HOW PLANNING FOR SEA LEVEL RISE CREATES FLOOD INSURANCE REDUCTIONS: THE GEORGIA CONTEXT

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I. INTRODUCTION

Flood insurance rates are rising for homeowners. One way local governments can create insurance discounts for their constituents is to participate in the National Flood Insurance Program's (NFIP or Program) Community Rating System (CRS) and earn CRS credits for flood control measures and community outreach. The CRS is a voluntary incentive program that encourages local governments to enact enhanced floodplain management and improve local resilience to flooding in exchange for reductions in flood insurance premiums across their communities. The CRS provides an opportunity for communities to derive substantial benefits from activities that increase their resilience to flooding hazards. In Georgia, 542 cities and counties are eligible to participate in the CRS. According to a 2014 Federal Emergency Management Agency report, 42 communities participate in the CRS, saving Georgia policyholders approximately $6.6 million.[2]

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[2] *CRS State Profile: Georgia* (Jan. 2014), THE NATIONAL FLOOD INSURANCE PROGRAM, *available at* http://crsresources.org/files/200/state-profiles/ga-state_profile.pdf.

This article provides an overview of the CRS, analyzes how CRS credits are awarded through new sea level rise measures that were added to the CRS in 2013, and outlines existing Georgia law that may further protect Georgia's coast. The most important implications of the new sea level rise measures for Georgia communities for flood insurance reduction purposes include:

Future Flooding Due to Sea Level Rise. The CRS Manual awards up to 20 credits to communities that provide information not shown on communities' Flood Insurance Rate Maps (FIRMs) for areas that are predicted to be susceptible to future flooding due to sea level rise. To be eligible for credits for this activity, a community's mapping information service must be able to locate a property based on a street address and provide an opportunity for a community member to communicate with a staff person. Communities could build off of information provided in the Coastal Resource Division's Coastal Hazards Portal or the National Oceanic and Atmospheric Administration's Sea Level Rise Viewer to earn credits for this activity.

Real Estate Agent Disclosure. The CRS Manual awards up to 8 credits to communities that require real estate agents disclose to prospective buyers a property's hazards in areas specifically subject to increased flooding due to sea level rise. While Georgia law requires disclosure about flood hazards generally, it does not require disclosure about areas specifically subject to flooding due to sea level rise. Although disclosure about areas specifically subject to flooding due to sea level rise is not legally mandated, a community can still be eligible to receive CRS credits for implementing this measure for the real estate agents working within its own community. In other words, a community can receive CRS credits for implementing this measure if it can document disclosure at the local level.

Minimizing Increases in Future Flooding. The CRS Manual awards credits to communities that adopt programs that minimize increases in future flooding, as well as to communities that use regulatory flood elevations in the V and coastal A zones that reflect future conditions, such as sea level rise. These two measures are likely only relevant for the most engaged CRS communities in Georgia. For example, the measure requiring that a community demonstrate that it has programs which minimize increases in future flooding represents a prerequisite

for a community to become a Class 4 or better community. Very few, if any, communities in Georgia are close to being a Class 4 community. However, these credits may be of particular interest to a number of communities on Georgia's coast that are making strides toward achieving these lower CRS classes.

Stormwater Management Measures. The CRS Manual awards up to 380 credits to communities that require new development to prevent or reduce increased stormwater runoff from a 10-year storm or larger (e.g., 50- or 100-year storms). While Georgia's Coastal Stormwater Supplement (Supplement) recommends that new development reduce runoff, it does not base its recommendations to reduce stormwater runoff on a 10-year storm or larger. However, local governments are not limited to the recommendations set forth in the Supplement. Communities may adopt measures to reduce stormwater runoff that meet the CRS criteria required to receive credits under the Manual's sea level rise measure.

II. OVERVIEW OF NFIP'S COMMUNITY RATING SYSTEM

In 1968, Congress created the NFIP to provide flood insurance to homeowners, renters, and business owners in communities that participate in the Program.[3] Prior to the NFIP's inception, national response to flood disasters was limited to constructing flood control structures and providing disaster relief for flood victims.[4] There were no measures to reduce losses, and insurance companies were unable to provide affordable flood insurance coverage due to the high risk and seasonal nature of flood disasters.[5] To combat increasing flood losses, Congress passed the National Flood Insurance Act, thus establishing the NFIP. The Program strives to not only provide property owners with flood insurance, but also to save taxpayers' money and encourage communities to

[3] *About the National Flood Insurance Program: Overview*, THE NATIONAL FLOOD INSURANCE PROGRAM, https://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp.
[4] *Answers to Questions about the NFIP*, FEDERAL EMERGENCY MANAGEMENT AGENCY 1 (Mar. 2011), *available at* http://www.fema.gov/media-library-data/20130726-1438-20490-1905/f084_atq_11aug11.pdf.
[5] *Id.*

engage in flood loss reduction activities.[6] Between 1978 and October 2013, the NFIP paid out over two million losses, totaling over $50 billion.[7] To participate in the Program, a community must agree to adopt and enforce ordinances which meet or exceed requirements set forth by the Federal Emergency Management Agency (FEMA) to reduce the risk of flooding in the community.[8]

In 1990, FEMA established the CRS to acknowledge and reward communities that engage in activities that exceed the minimum measures required by the NFIP to reduce flood damage to property owners and implement comprehensive floodplain management.[9] The CRS encourages communities to exceed NFIP's minimum standards by providing flood insurance premium rate reductions to policyholders.[10] The CRS Coordinator's Manual, which is the guidebook for the CRS, sets forth nineteen creditable local government activities and assigns credit points for each activity based upon the degree to which it advances the goals of the CRS.[11] A community receives one of ten possible CRS classifications based upon the total number of credits it receives for these activities.[12]

Communities enter the CRS as a Class 10. As they receive credits for adopting creditable activities, their CRS class improves and they receive an additional five percent reduction in flood insurance premiums for all local policies affecting structures located inside FEMA's floodplain. For local policies affecting structures located outside FEMA's floodplain, Class 9, 8, and 7 communities receive a five percent reduction in flood insurance premiums, while Class 6 through 1 communities receive a ten percent reduction. This paper focuses on the

[6] *CRS Coordinator's Manual*, FEDERAL EMERGENCY MANAGEMENT AGENCY 110-1 (2013), *available at* http://www.fema.gov/media-library-data/1406897194816-fc66ac50a3af94634751342cb35666cd/FIA-15_NFIP-Coordinators-Manual_2014.pdf.
[7] *Id.*
[8] *About the National Flood Insurance Program: Overview*, THE NATIONAL FLOOD INSURANCE PROGRAM, https://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp.
[9] *CRS Coordinator's Manual*, *supra* note 6, at 110-1.
[10] *Id.* at 110-2.
[11] *Id.* at 110-4.
[12] *Id.* at 110-3.

creditable activities that the CRS acknowledged in its 2013 Coordinator's Manual as addressing rising sea levels and other factors attributable to climate change.[13]

III. SEA LEVEL RISE MITIGATION PROVISIONS IN THE CRS MANUAL

The 2013 CRS Coordinator's Manual (Manual) divides all of the activities that create credits under the program into the following: (1) Series 300 - Public Information Activities; (2) Series 400 - Mapping and Regulations; (3) Series 500 - Flood Damage Reduction Activities; and (4) Series 600 - Warning and Response. The activities that generate credit within these categories are varied and include building public support for floodplain management, preserving open space, maintaining flood data, and acquiring properties that flood regularly, known as "repetitive loss properties."

In addition to these traditional floodplain management activities, the 2013 Manual acknowledged, for the first time, measures by which communities can earn CRS credits for their efforts to anticipate future risks of flooding due to climate change or sea level rise.[14] Each of these measures are distributed throughout the Manual among the following categories: Public Information Activities (Series 300); Mapping and Regulations (Series 400); and Flood Damage Reduction Activities (Series 500). They are discussed in more detail as part of each category below. The specific measures that communities may receive credit for include:

> (1) providing information not included in the FIRM about areas susceptible to flooding in the future due to climate change or sea level rise;
> (2) demonstrating that the community itself has programs that minimize increases in future flooding;
> (3) using regulatory flood elevations in the V and coastal A zones that reflect future conditions, including sea level rise;
> (4) ensuring that prospective property buyers are advised of the potential for flooding due to climate change and sea level rise;

[13] *Id.* at 110-15.
[14] *Id.*

(5) basing the community's regulatory map on future-conditions hydrology, including sea level rise;
(6) regulating runoff from future development through the community's stormwater program;
(7) managing future peak flows through the community's watershed master plan so that flows do not exceed present values; and
(8) incorporating flood hazard assessments and problem analyses for areas likely to flood and potential increased flood problems due to changes in floodplain development and demographics, development in the watershed, and climate change or sea level rise.[15]

A. *Series 300- Public Information Activities*

Series 300 of the Manual addresses credits available to communities for implementing local activities that advise community members about flood hazards, insurance, and protection measures.[16] Communities can direct these activities toward floodplain residents, property owners, insurance agents, real estate agents, or other sectors in the local community.[17] The sea level rise measures in the Public Information Activities Series are discussed below.

1. Provide Information about Areas Predicted to be Susceptible to Future Flooding due to Sea Level Rise

Section 322.c of the Manual awards credits when communities provide information (not shown on the community's FIRM) about areas that are predicted to be susceptible to flooding in the future because of climate change or sea level rise.[18] The maximum credit for this measure is 20 points.[19] To receive the maximum credits, a community must provide information regarding flood hazards that are not shown on the community's FIRM.[20] The information provided should be located on a map or geographic information system (GIS) layer so that a

[15] *Id.* at 110-15, 110-16.
[16] *Id.* at 300-1.
[17] *Id.*
[18] *Id.* at 320-11.
[19] *Id.*
[20] *Id.*

person responding to the inquiries has an accurate source of information.[21] A community has the option to provide the information via phone, written or e-mailed inquiry, or website.[22]

The criteria required for this measure suggest that the Georgia Coastal Resources Division's (GCRD) Coastal Hazards Portal would make Georgia's coastal communities eligible for these CRS credits. However, the measure requires that the mapping information service be able to locate a property based on a street address.[23] In addition, the measure requires that the mapping service provide an opportunity for a community member to contact a "staff person," which affords the community member the opportunity to obtain additional information, such as a permit requirement.[24] As of now, GCRD's Coastal Hazards Portal does not possess all of these characteristics, and thus, a community would need to supplement the portal data with street addresses and staff contacts. A community could potentially meet the street address requirements by adding data from the National Oceanic and Atmospheric Administration's (NOAA) Sea Level Rise Viewer to their existing GIS platform.

2. Advise Prospective Buyers of Property's Potential for Flooding due to Sea Level Rise

The Hazards Disclosure Section of Section 300 seeks to disclose to prospective buyers a property's potential flood hazard before the lender notifies the prospective buyers of the need for flood insurance.[25] Section 342.d provides credits related to real estate agents advising prospective buyers of the potential for flooding due to climate change or sea level rise. The maximum credit for this measure is 8 points.[26]

To receive credit for this measure, real estate agents need to advise potential property buyers of hazards that have been identified for areas subject to

[21] *Id.* at 320-3.
[22] *Id.*
[23] *Id.* at 320-3, 320-4.
[24] *Id.* at 320-4.
[25] *Id.* at 340-2.
[26] *Id.* at 340-10.

increased flooding due to climate change or sea level rise.[27] In order to receive these credits, the Manual requires communities to provide specific documentation to ensure that the community's real estate agents are, in fact, disclosing the appropriate information. For example, the Manual requires that a community present at least one copy of a disclosure notice from at least five real estate agencies that serve the community.[28] The required documentation can include copies of notations on property summary sheets, offer-to-purchase forms, MLS forms, or other media.[29]

Georgia law requires real estate agents to disclose to prospective buyers a property's flood hazards. For a community to earn the eight additional points for the Manual's sea level rise measure, however, hazards must be identified for areas specifically subject to increased flooding as a result of sea level rise.[30] Although Georgia does not have a law that requires real estate agents to disclose flood hazards identified as a result of sea level rise, a community can adopt such a measure for the real estate agents working within its own community. In other words, a community can receive CRS credits for adopting this measure if it can document that the required disclosures are occurring at the local level.

B. *Series 400- Mapping and Regulations*

Series 400 of the Manual addresses credits that communities can receive for enacting and enforcing regulations which exceed NFIP's minimum standards and provide greater flood protection for new and existing development.[31] This Series of the Manual allows communities to receive credit for the following five sea level rise-related activities, each of which will be discussed below: (1) demonstrating that the community has programs that minimize increases in future flooding; (2) using regulatory flood elevations in the V and coastal A zones that reflect future conditions, including sea level rise; (3) basing the community's

[27] *Id.*
[28] *Id.* at 340-5.
[29] *Id.*
[30] *The Georgia Brokerage Relationships in Real Estate Transactions Act*, GEORGIA REAL ESTATE COMMISSION, https://www.grec.state.ga.us/infobase/table%20of%20contents%20pdf/Chapter%209.pdf.
[31] *CRS Coordinator's Manual*, *supra* note 6, at 400-1.

regulatory map on future-conditions hydrology, including sea level rise; (4) regulating runoff from future development through the community's stormwater program; and (5) managing future peak flows through the community's watershed master plan so that the flows do not exceed present values.

1. Demonstrate that the Community has Programs that Minimize Increases in Future Flooding

The first mitigation measure for sea level rise in Series 400 provides potential credits for communities that demonstrate they have programs to minimize increases in future flooding.[32] To demonstrate that a community has minimized increases in future flooding, it must: (1) show that it enforces higher regulatory standards to manage new development in the floodplain; (2) receive credits for its watershed management plan under Section 451.b; and (3) have adopted and be implementing a floodplain management plan that receives at least 50% of the maximum credit for Floodplain Management Planning.[33] This mitigation measure is a prerequisite for a community to become a Class 4 or better community.

2. Use Regulatory Flood Elevations in the V and Coastal A zones that Reflect Future Conditions, including Sea Level Rise

The second mitigation measure for sea level rise in Series 400 allows communities to receive credit for using regulatory flood elevations in the V and coastal A zones that reflect future conditions, including sea level rise. The term "V zone" refers to the Special Flood Hazard Area that is subject to coastal high hazard flooding.[34] The term "coastal A zone" refers to those parts of the community's coastal floodplain, inland from the mapped V zone, that are subject to the damaging effects of waves, velocity flows, erosion, scour, or combinations

[32] *Id.* at 210-4.
[33] *Id.* at 210-4, 210-5.
[34] *Id.* at 120-10.

of these forces.[35] This mitigation measure is a prerequisite for a community to become a Class 1 community.[36]

A community must meet the following prerequisites in order to become a Class 1 community: (1) meet all the Class 4 prerequisites; (2) meet the minimum standards of the NFIP as determined by a Community Assistance Visit conducted by FEMA within the previous 12 months; (3) promote flood insurance as a vital way to protect residents and businesses from the financial impacts of a flood; and (4) demonstrate that it has a "no adverse impact" approach to floodplain management.[37] Of these prerequisites, a community's demonstration that it has a "no adverse impact" approach to floodplain management is most relevant to addressing future risks of flooding due to sea level rise. To demonstrate that it has met this prerequisite in its coastal floodplains, a community must show that it is receiving credit for using regulatory flood elevations in the V and coastal A zones that reflect future conditions, including sea level rise.[38] A community can illustrate that it is receiving credits for using these flood elevations by using future-conditions hydrology under the higher study standards measure in Section 412.d, discussed below.[39]

3. Basing its Regulatory Map on Future-Conditions Hydrology, including Sea Level Rise

Section 412.d provides the third mitigation measure for sea level rise that is addressed in Series 400 and allows a community to receive up to 160 credits if its regulatory maps are based on higher study standards than those required by FEMA.[40] To be eligible for credit under this measure, a community must implement at least one of the following higher study standards: (1) using a factor of safety when calculating the 100-year discharge; (2) using better topographic data; (3) using future-conditions hydrology (including sea level rise); and (4)

[35] *Id.* at 120-2.
[36] *Id.* at 210-7.
[37] *Id.* at 210-6.
[38] *Id.* at 210-7.
[39] *Id.*
[40] *Id.* at 410-18.

showing 500-year flood elevations and the boundaries of the 500-year floodplain.[41]

The credits awarded for higher study standards are cumulative for up to three higher study standards, provided that the sum of the credits awarded does not exceed 160 points.[42] Of the higher study standards listed under this measure, using future-conditions hydrology (including sea level rise) to develop a community's regulatory map is most relevant to addressing future risks of flooding due to sea level rise. To receive credits for using future-conditions hydrology, a community must use flood discharges associated with a fully developed watershed and create flood discharges without considering projected construction of flood detention structures or hydraulic modifications within a stream or other waterway.[43] Examples of flood detention structures or hydraulic modifications include bridge and culvert construction, fill, or excavation. If a community wants to receive credit for using future-conditions hydrology in coastal studies, the community must use an estimate of the sea level rise anticipated by the year 2100 or later.[44] The Manual requires that "the study used to determine the sea level rise estimate [be] developed by FEMA, the U.S. Army Corps of Engineers, the U.S. Geological Survey, NOAA, or through a regional study that produced higher base flood elevations."[45]

To demonstrate that a community is eligible for credit under this measure, a community not only has to include these higher base flood elevations in its maps, but it also has to regulate to these higher levels by requiring that structures be built to meet the higher base flood elevation standards. This requirement is analogous to the criteria for receiving credit under the Higher Regulatory Standards Section (432.b) of the Manual. A community that enforces a 3-foot freeboard requirement to the elevation of the lowest floor of the building or to the elevation to which a non-residential building is dry floodproofed, and to all components of the building, is eligible to earn up to 500 credits.[46]

[41] *Id.*
[42] *Id.* at 410-20.
[43] *Id.* at 410-18.
[44] *Id.* at 410-19.
[45] *Id.*
[46] *Id.* at 430-10, 430-11.

It would seem to make more sense, then, for a community to adopt the freeboard measure under Section 432.b as opposed to the future-conditions hydrology measure under Section 412.d because a community can earn more than three times the credit for adopting the freeboard measure. Further, the community can enforce the measure without encountering any controversial discussion of sea level rise.[47] For example, if a coastal community is predicted to experience three feet of sea level rise by the year 2100, the community can simply enforce a 3-foot freeboard and earn up to 500 credits as opposed to earning the maximum 160 credits under the higher study standards measure, all the while avoiding the extra cost, effort, and controversy of sea level rise mapping.[48] Insurance Services Office (ISO)/ CRS Specialists have recognized this potential issue and intend to review it for the next Manual update.[49]

The criteria required for this measure suggest that some Georgia communities, which have used overlays from the Hazards Portal of NOAA's Sea Level Rise Viewer (Viewer), may be eligible for credits under this measure. According to NOAA, the maps used in the Viewer were derived from source elevation data that meet or exceed FEMA's mapping standards for the NFIP.[50] It seems to follow, then, that communities who have incorporated overlays from the Viewer into their FIRM, which were derived from data that exceeds FEMA's mapping standards, may be eligible to receive credits for using future-conditions hydrology. Communities working to improve their CRS rating should raise this possibility with the ISO/CRS Specialist reviewing their community.[51] Notably, however, a community cannot receive credit for developing these maps unless the community also regulates the information provided on the maps.

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[47] Telephone interview with Shannon Jarbeau, Assistant Director, Wetlands Watch (Feb. 24, 2015).
[48] *Id.*
[49] *Id.*
[50] *Frequent Questions- Digital Coastal Sea Level Rise and Coastal Flooding Impacts Viewer*, NOAA COASTAL SERVICES CENTER 7 (Mar. 2014), http://coast.noaa.gov/digitalcoast/_/pdf/SLRViewerFAQ.pdf.
[51] The Insurance Services Office, Inc. (ISO) serves as FEMA's CRS management contractor. ISO specialists review community activities when they seek to join the CRS program as well as conduct "cycle verification visits" to review existing programs. *CRS Coordinator's Manual, supra* note 6, at 110-8.

4. Community's Stormwater Program Regulates Runoff from Future Development

The fourth mitigation measure for sea level rise that is recognized in Series 400 of the Manual, in which the community's stormwater program regulates runoff from future development, falls within the Stormwater Management Section (452.a). The Stormwater Management Section seeks to prevent future development from increasing flood hazards to existing development and maintain and improve water quality.[52] The maximum credit for this measure is 380 points.[53] A community can receive credit for this measure if it requires new development to prevent or reduce increases in runoff caused by urbanization.[54] Additionally, credit is only provided for regulating runoff from a 10-year storm or larger.[55] It is important to note that a community can only receive CRS credit for this activity if the community's regulations are legally enforceable. For instance, mere policies or guidelines may not be acceptable.[56]

Georgia's Coastal Stormwater Supplement (Supplement) provides post-construction stormwater management recommendations, such as reducing stormwater runoff, for certain new development.[57] For example, the Supplement recommends that new development sites reduce the volume of stormwater runoff volume generated by a 1.2-inch rainfall event, which represents the majority (85th percentile) of storm events in Georgia.[58] Additionally, the Supplement recommends that new development sites reduce the volume of stormwater runoff generated by the "first flush," or the first 1.2 inches, of all larger rainfall events.[59] Although the Supplement recommends that new development reduce runoff, it does not base its recommendations on a 10-year storm or larger. Thus, it does not

[52] *Id.* at 450-2.
[53] *Id.* at 450-4.
[54] *Id.*
[55] *Id.*
[56] *Id.* at 450-13.
[57] *Georgia Coastal Stormwater Supplement*, CENTER FOR WATERSHED PROTECTION 4-13 (Apr. 2009), https://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Georgia_Coastal_Stormwater_Supplement_2009.pdf.
[58] *Id.*
[59] *Id.*

appear that the Supplement has provisions to meet the criteria required to receive credits for this measure. Moreover, the Supplement's guidelines are merely recommendations and, thus, are not legally enforceable in Georgia communities unless they adopt its guidance by local ordinance.[60]

However, notably, local governments are not limited to the recommendations set forth in the Supplement. Communities may exceed existing minimum standards and adopt requirements to reduce stormwater runoff that meet the criteria required to receive credits under the Manual's sea level rise measure.

5. Community's Watershed Master Plan Manages Future Peak Flows so that They do not Exceed Present Values

Alongside the fourth mitigation measure, the fifth mitigation measure for sea level rise that is addressed in Series 400 of the Manual, in which the community's watershed master plan manages future peak flows so that they do not exceed present values, falls within the Stormwater Management Section (452.b).[61] The maximum credit for this measure is 315 points.[62] To receive CRS credit for this activity, a community's watershed master plan must address the regulatory standards for new development and identify the natural drainage system and constructed channels of the watersheds that drain into the community.[63]

The Georgia Supplement does not address the management of a community's future peak flows. Nor does the Supplement mention community watershed plans directly, although arguably some of its recommendations could be considered a community watershed plan if adopted.[64] Despite the fact that the Supplement does not address community watershed plans, communities may still develop such a plan. Nothing prevents communities from using the Supplement as a guide and developing a community watershed plan that incorporates provisions

[60] *Id.* at 1-5.
[61] *CRS Coordinator's Manual*, *supra* note 6, at 450-14.
[62] *Id.*
[63] *Id.*
[64] *Georgia Coastal Stormwater Supplement*, *supra* note 57.

into the plan that monitor future peak flows in order to receive CRS credits under this measure.

C. *Series 500- Flood Damage Reduction Activities*

Series 500 of the Manual focuses on reducing flood damage to existing buildings.[65] As such, it recognizes the following types of damage reduction measures: acquiring, relocating or retrofitting existing buildings; maintaining and improving drainageways and retention basins; and planning for the best ways to implement these and other loss prevention and reduction activities.[66] Series 500 of the Manual provides for the following mitigation measure for sea level rise: conduct a flood hazard assessment and problem analysis to address areas likely to flood and flood problems that are likely to get worse in the future.

This mitigation measure for sea level rise falls under the Floodplain Management Planning Section (512.a), which seeks to credit the production of an overall strategy of programs, projects, and measures that will reduce the adverse impact of the hazard on the community and help meet other community needs.[67] The measure is specifically addressed in Steps 4 and 5 of Section 512.a.[68] Communities that meet this measure can receive a maximum of 35 credits for Step 4 and 52 credits for Step 5.[69] Step 4 provides for reviewing and analyzing data from existing flood studies to assess the sources, frequency, extent, and causes of flooding.[70] To receive CRS credit for Step 4, a community hazard assessment must describe the local flood hazard as opposed to a generic discussion of flooding.[71] Furthermore, the assessment must discuss how often flooding occurs, the locations of areas that flood, flooding depths, and sources or causes of the flooding.[72]

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[65] *CRS Coordinator's Manual*, supra note 6.
[66] *Id.*
[67] *Id.* at 510-2.
[68] *Id.* at 110-16.
[69] *Id.* at 510-14, 510-16.
[70] *Id.* at 510-13.
[71] *Id.* at 510-14.
[72] *Id.*

While Step 4 addresses the hazards faced by a community, Step 5 requires community planners to collect and summarize data on what is at risk in the community.[73] To receive CRS credit for Step 5, a community must, among other things, assess all relevant flood-related hazards identified in Step 4.[74] In order to be eligible to receive credit under this section, a community must not skip more than two steps discussed in the Manual; if more steps are skipped, no credit will be awarded.[75]

IV. CONNECTING GEORGIA LAW WITH THE CRS

Various statutes in Georgia indirectly address sea level rise issues, such as by regulating land-disturbing activity that can cause erosion and administering a coastal management program that protects Georgia's coastal marshlands and beaches. Although they do not specifically reference "sea level rise" in their provisions, the following statutes contain provisions that are particularly relevant to sea level rise issues: (1) Georgia Coastal Marshlands Protection Act; (2) Georgia Erosion and Sedimentation Act; (3) Georgia Shore Protection Act; and (4) Georgia Coastal Management Act.[76]

A. *Georgia Coastal Marshlands Protection Act*

Georgia's Coastal Marshlands Protection Act (CMPA) was enacted in 1970 to protect the state's coastal marshlands that help with flood control and provide habitat for wildlife.[77] The CMPA specifically states that a property owner cannot fill, drain, dredge, or otherwise alter marshlands along the Georgia coast unless the Coastal Marshlands Protection Agency of the Department of Natural

[73] *Id.* at 510-16.
[74] *Id.*
[75] *Id.* at 510-4.
[76] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, RIVER BASIN CENTER AT THE UNIVERSITY OF GEORGIA, http://www.rivercenter.uga.edu/education/practicum/documents/coastal_management_policies_fed_state_local.pdf.
[77] Teresa Concannon, Mushtag Hussain, Daniel Hudgens & James G. Titus. *The Likelihood of Shore Protection: Georgia*, U.S. ENVIRONMENTAL PROTECTION AGENCY, 267 (Feb. 2010), http://risingsea.net/ERL/shore-protection-retreat-sea-level-rise-Georgia.pdf.

Resources issues a permit to the property owner for such activity.[78] With respect to sea level rise concerns, the CMPA contains provisions that may be able to address the following impacts of sea level rise: (1) increased coastal flooding and inundation; (2) increased shore erosion and land loss; (3) threats to aquatic and marine ecosystems; (4) saltwater intrusion into coastal freshwater and estuarine ecosystems; and (5) potential wetlands loss.[79]

While the CMPA has no direct connection to the sea level rise measures mentioned in the previous section of this article, the CMPA does address the concept of open space preservation, which is discussed in Section 420 of the Manual.[80] Like the CMPA seeks to protect coastal marshlands that help with flood control, the open space preservation measure in the Manual seeks to prevent or minimize development in the floodplain that would adversely affect floodplain functions.[81] The open space preservation measure in Series 400 awards up to 1,450 points for communities that preserve open space in the floodplain and prohibit future development, fill, and materials storage on these parcels.[82] Communities can earn up to 120 points for shoreline protection programs that protect or restore channels and shorelines to their natural state.[83] The credit is based either on shoreline protection practices put in place by property owners or on protection requirements embodied in local regulations.[84]

A community that adheres solely to the regulations set forth in the CMPA is unlikely to meet the criteria required under the Manual's open space preservation measure, though. Simply requiring property owners to obtain a permit is insufficient to obtain the available credits; the sea level rise measure in the Manual requires a community to actually prohibit structural shoreline protection. However, a community may be eligible to earn credits for this measure if the community enforces prohibition of structural shoreline protection at the

[78] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, *supra* note 76.
[79] *Id.*
[80] *CRS Coordinator's Manual*, *supra* note 6, at 420-1.
[81] *Id.* at 420-3.
[82] *Id.*
[83] *Id.* at 410-1
[84] *Id.* at 420-3.

local level or makes it a dedicated practice to not issue permits for structural shoreline protection.

B. *Georgia Erosion and Sedimentation Act*

Georgia's Erosion and Sedimentation Act (GESA), enacted in 1975, regulates land-disturbing activity that may result in erosion, such as the clearing, dredging, grading, excavating, transporting, and filling of land.[85] Specifically, the GESA requires counties and municipalities to adopt ordinances that establish measures for controlling such land-disturbing activities.[86] Additionally, the GESA mandates that permit applicants adopt best management practices that avoid soil erosion caused by stormwater runoff. [87] A 25-foot stream buffer for state waters adjacent to wrested vegetation is also required.[88] In 2015, the Georgia General Assembly passed Senate Bill 101, which established a 25-foot buffer along coastal marshlands, as measured horizontally from the coastal marshland-upland interface,[89] also known as the "marsh jurisdictional line" established by CRD under the CMPA. With respect to sea-level rise concerns, the GESA contains provisions that may be able to address the following impacts of sea level rise: (1) increased coastal flooding and inundation; and (2) increased shore erosion and land loss.[90]

Although there is no direct connection between the provisions set forth under the GESA and the sea level rise measures mentioned in the prior section, there is potential for the GESA's requirements to integrate with some of the measures found in Series 400. For example, a community's adherence to state-mandated regulation standards may qualify for bonus credit under Series 400.[91]

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[85] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, *supra* note 76.
[86] Teresa Concannon, Mushtag Hussain, Daniel Hudgens & James G. Titus, *supra* note 77.
[87] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, *supra* note 76.
[88] Turner v. Georgia River Network, 297 Ga. 306, 307 (2015).
[89] See *S.B. 101* (2015), Georgia General Assembly, available at http://www.legis.ga.gov/Legislation/en-US/display/20152016/SB/101. At the time of publication, the Environmental Protection Division was conducting stakeholder meetings to discuss proposed changes to the Rules for Erosion and Sedimentation Control, as mandated by S.B. 101. The rules were to be issued by December 31, 2015.
[90] *Id.*
[91] *CRS Coordinator's Manual*, *supra* note 6, at 430-38.

Additionally, a community may qualify for credits for erosion and sedimentation control regulations under Section 450, which includes a maximum of 40 credits for erosion and sedimentation control regulations under Section 452.c.[92] However, a community is only eligible for this additional credit if the state mandate exceeds the requirements for a National Pollutant Discharge Elimination System (NPDES) permit.[93]

C. *Georgia Shore Protection Act*

In 1992, Georgia enacted the Shore Protection Act (SPA) to protect sand dunes and beaches along the Georgia coast.[94] The SPA requires property owners to obtain a permit for certain activities and structures on the beach,[95] such as construction of a structure that will alter the natural shoreline's topography and vegetation.[96] With respect to sea-level rise issues, the SPA contains provisions that may be able to address the following impacts of sea level rise: (1) increased coastal flooding and inundation; (2) increased shore erosion and land loss; and (3) threats to aquatic and marine ecosystems.[97]

Although the SPA has no direct connection to the sea level rise measures discussed in this article, it does contain provisions that relate to the natural shoreline protection measures discussed in Section 422.g of the Manual under Mapping and Regulations.[98] Like the SPA recognizes the importance of protecting Georgia's shoreline features including sand dunes, beaches, sandbars, and shoals, the natural shoreline protection measure in the Manual recognizes the importance of preserving the natural state of channels and shorelines.[99] The natural shoreline protection measure under Series 400 credits up to 120 points for communities that allow natural channels and shorelines to follow their natural processes and to encourage natural shorelines that provide water quality benefits

[92] *Id.* at 450-18.
[93] *Id.* at 430-39.
[94] Teresa Concannon, Mushtag Hussain, Daniel Hudgens & James G. Titus, *supra* note 77.
[95] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, *supra* note 76.
[96] Teresa Concannon, Mushtag Hussain, Daniel Hudgens & James G. Titus, *supra* note 77.
[97] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, supra note 76.
[98] *CRS Coordinator's Manual*, *supra* note 6, at 420-1.
[99] *Id.* at 420-28.

for runoff.[100] While communities following SPA regulations are unlikely to be credited for this natural shoreline protection measure under current regulations, a community that adopts stricter regulations or that makes it a dedicated practice to refrain from issuing any permits that affect natural shoreline protection may be eligible for credits under this measure.

D. *Georgia Coastal Management Act*

The Georgia General Assembly enacted the Georgia Coastal Management Act (GCMA) in 1997.[101] The GCMA authorizes the state of Georgia to prepare and administer a coastal management program.[102] Additionally, the GCMA establishes requirements for the Department of Natural Resources to develop and implement a program that addresses sustainable development and protection of coastal resources.[103] With respect to sea level rise issues, the GCMA contains provisions that may be able to address the following impacts of sea level rise: (1) increased coastal flooding and inundation; (2) increased shore erosion and land loss; and (3) threats to aquatic and marine ecosystems.[104]

The GCMA has indirect connections to some of the sea level rise measures discussed in the previous section of this article, particularly the development of a master watershed plan and the incorporation of a mapping system. Although the GCMA does not require watershed planning, Georgia's coastal management program is structured in a way that could likely incorporate a watershed planning component similar to the master watershed plan discussed above and found in Section 452.b of the Manual.[105] In addition to adopting a master watershed plan, a community could likely incorporate a mapping system, in which a community provides information (not mapped on the FIRM) about areas that are predicted to be susceptible to flooding in the future because of climate change or sea level rise. Credit is awarded for this measure based on the

[100] *Id.*
[101] *About Coastal Management*, Coastal Resources Division of the Department of Natural Resources, available at http://coastalgadnr.org/cm/about.
[102] *Key Coastal Management Policies Relevant to Sea-Level Rise in Georgia*, *supra* note 76.
[103] *Id.*
[104] *Id.*
[105] *CRS Coordinator's Manual*, *supra* note 6, at 450-14.

criteria set forth in Section 322.c of the Manual, as discussed in Section II of this article.[106]

In addition to the statutes discussed in this section, the Executive Order signed by Governor Nathan Deal on January 14, 2013 has the ability to address sea level rise concerns in Georgia. In his Order, Governor Deal directed the Department of Natural Resources' CRD and other state agencies to develop the Georgia Disaster Recovery and Redevelopment Plan (GDRRP).[107] CRD is two years into a five-year strategy to produce a model post-disaster redevelopment plan to evaluate state and local policies and procedures for use in a post-disaster environment.[108] In developing the GDRRP, if CRD and other relevant state agencies require communities to implement the sea level rise measure addressed in Section 512.a of the Manual, which requires a community to assess local flooding hazard data including how often it floods, the locations of areas that flood, the depth of flooding, and the source or cause of flooding, communities could earn CRS credit in this area.

V. CONCLUSION

Including sea level rise measures as part of the CRS Manual has been an important way to acknowledge local efforts to plan for increased flooding caused by rising sea levels. Several areas exist where Georgia communities can take advantage of these opportunities and create greater discounts for their communities. Because coastal floodplains - and the policies that protect properties in these areas - are projected to expand, it is likely that the next version of the CRS Manual will include even more provisions. As Georgia communities work to protect private property from increased flood risks, a strong potential exists that even more CRS credits – and savings – will be available in the future.

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[106] *Id.* at 320-11.
[107] *Executive Order signed by Georgia Governor Nathan Deal* (Jan. 14, 2013), *available at* http://gov.georgia.gov/sites/gov.georgia.gov/files/related_files/document/01.14.13.02.pdf.
[108] *Coastal Hazards*, COASTAL RESOURCES DIVISION OF THE DEPARTMENT OF NATURAL RESOURCES, http://coastalgadnr.org/cm/hazard.

APPENDIX: Summary of CRS Sea Level Rise Measures		
Category	**Measure**	**Maximum CRS credits available**
Series 300: Public Information Activities	**Map Information Service**: community must provide inquirers with information (not shown on the community's FIRM) about areas that are predicted to be susceptible to flooding in the future due to sea level rise	20
	Hazard Disclosure: local real estate agents must disclose to prospective buyers a property's potential for flooding due to sea level rise	8
Series 400: Mapping and Regulation	**Program Prerequisite**: community must demonstrate that it has programs which minimize increases in future flooding	Prerequisite to become a Class 4 or better community
	Program Prerequisite: community must be using regulatory flood elevations in the V and coastal A zones that reflect future conditions, including sea level rise	Prerequisite to become a Class 1 or better community
	Floodplain Mapping: community's regulatory map must be based on future-conditions hydrology, which means that discharges associated with a fully developed watershed must be used and must be created without consideration of projected construction of flood detention structures or hydraulic modifications within a stream or other waterway	160
	Stormwater Management: community's stormwater program must regulate runoff from future development	380
	Stormwater Management: community's watershed master plan must manage future peak flows so that they do not exceed present values	315
Series 500: Flood Damage Reduction Activities	**Floodplain Management Planning**: community must conduct a flood hazard assessment and problem analysis to address areas likely to flood and flood problems that are likely to get worse in the future Step 4 (assess the hazard): community planners must review, analyze, and summarize data from existing flood studies to assess the sources, frequency, extent, and causes of flooding Step 5 (assess the problem): community planners must assess the impact of the flood-related hazards identified in Step 4 on the community	Step 4: 35 Step 5: 52
		Total credits available: 970