

CONVERGENCE 2014

DRAFT Speakers Bios and Abstracts

NOTE: not all of the following listings are complete.

Keynote Talk: Landscape scale conservation at work Down East and across Maine

Alan Hutchinson, Executive Director, Forest Society of Maine



BIO: Alan Hutchinson has been the executive director of the Forest Society of Maine since 1997 when it was launched as a staffed land trust. Prior to leading FSM, Alan was a wildlife biologist with the Maine Department of Inland Fisheries and Wildlife for 24 years. While there, one of his roles was to help launch and lead the state's endangered species program. Focused on conserving large tracts within Maine's working forest landscape, the Forest Society of Maine has helped conserve 1,000,000 acres including several projects in Down East Maine. Bringing people with diverse interests together for large scale conservation projects is what excites Alan about this work.

ABSTRACT: Maine has been in the forefront nationally with landscape scale conservation with more than 2,000,000 acres permanently conserved in recent years. Alan will present an overview of this remarkable achievement and speak to the science, the partnerships, and the hard work that lie behind these successes. How landscape scale conservation fits the needs of Down East Maine and how Down East fits within a statewide and regional context will also be discussed.

Stream Restoration Actions in the Downeast Maine Rivers (2005-2014): Improving Ecological Stream Function and Water Quality via Road Crossing Improvements, Log Drive Dam Removals and Wood-Clam Shell Additions.

Scott Craig, Project Leader USFWS Maine Fishery Resources Office

BIO: Scott Craig, a Certified Fisheries Professional with the American Fisheries Society is the National Fish Habitat Action Plan Coordinator in Maine whom specializes in fish passage and stream connectivity for native salmonid's. Since 2005, my office has contributed to the replacements of over 120 culverts with Open Bottom Arch designs, removed 30+ culverts via road decommissions, installation of 14 bridges and removed 20+ log drive dams in the Downeast Maine Salmon Rivers. My presentation will show how these projects improved ecological stream processes and water quality that will help maintain long term persistence of native salmonid's in Downeast Maine.

Climate Change on the Edge: Visualizing and Planning for Storm Surges and Sea Level Rise in Coastal Downeast Maine

Tora Johnson, GIS Director, University of Maine at Machias



BIO: Tora Johnson is the director of the GIS Laboratory and Service Center at the University of Maine at Machias where she teaches computer mapping and environmental studies. She and her students use maps, computer models, and methods of effective facilitation to support Downeast communities as they grapple with complex decisions in a changing world. Most recently, the UMM GIS Service Center provided GIS services for the Grow Washington-Aroostook project, a regional planning process focused on sustainable development in Aroostook and Washington Counties working on climate adaptation, food systems and land use planning.

ABSTRACT GROWashington-Aroostook is a regional planning process focused on job creation, modern infrastructure, and healthy, affordable communities in the Maine counties of Aroostook and Washington. The University of Maine at Machias GIS Service Center, working in cooperation with the Washington County Council of Governments, has developed climate vulnerability assessments for all coastal towns in the region to support land use and municipal decision-making related to anticipated effects of climate change. The assessments include evaluation of changes related to storm force and frequency, sea level rise, economically-important natural resources, and features such as wetlands that contribute to coastal resilience. The assessments incorporate results of the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model developed by the National Weather Service (NWS) to estimate storm surge heights. Using the NWS SLOSH model output and coastal lidar data as inputs to a geospatial model, we mapped a variety of storm impact scenarios and then used them to identify vulnerable infrastructure, natural resources, and populations. We used best practices for climate and environmental communication to gain buy-in among local residence, including downscaling spatial data and interactive and iterative development of models and maps to make the results more useful at a local level. The next phase of the project involves outreach and working with local governments and conservation groups to increase awareness, develop inventories of vulnerable resources, and plan for adaptation.

Using Seabirds as Indicators of Ecosystem Change in the Gulf of Maine

Linda Welch, Wildlife Biologist, USFWS, Maine Coastal Islands National Wildlife Refuge



BIO Linda has an MS in Wildlife Ecology from University of Maine, and has worked for the US Fish and Wildlife Service since 1991. For the past 16 years, she has worked at Maine Coastal Islands NWR where the focus of her work is on restoration and management of colonial nesting seabirds. The Refuge is currently studying the foraging ecology of several species of seabirds and trying to document where the birds go to forage and what habitat characteristics are associated with those feeding areas.

ABSTRACT: For the past 30 years, Maine Coastal Islands NWR (MCINWR), National Audubon Society, and Maine Department of Inland Fisheries and Wildlife have documented annual population levels, productivity rates, diet composition and feeding rates on 11 managed seabird colonies in Maine. While extensive data has been collected at the colonies, we know very little about the at-sea ecology of birds in the Gulf of Maine. While seabird must return to land to raise their young, they spend the majority of their time at sea foraging for themselves or their chicks. As a result, seabirds are intimately linked to physical and biological characteristics of marine ecosystems. Seabirds need persistent aggregations of prey to be located within commuting distance of their breeding colonies. Recently, seabird managers have observed what appear to be significant changes in forage fish abundance and availability for breeding seabirds. Several colonies have abandoned or experienced complete reproductive failure due to lack of available forage fish. In recent years, we have also observed declines in chick growth and productivity rates. Seabirds are more easily observed, counted, and studied than other marine organisms and changes in ecosystem function will be evident in these upper trophic level predators. MCINWR has begun using satellite tags and coded radio tags to try and determine where the birds are foraging, and what habitat characteristics are associated with those foraging areas. We believe that integrating our monitoring efforts at the breeding colonies, our remote tracking studies, and ongoing at-sea monitoring efforts will demonstrate that seabirds are a vital tool for understanding change within the Gulf of Maine ecosystem.

Possible causes of eelgrass (*Zostera marina* L.) loss in Frenchman Bay, Maine

Jane E. Disney, Ph.D., staff scientist, MDI Biological Laboratory



BIO: Dr. Jane Disney is a staff scientist at MDI Biological Laboratory. She directs the activities of the Community Environmental Health Laboratory, which include engaging citizens in improving and preserving water quality and assessing and restoring eelgrass habitat in Frenchman Bay, Maine. She works with teachers and students in local schools, providing technical support and curriculum consultation for activities related to understanding local marine environments, in particular, eelgrass habitat. She also coordinates the efforts of the Frenchman Bay Partners, a local coalition of individuals, organizations, and municipalities working together to implement an adaptive management plan for Frenchman Bay. In this role, she works with various partners to identify, fund, and implement projects that will help achieve the goals of the Frenchman Bay Plan, including re-populating the upper bay with eelgrass.

ABSTRACT: Eelgrass has been declining in Frenchman Bay over the last two decades. Since 2007, eelgrass restoration efforts coupled with voluntary conservation agreements with mussel harvesters who

refrain from dragging in designated eelgrass restoration areas resulted in some success in reversing the decline. However, in 2013, both naturally occurring and restored eelgrass beds in upper Frenchman Bay failed to produce shoots. We investigated possible causes for the die-off and concluded that changing nutrient regimes in the water column over the last several years, combined with impacts of green crabs, may explain eelgrass loss in Frenchman Bay. In 2014, eelgrass shoots emerged from seed banks in sub-tidal sediments. Green crab numbers were down after a cold winter and restoration efforts were resumed. Annual variation in water column conditions and invasive species numbers and distribution are reasons why a continued cooperative agreement among partners is essential for marine habitat restoration efforts to be successful in the long term.

Will restoring alewives cause cod to create inshore spawning grounds along Maine's coast again?

Edward P. Ames, Visiting Research Scientist, Bowdoin and Penobscot East Resource Center



BIO: Ted Ames is a founding board member and senior advisor of Penobscot East Resource Center and is presently an external Graduate Faculty Member at University of Maine, Orono, visiting research scientist at Bowdoin College and a member of the Marine Fisheries Advisory Council of NOAA. Captain Ames fished commercially for 28 years. He was formerly Vice-Chair of Maine Department of Marine Resources Hatchery Technology Committee, Executive Director of the Maine Gillnetters Association and director of Alden-Ames Lab, an environmental and analytical laboratory. He has authored several peer-reviewed articles on historical fisheries ecology, fishermen's ecological knowledge, and related subjects. Ames is the recipient of a 2005 MacArthur Award, the 2007 Geddes W. Simpson Distinguished Lecturer at the University

of Maine and was Bowdoin's 2010-11 visiting Coastal Studies Scholar. Ted lives in Stonington, ME with his wife and daughter.

Acidification of Maine waters—the science, what's at stake, and what we are doing about it.

Bill Mook, Maine's Ocean Acidification Study Commission and Northeast Coastal Acidification Network (NECAN) steering committee



BIO: Bill Mook is a graduate of Wesleyan University (Earth and Environmental Sciences), taught biology and oceanography at The Good Hope School, St. Croix, USVI and Pine Point School, Stonington, CT, and was a research assistant at the University of Maine Department of Oceanography before becoming President and Owner of Mook Sea Farms in 1985. Bill currently serves on the Northeast Coastal Acidification Network (NECAN) steering committee and Maine's Ocean Acidification Study Commission. He recently participated in several congressional staff briefings sponsored by NOAA in Maine and Washington, DC and testified before the U.S. Senate's Committee on Environment and Public Works at a hearing entitled, "Examining the Threats Posed by Climate Change."

ABSTRACT: Climate change and increasing atmospheric carbon dioxide levels are acidifying Maine's coastal waters, and acidification, acting with other changing marine conditions, is threatening Maine's marine resources. Shellfish hatcheries represent an early warning system; provide a useful means of identifying climate change problems; and represent a platform for gathering information that can help forecast effects on wild shellfish populations. The Northeast Coastal Acidification Network (NECAN) and Maine's Ocean Acidification Study Commission are examples of two responses to acidification that will help Maine understand and cope with the changes we face. A coordinated, interdisciplinary research effort backed by the federal resources will be necessary if we are to successfully mitigate and adapt to the impacts of climate change to our marine economy. Ultimately we must find a way to address the underlying problem: carbon dioxide emissions.