GOALS	RECOMMENDATIONS	Action to Date	Future Action
1. Invest in Maine's Capacity to Monitor and Investigate the Effects of Ocean Acidification and Determine Impacts of Ocean Acidification on Commercially-Important Species and the Mechanisms Behind Those Impacts	*1.1. Enhance monitoring and create a database sufficient to support the development of regulatory and non-regulatory approaches to reduce and limit nutrients and organic carbon from sources that are contributing significantly to acidification of Maine's marine waters. Enhanced monitoring should begin in one or more pilot estuaries where impacts are presently occurring.*	Ocean Conservancy mobilizes expert stakeholders annually in key Congressional districts, including Maine, to support funding for NOAA's Ocean Acidification Program (OAP). This includes organizing sign-on letter campaigns, providing messaging to industry lobbying efforts, and even bringing local OA experts such as UNH professor and Maine resident, Dr. Joe Salisbury, to Washington, DC to meet with Sen. Shaheen (D-NH) and staff from the offices of Sens. Shaheen, Hassan (D-NH), and Whitehouse (D-RI), and Reps. Shea Porter (former D-NH) and Keating (D-MA) in early 2017 where they discussed OAP and NESDIS satellite funding. OAP directly monitors carbon and nutrient pollution in partnership with other federal agencies and offices such as NMFS, NERRs, EPA, etc. It also acts as a funding agency for water chemistry monitoring and research projects. In Fiscal Year 2015, the NOAA OAP budget was $8.5 million. In FY19, it is $12 million.	Continuing our support for OA Appropriations each year and throughout the budget cycle Also working with Senate offices to introduce and build co-sponsors for Senate versions of the four OA bills that passed the House (see 1.2).

	1.2. Expand monitoring of ocean acidification to establish its natural variability and to detect trends in water chemistry and related biological responses.	See 1.1 above. We have also worked to develop and support individual federal bills focusing on ocean acidification. It has taken multiple years to introduce and build coalitions of support for these bills, which in June passed the U.S. House of Representatives. These bills provide for sustained Congressional fiscal support for OA research and monitoring, and they direct federal entities to pursue targeted research evaluating how OA can affect coastal communities and environments. (More detail on each is provided here.) Specifically, we supported HR 1921 would allow multiple federal agencies establish prize competitions for innovations that advance our ability to monitor, research or adapt to acidification.	See 1.1 above.
	1.3. Develop new tools with which to assess and understand acidification and its impacts in Maine waters.	See 1.2 above. HR 988 directs the National Academies of Science to examine the combined impacts of acidification and other stressors in estuaries and nearshore waters. HR 1716 directs NOAA to examine the socioeconomic impacts of acidification on coastal communities.	See 1.1 above.

	1.4. Determine the causes and relative importance of acidification in the waters and sediments of Maine.	See 1.3 above.	See 1.1 above.
	1.5. Identify the impacts of acidified waters and sediments on Maine's commercial species.	See 1.3 above.	See 1.1 above.
2. Reduce Emissions of Carbon Dioxide	*2.1. Strengthen coordination and continue participation with existing national, state, and regional initiatives regarding the reduction of atmospheric CO_2 levels.*	Ocean Conservancy supports NOAA OAP funding (see 1.1 above) which supports the Northeast Coastal Acidification Network (NECAN) directly via staff involvement and indirectly via funding. NECAN is a multi-stakeholder platform which facilitates the dialogue around	The OA Alliance has invited Maine government officials to a future workshop this fall on state-level actions that can address acidification. *Next steps on this work area* will be to continue cross-linking regional efforts through the "CANs" and the

		acidification e.g. scientific research, socioeconomic impacts, policy responses, public education, etc. Ocean Conservancy has also directly participated in multiple NECAN meetings, working groups and communications. Ocean Conservancy staff have attended MOCA Partnership meetings to follow Maine progress and add insights from other states (e.g., CA, where we are part of the CA OA and Hypoxia Task Force) since 2015. Ocean Conservancy co-founded the International Alliance to Combat Ocean Acidification (OA Alliance) in 2016. This alliance encourages national, tribal, and subnational members to make voluntary commitments to address acidification, and provides resources and trainings on activities to conduct at the local level. These include CO_2 reduction targets and policies. In September of 2018, Ocean Conservancy helped oceans to be considered as a "main stage" event at the Global Climate Action Summit, an international climate-focused gathering in California, featuring	OA Alliance, and seeking additional ways to share knowledge of successful practices among leaders.

		leaders from the U.S. and other nations.	
	2.2. Encourage key leaders and policymakers to synchronize in establishing a comprehensive and unified strategy to reduce carbon dioxide emissions.	See 2.1 above. Worked with Gulf of Maine Research Institute's Dr. Andy Pershing on the 4th National Climate Assessment and sharing his insights at Capitol Hill Oceans Week in 2019	See 1.1 and 2.1 above. OC scientists will continue to author and review key scientific reports on CO_2 emissions.
	2.3. Expand actions at the state and local levels that may help in reducing CO_2 emissions.	In 2016 Ocean Conservancy staff published a journal article which describes the various actions non-elected and elected individuals and groups could implement to address acidification, including reducing CO_2. This article was then applied to form a "toolkit" for decision-makers, available via the OA Alliance website. In 2017 worked with the U.S. Conference of Mayors to pass a resolution affirming the group's readiness to work with local efforts to address ocean acidification.	See 2.1 above.

3. Identify and Reduce Local Land-Based Nutrient Loading and, Organic Carbon Contributions to Ocean Acidification and Freshwater Runoff by Strengthening and Augmenting Existing Pollution Reduction Efforts and Making Groundwater Recharge a Land Use Priority.	*3.1. Identify and reduce nutrient loading and organic carbon from point source and nonpoint discharges determined to cause or contribute to ocean acidification.*	NA	NA
	3.2. Assess the need for water quality criteria relevant to ocean acidification.	See 1.2 above. HR 988 directs the National Academies of Science to examine the combined impacts of acidification and other stressors, including nutrient pollution, in estuaries and nearshore waters.	See 1.1 above
	3.3. Ensure that state staff and other practitioners are working with the best information and most effective technology.	See 1.2 above. HR 988 directs the National Academies of Science to examine the combined impacts of acidification and other stressors, including nutrient pollution, in estuaries and nearshore waters.	See 1.1 above

	3.4. Investigate incentive programs for pollution and freshwater runoff reduction.	See 1.2 above.	See 1.1 above
	3.5. Support and reinforce current planning efforts and programs that address the impacts of nutrients and organic carbon and freshwater runoff into coastal waters.	See 2.3 above.	See 2.1 above
	3.6. Enhance education and outreach programs that provide landowners with information about best practices for reduction of nutrient pollution.	We have mentioned septic system maintenance and correct lawn fertilizer application procedures as ways to reduce nutrient pollution, however none were specific to Maine landowners.	No specific plans.

4. Increase Maine's Capacity to Mitigate, Remediate and Adapt to the Impacts of Ocean Acidification	*4.1. Preserve, enhance and manage a sustainable harvest of kelp, rockweed and native algae in bivalve areas and adjacent shoreline, and preserve and enhance eelgrass beds.*	Ocean Conservancy has collaborated with the Island Institute which conducted a phytoremediation study at Ocean Approved Inc. (now Atlantic Sea Farms) from 2015-2017.	No specific plans.
	4.2. Encourage bivalve production to support healthy marine waters.	Ocean Conservancy supports shellfish growers and encourages their consumption. We have directly messaged this to our 100,000+ members via direct mail, and to the online public via our blog.	We will continue to carry this message in our public communications.
	4.3. Spread shells or other forms of calcium carbonate ($CaCO_3$) in bivalve areas to remediate impacts of local acidification.	NA	No specific plans.
	4.4. Increase the capacity of the fishing and aquaculture industries to adapt to ocean acidification.	See 1.1 above. Federal funding through NOAA OAP does make it to shellfish hatcheries in the form of monitoring equipment, data analysis and OA research.	See 1.1 above.

	4.5. Identify refuges and acidification hotspots to prioritize protection and remediation efforts.	See 1.2 above. HR 988 directs the National Academies of Science to examine the combined impacts of acidification and other stressors in estuaries and nearshore waters.	See 1.1 above.
	4.6. Encourage the enhancement and creation of research hatcheries.	See 1.1 above. Federal funding through NOAA OAP does make it to shellfish hatcheries in the form of monitoring equipment, data analysis and OA research.	See 1.1 above.

5. Inform Stakeholders, the Public, and Decision-Makers about Ocean Acidification in Maine and Empower Them to Take Action.	*5.1. In addition to providing the commission's report, its key findings should be communicated to the Governor, Maine's legislative leaders, Maine's Congressional delegation, the press and the general public in a series of briefings by commission members.*	See 2.3 above. Ocean Conservancy used the science and recommendations found in the commission report to secure all 4 of the Maine Congressional members as cosponsors on HR 1716, The Coastal Communities Ocean Acidification Act of 2019, and other pieces of legislation introduced this session. See 1.2 above. Ocean Conservancy has its own communications channels through which it communicates these acidification messages including a blog, website, quarterly newsletter, and social media accounts. Ocean Conservancy staff also coauthored the journal article entitled: "Building the Knowledge-to-Action Pipeline in North America: Connecting Ocean Acidification Research and Actionable Decision Support"	See 2.1 above. Ocean Conservancy will continue to use its communications channels to amplify the findings and recommendations of the Maine commission.

	5.2. Continue efforts to increase the understanding of ocean acidification among key stakeholders, targeted audiences and local communities to help implement the commission's recommendations.	See 5.1 above. We have also invited Maine guest authors to post on our blog.	See 5.1 above.
	5.3. Enhance the existing communication network of engaged stakeholders, state agency representatives and the research community.	See 2.1 above Successfully nominated oyster hatchery owner and grower Bill Mook as a SeaWeb Seafood Champion Award for Advocacy in 2017.	See 2.1 above.
	5.4. Develop, adapt and use curricula on ocean acidification in K-12 schools and institutes of higher education and increase	Ocean Conservancy is currently doing this in other states.	None currently.

	interdisciplinary university programs to equip young leaders with the skills to find solutions to complex multidisciplinary problems such as ocean acidification.		

6. Maintain a Sustainable and Coordinated Focus on Ocean Acidification.	*6.1. Create an on-going ocean acidification council.*	See 2.1 above. Ocean Conservancy staff have attended MOCA Partnership meetings to follow Maine progress and add insights from other states (e.g., CA, where we are part of the CA OA and Hypoxia Task Force) since 2015. In 2019, Ocean Conservancy staff assisted board co-chair Tom Allen prepare outreach materials and testimony to support the Maine state legislature bill LR 510 which formed an ocean –climate advisory council for the state.	See 2.1 above. Ocean Conservancy staff will continue to offer services, expertise, and networks to an acidification council if requested.