income housing area instead of for any income level.

Newtok, Alaska- The Ninglick River is eroding the land at an alarming rate however, despite the communities desire to relocate, the residents are still living in the community as the land continues to erode. This has been a 30 year process with some progress. They have agreed upon Mertavik as the relocation site.
Aid:
The Newtok Traditional Council
Newtok Planning Group-Alaska Dept. of Commerce, Community, and Economic Development
Partners and lobbyists not named but referred to
Challenges:

This community has faced many challenges
There is no clear policy framework, no regulatory guidance, and no clear mandate or authority designated to any one agency for relocating an entire community
Slow-moving disasters are not covered by state and federal policies
Community is not able to afford their share required to relocate.

How to talk about Managed Retreat
Science of the Living City Seminar- 2017

Open with Film Clip(s)-10-15 minutes:

Each below is 5 minute clips:

"What If Your Home Was Slipping Into the Ocean?"- July 25, 2014 - North Carolina's barrier islands, known as the Outer Banks, are eroding as the sea level rises. This means some land—and homes—will be swallowed by ocean, and the people who live there must cope with the immediate impacts of climate change. Money has been spent to keep the sand in place, but Mother Nature keeps pushing back. http://video.nationalgeographic.com/video/news/140725-outer-banks-sea-level-rise-vin?source=relatedvideo **(This video is from the perspective of residents telling how difficult it is for them to think about leaving. They know sea levels are rising and their homes will be taken with the seas but refuse to leave. Example of Place Attachment)**

"Rising Sea Levels are Swallowing this North American Island"- December 16, 2015 - Lennox Island is a small but culturally rich coastal community in Prince Edward Island, Canada, that is seeing the negative impact of climate change and sea-level rise. Home to Mi'kmaq (pronounced MIG-maw) First Nations people, the island faces flooding and land erosion that threaten both homes and the roads that connect the residents to the mainland. Also at risk are several archaeological sites that hold vital artifacts from the Mi'kmaq's aboriginal ancestors. The longtime residents of Lennox Island are doing their best to mitigate the effects of climate change but fear that eventually they'll lose their houses to the rising waters. http://video.nationalgeographic.com/video/news/151214-lennox-island-climate-change-vin?source=searchvideo **(Lennox Island is losing almost 3 feet a year to sea level rise. Storm surges threatening infrastructure on island. Residents are fearful of what can come but no plans of relocation are mentioned in the video).**

Interactive Website: www.Worldunderwater.org

Visual Thought: Backdrop behind panelists of moving water through a projector. https://youtu.be/4Bk7L372V5s Play this on loop

Move to panel discussion:

Speakers: Joe Tirone; Maya Buchanan; Mike Marrell from Dept of City Planning; someone from ORR and/or Governor's Office of Storm Recovery; a scientist in addition to Maya that can talk about modeling (Phil Orton from Stevens?) a land manager?

Begin Panel Discussion with Scientist/s:
Maya Buchanan; Phil Orton

- What is happening to sea level around the world?
- What are the current predictions?
- How are non-coastline areas being affected? (Areas along rivers, permafrost melting)

Policy Maker:

-What are the current policies regarding sea level rise?
- How do state and federal policies apply?
- How are policies changing to adjust to predicted sea level rise?

Real Estate Agent:

- What is happening to real estate, specifically in coastline areas
- How has/is flood insurance changing?
- Are populations leaving the coast at all or no pattern seen?

Community Member: Joe Tirone from Oakwood Beach, Staten Island, NY:
(What is the community perspective on Managed Retreat?)
Joe Tirone Questions:

-What was the turning point from staying put to wanting to leave?
-Why did you decide to bring it to the community and not just leave yourself?
-What was their initial reaction?
-How did science influence your thinking?
- How did you learn about and access the science?
-What were some of the biggest bureaucratic challenges?
-Who were your allies and who were your antagonists?
-What happened to the families in your community?
-What does the future along the coast look like to you?

Discuss the Current Challenges:
-How best to start a productive conservation about retreat?
-Who do you talk to for information and advice?
-How do you bring in the whole community?
-How to best access and harness the current science?
-How do you find or assign leadership within the community?
-How does policy change?
-What is the role of insurance companies? -
-How do you decide who should be involved?
-What can you talk about when there is so much uncertainty and so few resources?
-When's the right timing and why?

Discuss Solutions to talking about it:

-Provide information clearly for people (unscientific) without provoking fear
-Finding leadership-Grassroots Organizations