COASTAL COMMUNITY RESILIENCE

Seapoint Beach

"There is no Planet B."
United Nations Secretary-General Ban Ki-moon

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

State of Maine Goals:

- To protect the quality and manage the quantity of the State's water resources, including lakes, aquifers, great ponds, estuaries, rivers, and coastal areas.
- To protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas, and unique natural areas.
- To safeguard the State's agricultural and forest resources from development which threatens those resources.
- To protect the State's marine resources industry, ports and harbors from incompatible development and to promote access to the shore for commercial fishermen and the public.
- To encourage municipalities to develop policies that assess community needs and environmental effects of municipal regulations, lessen the effect of excessive parking requirements for buildings in downtowns and on main streets and provide for alternative approaches for compliance relating to the reuse of upper floors of buildings in downtowns and on main streets.

(Maine Growth Management Act ((30-A M.R.S.A. §§ 4312 - 4350)

GOAL STATEMENT: ESTABLISH SHORT, MEDIUM AND LONG TERM PLANS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE, INCLUDING INCREASED STORM FREQUENCY AND STRENGTH, COASTAL EROSION AND RISING OCEAN LEVELS, AND TRANSITION OF BOTH PUBLIC AND PRIVATE ENERGY CONSUMPTION TO LOW AND ZERO IMPACT METHODS

Objective 9.1. Establish plans to address the effects of climate change.

Objective 9.2. Reduce energy consumption and transition to low and zero impact methods.

Objective 9.3. Other measures to protect the environment

Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). Climate change may refer to a change in average weather conditions, or in the time variation of weather around longer-term average conditions (i.e., more or fewer extreme weather events).[1] Coastal communities are especially vulnerable to climate change for a number of

[1] https://en.wikipedia.org/wiki/Climate_change

reasons. For example, projected effects such as impact estuarine systems[2]:

- Sea level rise
- Increased temperatures
- Changes in precipitation and storm intensity
- Ocean acidification

Examples of specific impacts that may occur in estuaries and other coastal areas include:

- salt-water intrusion into aquifers as the sea rises
- flooding of coastal wetlands and marshes
- changes to water availability and quality
- changes in habitat and species distributions
- lower oxygen levels in wetlands
- ocean acidification (due to higher concentrations of carbon dioxide in the atmosphere)
- a range of impacts from more severe coastal storms.

These impacts may occur in conjunction with other pressures to the natural and built environment, such as coastal population growth, presenting additional challenges to coastal communities.

In order for communities to become "climate ready," they need to reduce risks and improve resiliency by:

- proactively identifying areas that are particularly vulnerable
- monitoring for changes, and developing and implementing adaptation plans.

[2] US EPA, Climate Change in Coastal Communities https://www.epa.gov/cre/climate-change-coastal-communities

These adaptation plans may contain a wide range of adaptation actions that are designed to reduce impacts and/or take advantage of potentially beneficial opportunities resulting from climate change.

Adaptation plans should be linked to management goals, such as maintaining water quality of marshes and wetlands, protecting coastal development, preserving habitat, or controlling invasive species.

The first step in responding to climate change is to understand current conditions as completely as possible[3]. There are a number of State Departments in Maine (including Inland Fisheries and Wildlife, Marine Resources, Agriculture, Conservation and Forestry, and Environmental Protection, among others) that have on-going programs that monitor various natural and built environments and track changes over time. Recognizing that changes in the climate can result in vulnerabilities to both our natural resources and our built environment, it will be important to monitor local changes to Kittery's environment.

The ultimate goal of climate adaptation strategy is to effectively mitigate the potential detrimental effects of a changing climate. Mitigation projects are generally physical constructions that preserve or protect existing infrastructure or natural features. Town policy can encourage and support mitigation measures.

[3] Maine Department of Environmental Protection, Monitoring, Mapping, Modeling, Mitigation and Messaging: Maine Prepares for Climate Change, September 2014.

In order for Kittery's climate adaptation plan to be most effective, its recommendations should be widely publicized and the public should be educated on what role they can play in preparing for climate change, but also in helping to be a steward of the environment. Education and outreach will be an important part of mitigation.

A new Climate Adaptation Committee will need to be formed to help develop the Climate Adaptation Plan. The Energy Efficiency Committee should also be re-energized.

KITTERY VOICES: RESIDENTS' THOUGHTS

REGARDING CLIMATE ADAPTATION AND ENVIRONMENTAL SUSTAINABILITY

Throughout the comprehensive planning process, citizens of Kittery expressed a strong concern regarding preparing for climate change, especially with regard the potential affects of sea level rise. They were also very interested in protecting the environment for future generations and exploring ways of being proactive about doing so.

"Install solar energy on South KCC roof"

"Make mandatory sustainability goals"

"Revive the Energy Committee"

"Study effects of sea level and take advantage of UNH staff"

"Fix wind power at dump"

"Require plastic bag recycling"

"We need to plan for sea level rise and join forces with area coastal towns working on the same issues"

"Solar energy on all town buildings"

"Mandate LEED silver minimum and environmentally-conscious paving"

"Replant shore land with native species"

"Become an example of carbon neutrality/sustainability"

"provide local tax credits for solar improvements"

ISSUES AND IMPLICATIONS

According to what are considered to be "middle of the road" predictions for global sea level rise changes, Maine is expected to experience 2 feet of sea level rise over the next 100 years[4]. This one effect of climate change can significantly impact Kittery's natural resources, the built environment, the economy, as well as recreation, housing, retail located near the water's edge, among other uses and activities.

The following information specific to climate change in the State of Maine is from a document produced by the University of Maine

[4] Maine Geological Survey, Department of Conservation, "Pursuing Coastal Community Resiliency in Southern Maine."

entitled "Maine's Climate Future," 2015 Update and are just some examples of the potential impacts of climate change that Kittery could experience.

- Average annual temperature across Maine warmed by about 3 degrees F (1.7 degrees C) between 1895 and 2014.
- Models predicting future climate change developed by the Intergovernmental Panel on Climate Change (IPCC) predict that annual temperature will increase another 3 – 5 degrees F (1.7-2.8 degrees C) across Maine between 2015 and 2050.
- Changes in temperature affect our experience, changing the length and character of each season.
- Maine's warm season (defined as when average daily temperature is above freezing increased by two weeks from the early 1900s to the 2000s. Climate change models predict that the warm season will increase by an additional 2 weeks over the next 50 years.
- As Maine's summers become warmer and longer, the number of excessively hot and humid days when heat indices rise above 95 degrees F (35 degrees C) are likely to increase. Especially at risk are the elderly and young children.
- The incidence of Lyme disease in on the rise. This has been linked to temperatures that make habitat more suitable for deer ticks and their hosts.
- Changing climate is putting wildlife at risk. Vulnerable species include Maine icons and moose. Simultaneously changes in temperature patterns create opportunities for the introduction and expansion of potentially invasive species.
- A significant increase in extreme precipitation events (more frequent and intense storms) has been observed across Maine, especially in coastal communities. This trend is expected to continue.
- The total amount of accumulated snow is predicted to

The view from Fort McClary includes marine wildlife.

decline, however, extreme snowfall events with significant accumulations (strong nor'easters) are likely to increase in frequency.

These changes in the climate impact coastal communities in a number of ways including the following:

- Storms force towns to make costly repairs to roads and infrastructure.
- Intense rain events pollute lakes and streams
- Longer growing seasons, extreme precipitation events and greater variability in the weather offer both opportunities and challenges to Maine's farmers.
- The longer summers may represent an opportunity to expand the tourist season, but simultaneously the excessively hot days pose a public health hazard especially to the young and elderly.
- The unreliability of winter weather means that seasonal events and activities, many linked to local economies, are often negatively affected.
- Changes in the temperature and acidification of the ocean's water is affecting where marine species are found. These changes are expected to continue to affect the fishing industry.
- Flood zones have moved inland as a result of larger and more frequent storms. Increased frequency of flooding poses a threat to property and potential harm to humans.

KEY RECOMMENDATIONS

9.1 ESTABLISH PLANS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE

9.1.1. Plan for sea level rise

9.1.2. Prepare an Emergency Plan in case of extreme storm conditions

9.1.3. Monitor, plan for, and mitigate the effects of climate change on Kittery's natural resources

9.1.4. Monitor, plan for, and mitigate the effects of climate change on Kittery's built environment

9.1.5. Develop a regional approach to addressing the potential impacts of climate change

9.1.6. Identify and mitigate potential impacts on Kittery's economy

9.2 REDUCE ENERGY CONSUMPTION AND TRANSITION TO LOW AND ZERO IMPACT METHODS

9.2.1. Develop a plan to transition to low and zero impact energy sources

9.2.2. Consider Town policy changes that encourage the use of renewable energy sources

9.2.3. Develop a public awareness campaign to focus attention on the need to transition to renewable energy sources

9.3 OTHER MEASURES TO PROTECT THE ENVIROMENT

9.3.1. Develop policies that lessen the effects of the built environment on natural resources

9.3.2. Increase recycling

9.3.3. Continue to encourage businesses to consider more eco-friendly choices in their manufacturing procedures and the goods and services they use and sell

9.3.4. Increase public awareness regarding the need to protect the environment for future generations and to prepare for climate adaptation

COASTAL COMMUNITY RESILIENCE AND THREE KEY PLANNING PRINCIPLES

Environmental Stewardship	• Many of the recommendations suggest strategies for protecting the environment for the enjoyment of future generations.
Health & Wellness	• Protecting the environment and planning for future climate change promotes the health and wellness of Kittery's residents in a number of ways including ensuring that they are protected from extreme weather conditions.
Economic & Social Vitality	• Climate change can result in negatively impacting certain sectors of the economy including fishing, agriculture and outdoor recreation. By planning for adaptation, these impacts can be mitigated. • Increasing awareness regarding the potential negative effects of climate change and sea level rise as well as ways of protecting the natural environment, can result in community building as people work together to protect their community.

See **Implementation Table** that follows for specific action steps.

 = Ripe Apple

Existing Resources are examples and are not intended to represent a complete list.

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.1: ESTABLISH PLANS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.1.1. Plan for sea level rise		Establish a new Climate Adaptation Committee			LEAD: Town Council	1
	New England Climate Adaptation Project MIT Science Impact Collaborative UNH faculty and students **SEE END NOTE 9.1.1.A.**	Complete a Climate Adaptation Study **SEE END NOTE 9.1.1.B.**		Also See Topic Area 6: Marine Resources	LEAD: Town Council PARTNERS: Planning Department, Port Authority	1
	Maine Coastal Management Initiative Maine Department of Environmental Protection Northeast Regional Ocean Council	Join regional coalition of surrounding coastal communities to work together around issues of sea level rise			PARTNERS: New England Climate Adaptation Project partners	1
	Georgetown Wells	Review climate adaptation plans of area coastal towns				1
	Maine Emergency Management Agency	Develop strategies to protect Town's marine facilities during coastal storms			LEAD: DPW PARTNERS: Port Authority Planning Department Fire and Police	1
	Portsmouth Naval Shipyard staff currently working on these issues	Work with PNS to ensure preparedness for sea level rise and to identify ways of reducing or eliminating outflows of pollutants and hazardous or toxic materials during floods or storms			LEAD: DPW PARTNERS:PNS	ON-GOING
	Maine Coastal Mapping Initiative Maine Department of Transportation **SEE END NOTES**	Identify at risk areas (e.g. infrastructure, marshes, etc.) and identify appropriate adaptation strategies				1

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.1: ESTABLISH PLANS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
Plan for sea level rise (continued)	See area coastal towns for possible models	Consider developing regulations that add submission requirements to projects within 250 feet of a coastal wetland such that the design takes into account sea level rise.				2
9.1.2. Prepare an Emergency Plan in case of extreme storm conditions	Maine Emergency Management Agency	Identify potential future at risk for flooding areas and appropriate emergency management strategies		Updated Flood Plain maps should be used in preparing the Emergency Plan.	LEAD: DPW PARTNERS: Port Authority Planning Department Fire and Police	1
		Update rainfall tables to account for more frequent and more severe storms			LEAD:	1
		Develop a Debris Management Plan including identifying whether existing rules and statutes impede emergency clean up after damaging storm events.		see whether surrounding towns have developed one and whether there can be some sharing of responsibilities and resources	LEAD: DPW PARTNERS:PNS	2
9.1.3. Monitor, plan for, and mitigate the effects of climate change on Kittery's natural resources	Northeast Climate Hub Climate Change Institute at the University of Maine **SEE END NOTES**	Incorporate data analysis in planning for wildlife, fisheries, and agricultural management. Monitor wildlife in specific locations to identify changes in species presence. Monitor stream flow or lake levels to identify effects of increased Stormwater runoff from rain event. Monitor industrial activity to measure any changes over time in pollutants			LEAD: DPW, Conservation Commission	ON-GOING

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.1: ESTABLISH PLANS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.1.4. Monitor, plan for, and mitigate the effects of climate change on Kittery's built environment	Maine Department of Transportation Climate Change Institute at the University of Maine **SEE END NOTES**	Conduct risk assessment studies for infrastructure (culverts, storm drains, bridges, tide gates, etc.)				1
		Consider completing a Stormwater Utility Feasibility Study to determine if appropriate as a mechanism to finance Stormwater improvements		SEE ALSO: 7.3.6. Discuss with other towns that have established such a mechanism to understand costs and benefits	LEAD: Stormwater Coordinator DPW	2
		Continue to monitor and enforce stormwater runoff from new and expanded residential subdivisions and commercial developments. At a minimum, standards must be consistent with state standards.			LEAD: Stormwater Coordinator DPW	ON-GOING
		Continue to educate and work with owners of existing commercial and residential projects on a voluntary and coooperative basis to retrofit existing stormwater systems, where necessary, to improve the quality of the stormwater discharge.			LEAD: Stormwater Coordinator, DPW PARTNERS: owners of residential and commercial properties	ON-GOING
9.1.5. Develop a regional approach to addressing the potential impacts of climate change	Maine Coastal Management Initiative Maine Department of Environmental Protection SMPDC	Collaborate with neighboring communities to: monitor wildlife in specific locations			LEAD: Town Council	2
	Maine Sea Grant and University **SEE END NOTES**	Consider standardizing review and controls for shorelands and structures and activities affected by sea level rise.			LEAD: Town Council	2

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.1: ESTABLISH PLANS TO ADDRESS THE EFFECTS OF CLIMATE CHANGE						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.1.6. Identify, mitigate and take advantage of opportunities created by the potential impacts of climate change on Kittery's economy	Maine Sea Grant and University of Maine **SEE END NOTES**	Consider developing a program to support fishermen in their need to adapt to changes in species distribution and abundance as a result of climate induced environmental variations.			LEAD: Fishermen's Advisory Committee Port Authority	2
	Maine Coastal Mapping Initiative **SEE END NOTES**	Consider ways of taking advantage of the longer summer season, by expanding tourism and other such activities			LEAD: Port Authority PARTNERS: Planning Dept. Economic Development Committee PARTNERS: Outlets Association	2

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.2: REDUCE ENERGY CONSUMPTION AND TRANSITION TO LOW AND ZERO IMPACT METHODS						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.2.1. Develop a plan to transition to low and zero impact energy sources	solar wind water	Identify potential renewable energy sources and outline steps for transitioning to using them. Incentives should be given to both public and private users.			LEAD: Town Council PARTNERS: DPW, Planning Department, Energy Efficiency Committee	1
	See Energy Efficiency Committees preliminary goals	Develop town-wide goals regarding energy efficiency and related benchmarks for public facilities.			LEAD: Energy Efficiency Committee	1
		Conduct an inventory of municipal and school energy use/costs and			LEAD: All town-owned buildings, DPW	1
		Establish a timeline for converting all Town-owned buildings to renewable energy.			LEAD: Energy Efficiency Committee	1
	area towns	Collaborate with area towns to develop renewable and sustainable energy sources, technologies, etc.			LEAD: Town Council, Energy Efficiency Committee PARTNERS: surrounding towns	2
9.2.2 Consider Town policy changes that encourage the use of renewable energy sources	See area towns for similar ordinance	Consider an ordinance to allow for residential, commercial, and municipal wind and solar energy sources.	Maine Renewable Energy Resource Fund		LEAD: Town Council PARTNERS: DPW, Planning Department, Energy Efficiency Committee Schools	1
		Support alternative modes of transportation such as walking and bicycling		Also See Topic Area 5: Transportation	LEAD: DPW, Planning Board	1
9.2.3. Develop a public awareness campaign to focus attention on the need to transition to renewable energy sources	Public Schools	Develop educational materials (hard copy, on-line); involve the schools			LEAD: Town Council PARTNERS: DPW, Planning Department, Energy Efficiency Committee	1

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.3: OTHER MEASURES TO PROTECT THE ENVIRONMENT						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.3.1.Develop policies that lessen the effects of the built environment on natural resources	Northeast Climate Hub **SEE END NOTES**	Assess the environmental effects of the built environment on natural resources		See Also Topic Area 2: Natural Resources	LEAD: Town Council PARTNERS: Planning Department, Port Authority	ON-GOING
		Protect the Town's critical open spaces, agricultural lands, forests and wildlife corridors from development		See Also Topic Area 2: Natural Resources	LEAD: Conservation Commission, Planning Department	ON-GOING
		Maximize parking efficiency and explore shared parking opportunities, especially in the Foreside		See Also Topic Area 5: Transportation 	LEAD: Planning Board	1
		Consider offering incentives (e.g. tax incentives) for decreased impervious paving			LEAD: Town Council, Planning Board	2
		Encourage use of shared car service (e.g. Zip Car) and carpooling to reduce emissions		See Also Topic Area 5: Transportation 	LEAD: Planning Department	1
	Sidewalk Conditions Report	Support and promote alternatives means of transportation, especially biking and walking		See Also Topic Area 5: Transportation	LEAD: DPW	1
		Encourage the reuse of upper floors of buildings as housing, especially in the Foreside district		**See Topic Area: 4: Housing and 8: Land Use** 	LEAD: Planning Board	1
		Transition to LED lighting (street lights, public buildings)			LEAD: DPW	2
		Promote the adaptive reuse of existing buildings,including historic ones		See Also Topic Area 1: Historic Resources	LEAD: Planning Board	

OBJECTIVE 9.3: OTHER MEASURES TO PROTECT THE ENVIRONMENT						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.3.2. Increase recycling	Resource Recovery Facility	Explore ways of increasing amount and range of materials recycled.			LEAD: DPW	1
		Provide recycling bins in public places			LEAD: DPW	1
	existing composting section	Expand the composting section and locate it prominently next to the recycle/trash windows.			LEAD: DPW	2
	Town of Eliot	Consider regionalizing recycling with the Town of Eliot **SEE END NOTE 9.3.2.A.**			LEAD: DPW, Town Council PARTNER: Town of Eliot	1
		Consider a ban on plastic bags and plastic water bottles			LEAD: Town Council	2
		Consider adopting a Pay-As-You-Throw program to encourage recycling			LEAD: DPW	2
		Develop a pilot program to demonstrate ways of reusing greywater for household use **SEE END NOTE 9.3.2. B.**		Also see 7.3.4.	LEAD: Kittery Wastewater Treatment Department	3
9.3.3. Continue to encourage businesses to consider more eco-friendly choices in their manufacturing procedures and the goods and services they use and sell	Green Alliance Program **SEE END NOTE 9.3.3.**	"Business-to-Business" mentoring and partnering.			LEAD: Greeen Alliance Program	1
		Educate the public to consider the goods and services they use and encourage more sustainable choices.			LEAD: Energy Efficiency Committee	1

TOPIC AREA 9: COASTAL COMMUNITY RESILIENCE

OBJECTIVE 9.3: OTHER MEASURES TO PROTECT THE ENVIRONMENT						
Strategy	Existing Resources	Actions	Funding	Notes	Lead & Partners	Priority
9.3.4. Increase public awareness regarding need to protect the environment for future generations	Energy Efficiency Committee UNH students	Increase involvement of schools in environmental stewardship			LEAD: Energy Efficiency Committee PARTNERS: Schools	1
		Develop materials regarding ways of reducing energy usage, impacts of fertilizers and lawn care on runoff water, etc.		See whether area towns have developed such materials (or whether some exist at State DEP)	LEAD: Energy Efficiency Committee	1
		Provide information on options that would reduce pollutants entering area waters, and other ways of being more mindful of the environment			LEAD: Energy Efficiency Committee PARTNERS: Conservation Committee	1
		Consider banning bottled water at all municipal and school meetings			LEAD: Town Council, School Department	1
		Continue to educate and work with owners of existing commercial and residential projects on a voluntary and coooperative basis to retrofit existing stormwater systems, where necessary, to improve the quality of the stormwater discharge.			LEAD: Stormwater Coordinator, DPW PARTNERS: owners of residential and commercial properties	ON-GOING

END NOTES

END NOTE 9.1.1.A. The MIT Science Impact Collaborative completed a Stakeholder Assessment Report for Climate Adaptation for the Town of Wells, Maine. See: https://necap.mit.edu/sites/default/files/documents/Wells%20Stakeholder%20Assessment_Finalized_March%202014.pdf

> The MIT SIC engages in community- based action research projects, MIT SIC researchers—including doctoral students, masters students, and faculty from the MIT Department of Urban Studies and Planning—train emerging environmental professionals while simultaneously testing the latest environmental planning methods and providing assistance to communities and policy-makers who seek their help. See their website for more information: http://scienceimpact.mit.edu

END NOTE 9.1.1.B. Complete a Climate Adaptation Study. The study should explore such techniques[1] as:

- Wetland restoration
- Open space designation/acquisition
- Designation of "future" flood or wetland areas
- Tidal flow control management
- Emergency access rerouting
- Stormwater improvements
- Adaptation to sea level rise as a design requirement for the elevation and siting of homes
- Dune restoration
- Beach nourishment
- Selective structure improvement
- Utility relocation

See: ***Projected Storm Surge, Sea-Level Rise, and Extreme Precipitation Study***, New Hampshire Coastal Risks and Hazards Commission Report, March 18, 2016. See: **http://nhcrhc.stormsmart.org/draft-for-comment/**

Also see: ***Climate Change Adaptation Report***, Georgetown, Maine, Georgetown Conservation Commission, 2015. See: http://gtownconservation.com/wp-content/uploads/2015/08/Georgetown-Adaptation-Report-ALL-chapters-FINAL-8.75x11.25-v10forPDFonlineV2.pdf

END NOTE 9.3.2.A. The **Transfer Stations of Kittery and Eliot**, respectively, are four miles apart. It may be desirable to specialize in the type(s) of processing or consider merging into one regional facility. In the case of a merger, this may require additional staff due to the fact that there would be an increase in the amount of materials being recycled (staff could be from Kittery and/or Eliot).

END NOTE 9.3.2.B.. **Grey water** is the water that comes out of the drains of showers, baths, sinks, and washing machines. It is distinctly different from black water, which is what gets flushed down the toilet. Grey water can be used for watering houseplants, landscaping, or even flushing the toilet, so it's a resource that can be used twice. The problem is that our modern plumbing doesn't distinguish between the two, but instead combines them and sends onward as sewage, so unless we

[1] From Maine Geological Survey, Department of Conservation, "Pursuing Coastal Community Resiliency in Southern Maine."

manually divert or capture it, grey water essentially becomes black water, rendering it useless until it goes through the municipal water treatment process. Not all grey water is the same, as the water coming from the kitchen sink or dishwasher can contain a lot of organic matter and has the potential for harboring pathogens (and kitchen sink water, under some codes, is actually considered black water and is not to be used), but a bathroom sink or tub often has minimal amounts of organic matter and soap residue. However, with the proper system, such as a bio filter or mulched basin, using grey water from the kitchen sink is an accepted practice.[2] For more see: https://en.wikipedia.org/wiki/Greywater

END NOTE 9.3.3. Green Alliance Program. An organization working in Kittery and Portsmouth to encourage and promote sustainable business practices and to increase awareness in consumers regarding "green" choices**.** See**:** **http://www.greenalliance.biz/about-us**

PARTIAL LIST OF ADDITIONAL RESOURCES

Northeast Climate Hub: a regional climate resource established by the US Department of Agriculture for adaptation and mitigation coordination in the agriculture and forestry sectors.

Maine Department of Transportation: the Department is evaluating the vulnerability of state-owned roads, bridges, and culverts to rising sea levels.

Maine Sea Grant and University of Maine Cooperative Extension have developed a portfolio of adaptation initiatives for coastal communities in Maine to build resilience to storms, sea level rise, and changing fisheries.

The **Climate Change Institute at the University of Maine** offers a number of tools for collecting information and predicting the effects of climate change on a community.

Maine Coastal Mapping Initiative (MCMI) is a coalition created by the Maine Coastal Program in 2012 that collects and serves critical hydrographic data to assist coastal managers and planners in maintaining vibrant marine ecosystems, expanding offshore economic opportunities, and preparing for environmental changes.
www.main.gov/dacf/mcp/planning/mcmi

REFERENCES

The University of Maine, *Maine's Climate Future: 2015 Update*. Orno, ME.

Maine Geological Survey, "*Pursuing Coastal Community Resiliency in Southern Maine."*

Maine Department of Environmental Protection, Summary and Recommendations form the Environmental and Energy Resources Working Group. "*Monitoring, Mapping, Modeling, Mitigation and Messaging: Maine Prepares for Climate Change*." September 2014.

[2] How to reuse grey water in the home and yard, Treehugger Sustainability Made Stylish, June 2, 2014 http://www.treehugger.com/green-home/how-reuse-grey-water-home-and-yard.html