

# Great Lakes Sea Grant Network Logic Model for Climate Resilient Communities

What is the current situation?	Current Projects (organized by categories chosen at the logic model meeting)	Inputs - What will the program need to invest?	Outputs - What activities/products will the program include?	Outputs—Participation Who will the program reach?	Outcomes/Impact Short Term Results (based on individual learning)	Outcomes/Impact Midterm Results (based on individual actions)	Outcomes/Impact Long Term or ultimate impact Change in a condition
<p><b>1. What are the threats to communities?</b> Climate change impacts:</p> <ul style="list-style-type: none"> <li>Precipitation will fall in heavier, more frequent storm events which will increase runoff, especially in spring and winter → <b>nonpoint source pollution, flooding, combined sewer overflows, droughts</b></li> <li>Increased fluctuations of lake levels may increase erosion and periodically expose formerly submerged lands → <b>shoreline management</b></li> <li>Local, regional, national, global supply/demand for water management presents myriad challenges → <b>water shortages</b></li> </ul> <p><b>2. What should be Great Lakes Sea Grant's program priorities?</b> Integrate climate change into planning activities at the federal, state, <b>local</b> levels by focusing on the following priority water resource issues:</p> <ul style="list-style-type: none"> <li>Non-point source pollution</li> <li>Flooding</li> <li>Combined sewer overflows</li> <li>Nutrient loading and Phosphorous</li> <li>Shoreline management</li> <li>Water shortages</li> </ul> <p>Focus adaptation efforts on decision-makers and professionals in the following sectors:</p> <ul style="list-style-type: none"> <li>Land Use Planning</li> <li>Water Resources Planning</li> <li>Watershed Planning</li> </ul> <p>Guiding principles:</p> <ul style="list-style-type: none"> <li>Focus on restoring and promoting ecosystem resiliency and community adaptive capacity</li> <li>Target issues at the scale (local, state, national) where implementation is most feasible and will achieve highest impact</li> <li>Pursue no regrets, low hanging fruit policies, policies that achieve both mitigation and adaptation, and policies that achieve multiple benefits</li> <li>Avoid reinventing the wheel – incorporate adaptation efforts into work already being done</li> <li>Focus on more cost-effective, proactive adaptation rather than reactive adaptation.</li> <li>Be careful about linking efforts explicitly to climate. Will linking it advance progress or could it hurt? This will depend on the specific community and audience.</li> <li>Climate change adaptation strategies/BMPs address overarching water resource management issues (are not unique to climate).</li> <li>Climate change risks treated as same in existing set of risks faced by decision makers.</li> </ul> <p><b>Mission—Communities are resilient to changing climate.</b></p>	<p><b>1. WORKSHOPS / TRAININGS</b></p> <ul style="list-style-type: none"> <li>PA – Lake Erie NEMO program (slowed down a lot due to lack of funding)</li> <li>NOAA Great Lakes Collaboration - GLC4 Modules</li> <li>MN – LID/Green Infrastructure workshop (CCCAI Project)</li> <li>IISG/CMAP – water conservation municipal outreach (using tools)</li> <li>?? - Full cost pricing for water &amp; wastewater presentation/workshops</li> <li>IISG Planning with POWER</li> </ul> <p><b>2. PRESENTATIONS</b></p> <ul style="list-style-type: none"> <li>IISG – presentation on Green Infrastructure study/practices for stormwater</li> <li>IISG/CMAP – water conservation municipal outreach (using tools)</li> <li>MI – presentation on community planning for climate change in the Great Lakes region for public officials and Sea Grant educators (CCCAI project)</li> <li>MI – Conference on climate change adaptation for communities (CCCAI project)</li> <li>MN – presentation on climate change and water quality/stormwater</li> <li>?? – Full cost pricing for water &amp; wastewater presentation/workshops</li> </ul> <p><b>3. MANUALS, FACTSHEETS, BROCHURES</b></p> <ul style="list-style-type: none"> <li>Guidebook to Stormwater BMPs under altered GL climate (also addresses climate change implications for stormwater management) for public officials – MISG (CCCAI project)</li> </ul> <p><b>4. TOOL DEVELOPMENT / INVENTORY / APPLICATION</b></p> <ul style="list-style-type: none"> <li>Add section on climate adaptation to Clean Marina certification</li> <li>IISG benchmarking for full cost pricing</li> <li>Some model ordinances on GL coastal setbacks published – WI SG through SG Legal Program</li> <li>IISG/CMAP water conservation municipal outreach (using tools)</li> </ul> <p><b>5. ONLINE RESOURCES</b></p> <ul style="list-style-type: none"> <li>?? – Some topics are covered on webinars at coastalclimatewiki.org</li> </ul> <p><b>6. MAPPING ASSISTANCE</b></p> <ul style="list-style-type: none"> <li>PA- Presque Isle Watershed plan – list completed, now started work on Lake Erie watershed plan</li> <li>MN Lake Superior community resource inventory – online community maps for planning</li> <li>SARP – Toledo, OH and Duluth MN</li> </ul> <p><b>7. PARTICIPATING IN PLANNING</b></p> <ul style="list-style-type: none"> <li>IL-IN Sea Grant involvement in NIRPC's climate change committee for 2040 regional comp. Plan</li> <li>IL-IN SG involvement in regional water supply plan (CMAP) and water conservation toolbox (NIRPC)</li> <li>IL-IN SG involvement in Chicago wilderness climate change adaptation plan for nature</li> <li>MN NEMO Program</li> </ul>	<p>1. Expertise/time of:</p> <ul style="list-style-type: none"> <li>Sea Grant educators, specialists, communicators</li> <li>Elected municipal officials (see Participation column)</li> <li>Municipal personnel (see Participation column)</li> <li>Regional planning organizations/agencies/partnerships</li> <li>Sea Grant Legal Program</li> <li>University faculty</li> <li>NGO leaders</li> <li>NOAA employees involved in climate science and adaptation projects</li> </ul> <p>2. Money (for training, travel, salary, equipment, conducting state events, etc.)</p> <p>3. Materials/curriculum (references, manuals, project books, etc.)</p> <p>4. Equipment</p> <p>5. Facilities</p>	<p>1. Workshops / Trainings</p> <p>2. Presentations</p> <p>3. Manuals, factsheets, and brochures (E.g., Adapt/disseminate existing NEMO manuals for Great Lakes regional use)</p> <p>4. Tool inventory and development</p> <ul style="list-style-type: none"> <li>Vulnerability assessments</li> <li>Benchmarking tools, audits (e.g. comprehensive plan climate-proofing audit), certification programs (e.g. add climate adaptation chapter to Clean Marina certification)</li> <li>Model ordinances and regulatory language (e.g., coastal setbacks, groundwater areas overlay zones, wetlands protection ordinances)</li> <li>Prepare case studies of communities already preparing for climate change</li> <li>BMP effectiveness comparisons including cost</li> <li>Grant resources for implementing BMPs</li> </ul> <p>5. Online Resources – web access to #2-4</p> <p>6. Mapping Assistance (e.g., provide GIS support for vulnerability assessments)</p> <p>7. Participation in community planning by meeting face-to-face meetings, convening groups, and connecting people</p>	<p>Municipal* personnel</p> <ul style="list-style-type: none"> <li>Planning and zoning</li> <li>Drain / water resources commissioners</li> <li>Emergency management</li> <li>Water Utilities and Public works: engineers, water treatment, wastewater treatment</li> </ul> <p>Elected municipal* officials</p> <ul style="list-style-type: none"> <li>Mayors</li> <li>city/village managers</li> <li>township supervisors</li> <li>city councils</li> <li>planning commissions</li> </ul> <p>Citizens</p> <p>Regional planning organizations/agencies/partnerships</p> <p>NGOs (e.g., watershed councils)</p> <p>Consultants (e.g., engineers, planners contracted by municipalities)</p> <p>Professional organizations (e.g., American Planning Association state chapters, American Public Works Association state chapters)</p> <p>*municipal = village, township, city, county</p>	<p><b>By 2013, 50% of communities understand how to assess their vulnerability to climate change.</b></p> <p><b>By 2013, 50% of communities will be aware of climate adaptation plan training (100% will have access).</b></p> <p><b>By 2013, 50% of community planners/policy makers are aware of BMPs to address vulnerabilities.</b></p> <p>The outputs developed by the program will ensure that community and infrastructure planners and decision makers...</p> <ul style="list-style-type: none"> <li>Understand climate change implications for their sector (See Climate literacy LM)</li> <li>Understand the range of future climate conditions that should be planned for in their sector (See Climate literacy LM).</li> <li>Know where to access climate change science</li> <li>Understand why communities should prepare for changes now instead of react to them later (pay now vs pay later)</li> <li>Understand the concept of a climate ready community or sector</li> <li>Know where to access information, tools, and trainings for conducting vulnerability assessments</li> <li>Are aware of the steps in conducting a vulnerability assessment as part of a climate preparedness plan.</li> <li>Understand how to define and assess their sector's vulnerability to altered climate scenarios (see Vulnerability LM)</li> <li>Understand links between land use, stormwater runoff, water quality and climate and know watershed management principles</li> <li>Are aware of land use planning BMPs including stormwater ordinances, zoning overlays and development regulations to protect natural resources</li> <li>Are aware of stormwater BMPs including green infrastructure, LID, grey infrastructure retrofits (see Stormwater LM)</li> <li>Are aware of water conservation and wastewater mgmt BMPs including full cost pricing, demand side strategies, 'fit for purpose' strategies,</li> <li>Have access to case studies of communities of different sizes and contexts already assessing vulnerability or already implementing BMPs</li> <li>Know where to find resources necessary for public outreach regarding the need for infrastructure investment based on best science of climate model probabilities and risk factors</li> <li>Recognize investments that increase operational resiliency in a climate change impact context</li> </ul> <p><b>Evaluation Metrics</b></p> <ul style="list-style-type: none"> <li>Number of attendees to trainings, workshops</li> <li>Number of web hits to online resources</li> <li>Number of downloads of online resources</li> <li>Number of individuals with one-on-one interaction with educators</li> <li>Number of communities represented by the individuals reached in the above bullets</li> </ul>	<p><b>By 2015, 35% of communities will conduct vulnerability assessments.</b></p> <p><b>By 2015, 40% of communities receive adaptation plan training allowing them to access and use data and tools for climate adaptation training and response.</b></p> <p><b>By 2015, 30% of communities will develop plans, ordinances to address their vulnerabilities, by incorporating climate data climate change scenarios into plans.</b></p> <p>The outputs developed by the program will ensure that community and infrastructure planners and decision makers can...</p> <ul style="list-style-type: none"> <li>Assess climate related vulnerabilities</li> <li>Consider climate-related impacts and conditions into their decision-making process.</li> <li>Adopt land use planning BMPs to protect natural resources key for climate change preparedness (e.g., groundwater recharge area overlay zones, wetlands protection ordinances)</li> <li>Adopt land use planning, stormwater management and water conservation BMPs</li> <li>Incorporate predictive GIS models of future climate scenarios to effect change in municipal codes and on-the ground development patterns.</li> <li>Undertake public information campaigns and water conservation events/workshops</li> </ul> <p><b>Evaluation Metrics</b></p> <ul style="list-style-type: none"> <li>Number of communities that have conducted vulnerability assessments (formally or informally)</li> <li>Number of communities that receive adaptation plan training (through workshops, online modules, one-one-one interaction)</li> <li>Number of communities that have adopted/implemented BMPs</li> </ul> <p>Community = municipality, municipal department, utility, organization, etc.</p>	<p><b>By 2020, 20% of Great Lakes communities will:</b></p> <ul style="list-style-type: none"> <li>have climate adaptation plans</li> <li>be climate-ready certified (or drought-ready or stormwater ready) (See stormwater LM)</li> </ul> <p><b>To reduce their hazard risk, loss of life and property and recovery time associated with climate change scenarios.</b></p> <p>Stakeholders are climate literate and able to undertake policy and planning processes addressing adaptation to climate change.</p> <p>Stakeholders will engage in land use planning addressing climate change vulnerability and water resource protection. There is a reduction of nonpoint source pollution such as sediment, pathogens, nutrients, toxic contaminants in Great Lakes Basin watersheds</p> <p>Stakeholders will incorporate system vulnerability assessments into mid and long range water resource planning.</p> <p>Water and wastewater utilities are climate ready and sustainable, using cost effective operational, water demand management and supplystrategies. Water suppliers are engaged with their communities about water conservation; communities use water more efficiently; water resource stewardship in the face of climate change.</p> <p><b>Evaluation Metrics</b></p> <ul style="list-style-type: none"> <li>Climate proof land use plans and regulations</li> <li>Develop a climate ready utilities</li> <li>Participate in climate ready certifications</li> <li>Incorporate climate change into existing plans</li> <li>Integrate climate uncertainties into water planning (demand, supply conditions) to address long term water availability</li> </ul> <p><b>Evaluation Metrics</b></p> <ul style="list-style-type: none"> <li>Number of communities with adaptation plans</li> <li>Number of communities that are certified ready</li> </ul>



**Assessment of stakeholder needs is ongoing and iterative**