

Statutory Adoption of Updated Sea-Level Rise Scenarios

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Executive Summary

In the summer of 2013, the Connecticut General Assembly acknowledged the threat of rising seas with Public Act 13-179. Signed into law on June 21, this act requires state and municipal agencies to consider sea level rise when making critical plans for land use, hazard mitigation, and civil preparedness.

P.A. 13-179 will help Connecticut plan for rising seas, but the effectiveness of those plans may be limited by a dissonance within the act that involves the source of the sea level data to be used by the planners. Among other things, the act requires planners to use the sea level data in a specific 2012 NOAA report while simultaneously requiring the University of Connecticut to update the data in that report at least once every ten years. However, the act does not require - or even allow - the use of the UConn updates as they become available, nor does it specify a means by which the UConn updates are published. As a result, planners are obligated to consider the 2012 NOAA data even after newer, and presumably more accurate, updates are available from UConn.

This paper suggests the following legislative actions to assure that the latest UConn updates to the 2012 NOAA sea level data are used to implement the planning and emergency preparedness requirements of P.A. 12-179:

- modify the language of Connecticut General Statutes to include an imperative to use the UConn sea level updates, and
- modify the language of Connecticut General Statutes to specify a means by which the latest UConn updates are identified and published.

These relatively minor modifications will assure that planning agencies always have access to the latest UConn sea level data and eliminate any statutory ambiguity as to which sea level data should be used when conducting critical planning and emergency preparedness activities.

I. Introduction

Global sea levels are rising at an accelerating rate. In the past century, global median sea levels rose over seven inches.¹ While this rate is alarming, the National Oceanic and Atmospheric Administration (NOAA) anticipates the coming century will see an even greater rise of one to eight feet.² Furthermore, as the shoreline of Long Island Sound and the state's tidal rivers are increasingly inundated by rising waters, Connecticut's land is simultaneously sinking as the Earth's crust evens out from retreating glaciers.³ This convergence of rising seas and sinking land is creating a disproportionate rise in sea levels, which will aggravate coastal and riverine flooding, which in turn will damage property and erode natural coastal barriers.⁴ Such erosion will reduce stormwater resiliency as tropical storms grow stronger and winter storms more frequent.⁵

The Connecticut Department of Energy and Environmental Protection (DEEP) estimates that these changes will cause the effects of the current "100-year storm" to occur every seventeen to thirty-two years by 2100.⁶ And the costs of these storms will be devastating. Federal Emergency Management Agency (FEMA) data from 2010 indicate that a statewide 100-year flood would result in property damage and business interruptions worth nearly \$19 billion, with \$13 billion of this devastation concentrated within Connecticut's shoreline communities.⁷

The Connecticut General Assembly responded to this threat with Public Act 13-179. Signed into law on June 21, 2013 and codified as Connecticut General Statutes sections 8-23, 16a-27, 25-68o, and 28-5, this act requires state and municipal agencies to consider sea level rise when making critical plans for land use, hazard mitigation, and civil preparedness.⁸

P.A. 13-179 represented Connecticut's second major legislative action designed to prepare the state for sea level rise. The first sea level rise action, P.A. 12-101, was signed into law just the year before. Among other things, P.A. 12-101 declared it a coastal management policy of the legislature to consider the potential impact of a rise during planning processes.⁹ Because state agencies and towns are required by law to implement these legislative policies, the act effectively requires state agencies and towns to consider a rise in sea level during all coastal management planning activities.¹⁰ P.A. 12-101 also included provisions for the Connecticut DEEP, the University of Connecticut (UConn), and the Connecticut State University System to study the effects of a rise in sea level and for the DEEP to establish a pilot program to encourage innovative and low impact approaches to shoreline protection and adaptation in the face of a rise in sea level.¹¹

P.A. 13-179 picked up where P.A. 12-101 left off. While the planning requirements of P.A. 12-101 were implied, P.A. 13-179 made them explicit, with precise language that requires planners to consider sea level change when revising state and municipal plans of conservation and development, municipal evaluation and hazard mitigation plans, and the state civil preparedness plan and program.¹² P.A. 13-179 also requires the use of the forward-looking sea level change scenarios published in NOAA Technical Report OAR CPO-1 (2012) (hereinafter "the NOAA Report").¹³ This is an important change from the requirements of P.A. 12-101, which defined "a rise in sea level" in terms of the backward-looking historical sea level rise based on tide gauges in Bridgeport and New London.¹⁴

The NOAA Report represented state of the art sea level rise predictions when published in 2012, but was quick to acknowledge the global nature of its predictions and the need to tailor those predictions to local conditions.¹⁵ Recognizing this need as well as the rapid advances in the field of climate science, the legislature included in P.A. 13-179 a requirement for UConn to update the 2012 NOAA sea level rise scenarios at least once every ten years.¹⁶ The draft executive summary of the first of these updates was promulgated on the website of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) website in September of 2017.¹⁷

Even though P.A. 13-179 requires UConn to update the NOAA sea level rise scenarios, it does not mandate the use of these updated scenarios, nor does it specify a means by which the UConn updates are promulgated. The result of this dissonance is that Connecticut state and municipal agencies may be required to prepare for rising seas with increasingly outdated data that are not particularly applicable to the Connecticut shoreline or Long Island Sound.

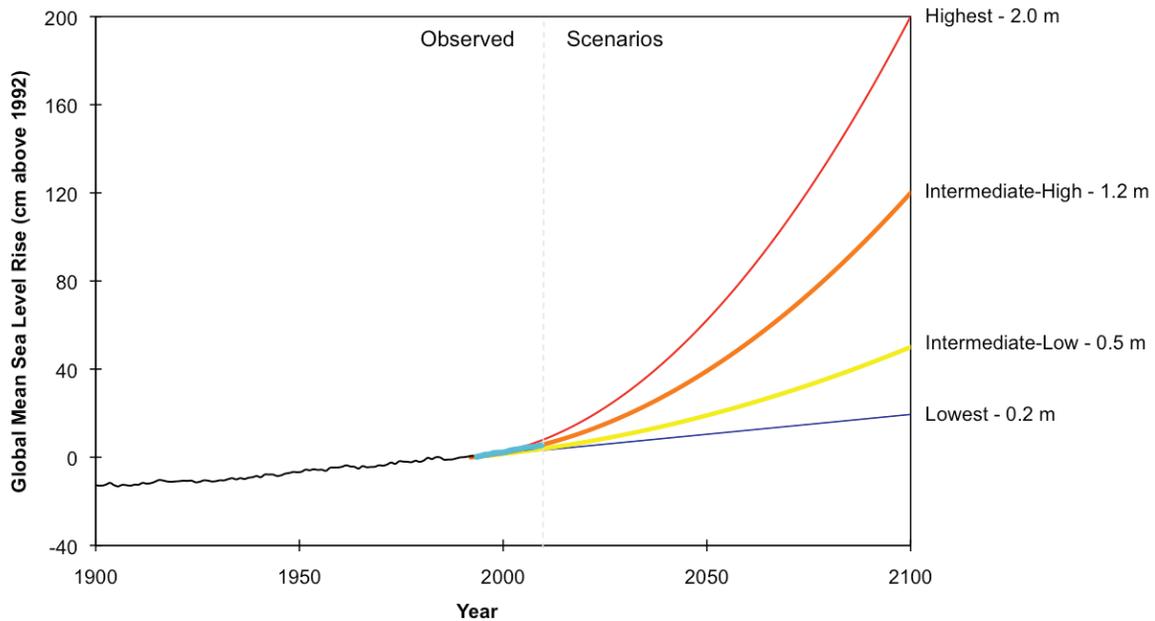
This white paper describes the sea level rise scenarios in the NOAA Report, identifies the statutes that invoke the NOAA Report, explains the need to periodically update sea level change scenarios, and proposes statutes that (1) require the use of the UConn updates in lieu of the scenarios in the 2012 version of the NOAA Report, and (2) specify the means by which the UConn updates are promulgated.

II. NOAA Technical Report OAR CPO-1 (2012)

Public Act 13-179 invokes a 2012 NOAA report entitled "Global Sea Level Rise Scenarios for the United States National Climate Assessment, Technical Report OAR CPO-1" (hereinafter "the NOAA Report").¹⁸ This report was published under the authority of the Global Change Research Act of 1990, which requires a National Climate Assessment every four years.¹⁹ The NOAA Report was prepared as a contribution to the 2014 version of that quadrennial National Climate Assessment.²⁰

The NOAA Report is a technical report that synthesizes the scientific literature on global sea level rise. One product of this synthesis is a set of sea level rise scenarios prepared "for the purpose of assessing potential vulnerabilities

and impacts.”²¹ These sea level rise scenarios, shown on the graph and table below, are the scenarios invoked by Connecticut P.A. 13-179.



“Figure 10” from “Global Sea Level Rise Scenarios for the United States National Climate Assessment, Technical Report OAR CPO-1” (2012)

| Scenario | SLR by 2100 (m)* | SLR by 2100 (ft)* |
|-------------------|------------------|-------------------|
| Highest | 2.0 | 6.6 |
| Intermediate-High | 1.2 | 3.9 |
| Intermediate-Low | 0.5 | 1.6 |
| Lowest | 0.2 | 0.7 |

* Using mean sea level in 1992 as a starting point.

Reproduced from “Table 2” from “Global Sea Level Rise Scenarios for the United States National Climate Assessment, Technical Report OAR CPO-1”

As indicated on the graph and table, the NOAA Report provides four different scenarios for global sea level rise. The “Lowest” projected rise, 0.2 meters by 2100, is a simple linear extrapolation of the historical rise based upon tide gauge data dating back to 1900. The remaining projections are based on various estimates of ocean warming and ice sheet loss from Greenland and Antarctica, with ice sheet loss accounting for the greatest difference between the projections. The “Highest” projected rise of 2.0 meters by 2100 is based upon an estimate of the greatest possible ice sheet loss. The “Intermediate-High” projection of 1.2 meters by 2100 considers limited ice sheet loss and the “Intermediate-Low” projection of 0.5 meters is based primarily upon ocean warming with little ice sheet loss.²²

The NOAA Report leaves the selection of a particular sea level rise scenario to the user, but recommends that “the choice of scenarios involve interdisciplinary scientific experts, as well as coastal managers and planners who

understand relevant decision factors.”²³ The NOAA Report amplifies this guidance by identifying those decision factors as “location, time horizon, and risk tolerance.”²⁴ For instance, municipal planners in a coastal town considering a new sewage treatment plant may decide to use the “Highest” sea level rise scenario after considering the site of the plant (location), the long design life (time horizon), and the consequences of losing the plant to sea level rise (risk tolerance).

The NOAA Report is also careful to note that its sea level rise projections are global in nature and that regional and local conditions should be considered when using these projections to conduct risk analysis. Conditions to be considered include, “regional mean sea level variability, local and regional vertical land movement, coastal environmental processes (geological, ecological, biological, and socio-economic), and the effect of extreme weather and climate on relative sea level.”²⁵

Finally, it should be noted that the scenarios in the NOAA Report are not the last word on sea level rise projections. Quite the contrary, the need to periodically update sea level rise scenarios is illustrated by the fact that NOAA has already released the successor publication to the 2012 NOAA Report, a report entitled, “Global and Regional Sea Level Rise Scenarios for the United States, Technical Report NOS CO-OPS 083.”²⁶ Unsurprisingly, even though this report is only four years newer than the 2012 NOAA Report, it nevertheless indicates global sea level rise projections that are different than those set forth in the 2012 report.²⁷

III. Statutes that Invoke NOAA Technical Report OAR CPO-1 (2012)

Public Act 13-179 incorporated the NOAA Report sea level rise projections into four state and municipal planning statutes. Two of these statutes deal with plans of conservation development prepared by municipalities and the state, while the other two deal with emergency planning activities. One of these statutes also requires the UConn update to the NOAA Report sea level rise scenarios. The following sections describe how the sea level provisions of P.A. 13-179 were codified into each of these four statutes.

A. CGS § 8-23 - Preparation, Amendment or Adoption of a Plan of Conservation and Development

Connecticut General Statutes section 8-23 requires municipalities to prepare and adopt a Plan of Conservation and Development (POCD) at least once every ten years.²⁸ The overall purpose of the POCD is to be a statement of the policies, goals, and standards for the physical and economic development of the community. Subsection (d) of section 8-23 identifies the factors that must be considered when developing a POCD, and P.A. 13-179 added the NOAA Report sea level change scenarios to the list of these factors as shown below (words added by P.A. 13-179 are in *bold italics*)

- (d) In preparing such plan, the commission or any special committee shall consider the following:
- (1) The community development action plan of the municipality, if any,
 - (2) the need for affordable housing,
 - (3) the need for protection of existing and potential public surface and ground drinking water supplies,
 - (4) the use of cluster development and other development patterns to the extent consistent with soil types, terrain and infrastructure capacity within the municipality,
 - (5) the state plan of conservation and development adopted pursuant to chapter 297,
 - (6) the regional plan of conservation and development adopted pursuant to section 8-35a,
 - (7) physical, social, economic and governmental conditions and trends,
 - (8) the needs of the municipality including, but not limited to, human resources, education, health, housing, recreation, social services, public utilities, public protection, transportation and circulation and cultural and interpersonal communications,

(9) the objectives of energy-efficient patterns of development, the use of solar and other renewable forms of energy and energy conservation, (10) protection and preservation of agriculture, and (11) *sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1.*²⁹

B. CGS §16a-27 - Revision of Existing Plan

Connecticut General Statutes section 16a-27 requires the Connecticut Office of Policy and Management to revise the state POCD at least once every five years.³⁰ The overall purpose of the state POCD is to provide an official policy for the executive department, subject to the approval of the General Assembly, for physical development and for conservation of state land and water resources. As shown below, P.A. 13-179 added the NOAA Report sea level change scenarios to subsection (h) as the determining factor when considering the risks of coastal erosion (words added by P.A. 13-179 are in *bold italics*):

(h) Any revision made after October 1, 2013, shall (1) take into consideration risks associated with increased coastal erosion, depending on site topography, *as anticipated in sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1*, (2) identify the impacts of such increased erosion on infrastructure and natural resources, and (3) make recommendations for the siting of future infrastructure and property development to minimize the use of areas prone to such erosion.³¹

C. CGS § 25-68o - Consideration of Sea Level Change Scenarios re Municipal Evacuation and Hazard Mitigation plans. Update of Sea Level Change Scenarios.

Connecticut General Statutes section 25-68o is a component of the flood management chapter of the Connecticut General Statutes.³² All of section 25-68o was created by P.A. 13-179, and includes two subsections, (a) and (b), related to the NOAA Report sea level rise scenarios. Subsection (a) requires consideration of the NOAA Report sea level change scenarios when preparing municipal evacuation and hazard mitigation plans as shown below (words added by P.A. 13-179 are in *bold italics*):

*(a) On and after October 1, 2013, in the preparation of any municipal evacuation plan or hazard mitigation plan, such municipality shall consider sea level change published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1.*³³

P.A. 13-179 also created an all-new subsection (b), which includes the requirement for the UConn to update the NOAA Report sea level change scenarios as shown below (words added by P.A. 13-179 are in *bold italics*):

*(b) Within available resources and not less than once every ten years, the Marine Sciences Division of The University of Connecticut shall update the sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1. Within available resources and not less than ninety days prior to any update of such sea level change scenarios by said Marine Sciences Division, the division shall conduct not less than one public hearing concerning such update.*³⁴

D. CGS § 28-5 - Preparation for civil preparedness, etc.

Connecticut General Statutes section 16a-27 deals with state civil preparedness issues.³⁵ As shown below, P.A. 13-179 added an entirely new subsection (g) to include the NOAA Report sea level change scenarios as a factor to be considered by the state civil preparedness plan and program (words added by P.A. 13-179 are in ***bold italics***):

(g) On and after October 1, 2013, the state civil preparedness plan and program established pursuant to subsection (b) of this section shall consider sea level change published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1.³⁶

IV. University of Connecticut Updates to Sea Level Rise Scenarios

As described above, Connecticut General Statutes section 25-68o requires UConn to update the NOAA Report sea level change scenarios at least once every ten years. This requirement is important because the climate science on which sea level rise is based is a dynamic and evolving field that is continually collecting new data and developing improved means to interpret those data. The fundamental need to keep up with changes in climate science was recognized by the federal government in the Global Change Research Act of 1990, which requires the U.S. Global Change Research Program (USGCRP) to update the National Climate Assessment every four years.³⁷ More recently, the USGCRP has implemented a “sustained assessment” process that allows new climate information and insights to be synthesized into the climate assessment as they emerge.³⁸ Furthermore, even NOAA has demonstrated the temporal nature of the sea level rise scenarios in the NOAA Report with the 2017 release of its successor publication, Global and Regional Sea Level Rise Scenarios for the United States, Technical Report NOS CO-OPS 083.³⁹ Clearly, climate science is advancing, so the sea level rise information used for critical planning decisions must advance as well.

While it is important to use the latest climate science for critical planning activities, it is equally important to use science that is based upon the unique conditions of Long Island Sound and the Connecticut Coast. The NOAA Report itself indicates the need for the local adaptation of the global scenarios:

Additional information should be combined with the global scenarios to incorporate regional and local conditions when conducting risk analysis. These factors include regional mean sea level variability, local and regional vertical land movement, coastal environmental processes (geological, ecological, biological, and socio-economic), and the effect of extreme weather and climate on [relative sea level].⁴⁰

The UConn updates to the NOAA global sea level rise scenarios will incorporate additional local and regional information as well as the latest advances in global climate science. The draft executive summary of the first of these updates was promulgated on the website of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) website in September of 2017.⁴¹

The legislative requirement for UConn to periodically update the NOAA sea level rise scenarios reflects the legislature’s understanding of the dynamic nature of climate science and the need to use updated sea level rise scenarios when making critical plans for land use, hazard mitigation, and civil preparedness. However, the statutory invocation of “NOAA Technical Report OAR CPO-1” leaves the science behind these plans frozen in 2012. This dissonance can be resolved by specifying the use of the latest UConn sea level change scenarios in the statutes that currently invoke the scenarios in the 2012 NOAA Report.

V. Promulgation of the University of Connecticut Updates

P.A. 13-179 does not specify a means by which the UConn updates to the NOAA Report are promulgated. This is problematic because the affected agencies need ready access to a controlled copy of the latest update, particularly if future use of the UConn updates is mandated by legislation. Without a controlled copy, it could be difficult for an agency to determine whether a publication from “the Marine Sciences Division of The University of Connecticut” is the latest update required by Connecticut General Statutes section 25-68o or simply an academic paper on the same topic. Similarly, even if a Marine Sciences Division document is specifically identified as an update to the NOAA Report, there could be questions as to whether the document is the latest update. This issue can be resolved by revising the statute that requires the UConn update to include the means by which this update is published.

VI. Suggested Legislation

In order to assure that the best scientific data on sea level change are used for land use, hazard mitigation, and civil preparedness planning, the Connecticut General Assembly could enact legislation that mandates the use of the latest UConn update to the NOAA Report and specify a means by which the update is published. Suggestions for this legislation are detailed below:

A. Suggested Legislation to Specify How the UConn Updates Will Be Promulgated

This paper suggests legislation that requires the latest UConn update to the NOAA Report to be posted on the internet website of the Department of Energy and Environmental Protection (DEEP). The DEEP website is suggested as the best venue for the UConn updates because state and municipal agencies have historically looked to DEEP for information on matters related to coastal management, floodplain management, and Long Island Sound. Putting the UConn updates on the DEEP website also provides a means to assure that only the latest version of the update is in the designated location. Furthermore, this is not an unusual process for the DEEP as there are many examples of statutes that require the DEEP Commissioner to post important information on the department’s web site.⁴²

The following change to Connecticut General Statutes section 25-60o (b) is suggested as an effective means of publishing the UConn updates to the NOAA Report. (New words are identified by ***bold italics***.)

Subsection (b) of Connecticut General Statutes Section 25-68o

(b) Within available resources and not less than once every ten years, the Marine Sciences Division of The University of Connecticut shall update the sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1. Within available resources and not less than ninety days prior to any update of such sea level change scenarios by said Marine Sciences Division, the division shall conduct not less than one public hearing concerning such update. ***Within sixty (60) days after the last public hearing on any such update by said Marine Sciences Division, the Commissioner of Energy and Environmental Protection shall post the update on the department's internet web site and remove any previous updates from department's internet web site.***

B. Suggested Legislation that Mandates the Use of UConn Updates in Lieu of the NOAA Report

The requirements to use the NOAA Report sea level rise scenarios are set forth in Connecticut General Statutes sections 8-23, 16a-27, 25-68o, and 28-5. The current phrase that invokes the NOAA Report in these statutes was carefully crafted so that is identical in all four of the statutes:

“sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1”

The suggested language to mandate the use of the UConn updates in lieu of the NOAA Report is similarly crafted so the exact same phrase can once again be used in all four statutes:

“sea level change scenarios published on the Department of Energy and Environmental Protection website in accordance with the provisions of section 25-68o”

Note that the effectiveness of this phrase depends upon the changes suggested for section 25-68o that require the latest version of the UConn update to be posted on the DEEP website. However, if the suggested changes to section 25-68o are adopted, this phrase contains all of the information required to identify the exact sea level rise scenarios to be used for the purposes specified by statute. It is not necessary to specify that the scenarios are UConn updates to the NOAA Report because that information is provided in section 25-68o and section 25-68o is invoked by the suggested phrase. It is also unnecessary to specify a revision of the UConn update because section 25-68o requires the Commissioner of the DEEP to remove previous versions of the update when new versions are posted.

The following changes to Connecticut General Statutes sections 8-23, 16a-27, 25-68o, and 28-5 include the suggested phrase and are proposed as an effective means to specify the use of the UConn updates in lieu of the sea level rise scenarios in the NOAA Report. (New words are identified by ***bold italics***. Deletions are identified by ~~strikethroughs~~.)

Subsection (d) of Connecticut General Statutes Section 8-23

(d) In preparing such plan, the commission or any special committee shall consider the following: (1) The community development action plan of the municipality, if any, (2) the need for affordable housing, (3) the need for protection of existing and potential public surface and ground drinking water supplies, (4) the use of cluster development and other development patterns to the extent consistent with soil types, terrain and infrastructure capacity within the municipality, (5) the state plan of conservation and development adopted pursuant to chapter 297, (6) the regional plan of conservation and development adopted pursuant to section 8-35a, (7) physical, social, economic and governmental conditions and trends, (8) the needs of the municipality including, but not limited to, human resources, education, health, housing, recreation, social services, public utilities, public protection, transportation and circulation and cultural and interpersonal communications, (9) the objectives of energy-efficient patterns of development, the use of solar and other renewable forms of energy and energy conservation, (10) protection and preservation of agriculture, and (11) sea level change scenarios published ~~by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1~~ ***on the Department of Energy and Environmental Protection website in accordance with the provisions of section 25-68o.***

Subsection (h) of Connecticut General Statutes Section 16a-27

(h) Any revision made after ~~October 1, 2013~~ *(insert effective date)*, shall (1) take into consideration risks associated with increased coastal erosion, depending on site topography, as anticipated in sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1 ~~on the Department of Energy and Environmental Protection website in accordance with the provisions of section 25-68o~~, (2) identify the impacts of such increased erosion on infrastructure and natural resources, and (3) make recommendations for the siting of future infrastructure and property development to minimize the use of areas prone to such erosion.

Subsection (a) of Connecticut General Statutes Section 25-68o

(a) On and after ~~October 1, 2013~~ *(insert effective date)*, in the preparation of any municipal evacuation plan or hazard mitigation plan, such municipality shall consider sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1 ~~on the Department of Energy and Environmental Protection website in accordance with the provisions of section 25-68o~~.

Subsection (g) of Connecticut General Statutes Section 28-5

(g) On and after ~~October 1, 2013~~ *(insert effective date)*, the state civil preparedness plan and program established pursuant to subsection (b) of this section shall consider sea level change scenarios published by the National Oceanic and Atmospheric Administration in Technical Report OAR CPO-1 ~~on the Department of Energy and Environmental Protection website in accordance with the provisions of section 25-68o~~.

VII. Conclusion

Connecticut statutes invoke the sea level change scenarios published in the 2012 NOAA Report Technical Report OAR CPO-1 to improve state and municipal planning for land use, hazard mitigation, and civil preparedness. To assure that these scenarios stay relevant in the face of changing climate conditions and advances in scientific knowledge, Connecticut statutes require the UConn to update these sea level change scenarios at least once every ten years. A statutory requirement to publish and use these UConn updates to the NOAA Report scenarios will assure that state and local planners use up-to-date scientific data when making important decisions about land use, hazard mitigation, and civil preparedness.

Endnotes

This White Paper is sponsored by CIRCA, the Connecticut Institute for Resilience and Climate Adaptation. This work is made possible through a grant from the State of Connecticut Department of Housing Community Development Block Grant Disaster Recovery Program and the US Department of Housing and Urban Development.

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¹ *Climate Change Primer – Sea Level Rise and Coastal Storms*, DEP’T OF ENERGY & ENVTL. PROT. [hereinafter *DEEP*], http://www.ct.gov/Deep/cwp/view.asp?a=2705&q=475764&deepNav_GID=2022 (last visited July 12, 2017).

² NAT’L OCEANIC ATMOSPHERIC ADMIN., TECHNICAL REPORT NOS CO-OPS 083, GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES 22 (2017) [hereinafter *CO-OPS 83*].

³ *DEEP*, *supra* note 1.

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ ADAPTATION SUBCOMM. TO THE GOVERNOR’S STEERING COMM. ON CLIMATE CHANGE, THE IMPACTS OF CLIMATE CHANGE ON CONNECTICUT AGRICULTURE, INFRASTRUCTURE, NATURAL RESOURCES AND PUBLIC HEALTH 88 (2010).
⁸ 2013 Conn. Pub. Acts 233 (Spec. Sess.) [hereinafter *P.A. 13-179*].

⁹ 2012 Conn Pub. Acts 92 (Spec. Sess.) [hereinafter *P.A. 12-101*].

¹⁰ CONN. GEN. STAT. § 22a-100 (2015) (for state activities); CONN. GEN. STAT. § 22a-102 (2015) (for municipal activities).

¹¹ *P.A. 12-101*, *supra* note 9.

¹² *P.A. 13-179*, *supra* note 8.

¹³ *Id.*

¹⁴ *P.A. 12-101*, *supra* note 9.

¹⁵ NAT’L OCEANIC ATMOSPHERIC ADMIN., TECHNICAL REPORT OAR CPO-1, GLOBAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES NATIONAL CLIMATE ASSESSMENT 1 15 (2012) [hereinafter *CPO-1*].

¹⁶ *P.A. 13-179*, *supra* note 8.

¹⁷ James O’Donnell, *Sea Level Rise and Coastal Flood Risk in Connecticut: An Overview* (Sept. 2017) (unpublished) [Hereinafter *O’Donnell Sea Level Rise*], https://circa.uconn.edu/wp-content/uploads/sites/1618/2017/09/ExecSummarySeaLevelRise_J_ODonnell_Sept-2017-1.pdf.

¹⁸ *P.A. 13-179*, *supra* note 8.

¹⁹ *CPO-1*, *supra* note 15, at 1.

²⁰ *Id.*

²¹ *Id.*

²² *CPO-1*, *supra* note 15, at 12–13.

²³ *Id.* at 15.

²⁴ *Id.*

²⁵ *Id.*

²⁶ *CO-OPS 83*, *supra* note 2

²⁷ *Id.*

²⁸ CONN. GEN. STAT. § 8-23 (2015).

²⁹ *Id.*

³⁰ CONN. GEN. STAT. § 16a-27 (2015).

³¹ *Id.*

³² CONN. GEN. STAT. § 25-68o (2015).

³³ *Id.*

³⁴ *Id.*

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³⁵ CONN. GEN. STAT. § 28-5 (2015).

³⁶ *Id.*

³⁷ *CPO-1*, *supra* note 15, at 15.

³⁸ U.S. GLOB. CHANGE RESEARCH PROGRAM, <http://www.globalchange.gov/what-we-do/assessment/sustained-assessment> (last visited Aug. 8, 2017).

³⁹ *CO-OPS 83*, *supra* note 2.

⁴⁰ *CPO-1*, *supra* note 15, at 15.

⁴¹ *O'Donnell Sea Level Rise*, *supra* note 17.

⁴² *See, e.g.*, CONN. GEN. STAT. §§ 22a-06, 22a-6a, 22a-6p, 22a-6cc, 22a-200b, 22a-209f, 22a-424a, 22a-625a, 22a-634, 22a-639, 22a-904a, 22a-905a, 22a-905g (2017).