

116TH CONGRESS  
1ST SESSION

**S.** \_\_\_\_\_

To reauthorize the Integrated Coastal and Ocean Observation System Act of 2009, to clarify the authority of the Administrator of the National Oceanic and Atmospheric Administration with respect to post-storm assessments, and to require the establishment of a National Water Center, and for other purposes.

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IN THE SENATE OF THE UNITED STATES

Mr. WICKER (for himself and Ms. CANTWELL) introduced the following bill; which was read twice and referred to the Committee on

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**A BILL**

To reauthorize the Integrated Coastal and Ocean Observation System Act of 2009, to clarify the authority of the Administrator of the National Oceanic and Atmospheric Administration with respect to post-storm assessments, and to require the establishment of a National Water Center, and for other purposes.

1       *Be it enacted by the Senate and House of Representa-*  
2       *tives of the United States of America in Congress assembled,*

1 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

2 (a) **SHORT TITLE.**—This Act may be cited as the  
 3 “Coordinated Ocean Observations and Research Act of  
 4 2019”.

5 (b) **TABLE OF CONTENTS.**—The table of contents for  
 6 this Act is as follows:

Sec. 1. Short title; table of contents.

**TITLE I—REAUTHORIZATION OF INTEGRATED COASTAL AND  
 OCEAN OBSERVATION SYSTEM ACT OF 2009**

Sec. 101. Purposes.  
 Sec. 102. Definitions.  
 Sec. 103. Integrated Coastal and Ocean Observation System.  
 Sec. 104. Financing and agreements.  
 Sec. 105. Reports to Congress.  
 Sec. 106. Public-private use policy.  
 Sec. 107. Repeal of independent cost estimate.  
 Sec. 108. Authorization of appropriations.  
 Sec. 109. Reports and research plans.  
 Sec. 110. Strategic research plan.  
 Sec. 111. Stakeholder input on monitoring.  
 Sec. 112. Research activities.

**TITLE II—NAMED STORM EVENT MODEL AND POST-STORM  
 ASSESSMENTS**

Sec. 201. Named Storm Event Model and post-storm assessments.

**TITLE III—WATER PREDICTION AND FORECASTING**

Sec. 301. Water prediction and forecasting.

7 **TITLE I—REAUTHORIZATION OF**  
 8 **INTEGRATED COASTAL AND**  
 9 **OCEAN OBSERVATION SYS-**  
 10 **TEM ACT OF 2009**

11 **SEC. 101. PURPOSES.**

12 Section 12302 of the Integrated Coastal and Ocean  
 13 Observation System Act of 2009 (33 U.S.C. 3601) is  
 14 amended to read as follows:

1 **“SEC. 12302. PURPOSES.**

2 “The purposes of this subtitle are—

3 “(1) to establish and sustain a national inte-  
4 grated System of ocean, coastal, and Great Lakes  
5 observing systems, comprised of Federal and non-  
6 Federal components coordinated at the national level  
7 by the Council and at the regional level by a network  
8 of regional coastal observing systems, and that in-  
9 cludes in situ, remote, and other coastal and ocean  
10 observation and modeling capabilities, technologies,  
11 data management systems, communication systems,  
12 and product development systems, and is designed to  
13 address regional and national needs for ocean and  
14 coastal information, to gather specific data on key  
15 coastal, ocean, and Great Lakes variables, and to en-  
16 sure timely and sustained dissemination and avail-  
17 ability of these data—

18 “(A) to the public;

19 “(B) to support national defense, search  
20 and rescue operations, marine commerce, navi-  
21 gation safety, weather, climate, and marine  
22 forecasting, energy siting and production, eco-  
23 nomic development, ecosystem-based marine,  
24 coastal, and Great Lakes resource management,  
25 public safety, and public outreach and edu-  
26 cation;

1           “(C) to promote greater public awareness  
2           and stewardship of the Nation’s ocean, coastal,  
3           and Great Lakes resources and the general  
4           public welfare;

5           “(D) to provide easy access to ocean,  
6           coastal, and Great Lakes data and promote  
7           data sharing between Federal and non-Federal  
8           sources and promote public data sharing;

9           “(E) to enable advances in scientific un-  
10          derstanding to support the sustainable use, con-  
11          servation, management, and understanding of  
12          healthy ocean, coastal, and Great Lakes re-  
13          sources to ensure the Nation can respond to op-  
14          portunities to enhance food, economic, and na-  
15          tional security; and

16          “(F) to monitor and model changes in the  
17          oceans and Great Lakes, including with respect  
18          to chemistry, harmful algal blooms, hypoxia,  
19          water levels, and other phenomena;

20          “(2) to improve the Nation’s capability to meas-  
21          ure, track, observe, understand, and predict events  
22          related directly and indirectly to weather and cli-  
23          mate, natural climate variability, and interactions  
24          between the oceanic and atmospheric environments,  
25          including the Great Lakes;

1           “(3) to sustain, upgrade, and modernize the  
2           Nation’s ocean and Great Lakes observing infra-  
3           structure to detect changes and ensure delivery of  
4           reliable and timely information; and

5           “(4) to authorize activities—

6                   “(A) to promote basic and applied research  
7                   to develop, test, and deploy innovations and im-  
8                   provements in coastal and ocean observation  
9                   technologies, including advanced observing tech-  
10                  nologies such as unmanned maritime systems  
11                  needed to address critical data gaps, modeling  
12                  systems, other scientific and technological capa-  
13                  bilities to improve the understanding of weather  
14                  and climate, ocean-atmosphere dynamics, global  
15                  climate change, and the physical, chemical, and  
16                  biological dynamics of the ocean, coastal and  
17                  Great Lakes environments; and

18                   “(B) to conserve healthy and restore de-  
19                  graded coastal ecosystems.”.

20 **SEC. 102. DEFINITIONS.**

21           Section 12303 of the Integrated Coastal and Ocean  
22           Observation System Act of 2009 (33 U.S.C. 3602) is  
23           amended—

24                   (1) in paragraph (2), by striking “section  
25                  7902” and inserting “section 8932”;

1           (2) in paragraph (5), by striking “integrated  
2           into the System and are managed through States,  
3           regional organizations, universities, nongovernmental  
4           organizations, or the private sector” and inserting  
5           “managed through States, regional organizations,  
6           universities, nongovernmental organizations, or the  
7           private sector and integrated into the System by a  
8           regional coastal ocean observing system, the Na-  
9           tional Oceanic and Atmospheric Administration, or  
10          the agencies participating in the Interagency Ocean  
11          Observation Committee”;

12          (3) by amending paragraph (6) to read as fol-  
13          lows:

14          “(6) REGIONAL COASTAL OBSERVING SYS-  
15          TEM.—The term ‘regional coastal observing system’  
16          means an organizational body that is certified or es-  
17          tablished by contract or memorandum by the lead  
18          Federal agency designated in section 12304(c)(3)  
19          and coordinates State, Federal, local, tribal, and pri-  
20          vate interests at a regional level with the responsi-  
21          bility of engaging the private and public sectors in  
22          designing, operating, and improving regional coastal  
23          and ocean observing systems in order to ensure the  
24          provision of data and information that meet the

1 needs of user groups from the respective regions.”;  
2 and

3 (4) in paragraph (7), by striking “National  
4 Oceanic and Atmospheric Administration” and in-  
5 serting “Administrator”.

6 **SEC. 103. INTEGRATED COASTAL AND OCEAN OBSERVA-**  
7 **TION SYSTEM.**

8 (a) SYSTEM ELEMENTS.—

9 (1) IN GENERAL.—Section 12304(b) of the In-  
10 tegrated Coastal and Ocean Observation System Act  
11 of 2009 (33 U.S.C. 3603(b)) is amended by striking  
12 paragraph (1) and inserting the following:

13 “(1) IN GENERAL.—In order to fulfill the pur-  
14 poses of this subtitle, the System shall be national  
15 in scope and consist of—

16 “(A) Federal assets to fulfill national and  
17 international observation missions and prior-  
18 ities;

19 “(B) non-Federal assets, including a net-  
20 work of regional coastal observing systems iden-  
21 tified under subsection (c)(4), to fulfill regional  
22 and national observation missions and prior-  
23 ities;

24 “(C) observing, modeling, data manage-  
25 ment, and communication systems for the time-

1 ly integration and dissemination of data and in-  
2 formation products from the System, including  
3 reviews of data collection procedures across re-  
4 gions and programs to make recommendations  
5 for data collection standards across the System  
6 to meet national ocean, coastal, and Great  
7 Lakes observation, applied research, and weath-  
8 er forecasting needs;

9 “(D) a product development system to  
10 transform observations into products in a for-  
11 mat that may be readily used and understood;  
12 and

13 “(E) a research and development program  
14 conducted under the guidance of the Council,  
15 consisting of—

16 “(i) basic and applied research and  
17 technology development—

18 “(I) to improve understanding of  
19 coastal and ocean systems and their  
20 relationships to human activities; and

21 “(II) to ensure improvement of  
22 operational assets and products, in-  
23 cluding related infrastructure, observ-  
24 ing technologies such as unmanned  
25 maritime systems, and information



1 and data processing and management  
2 technologies;

3 “(ii) an advanced observing tech-  
4 nology development program to fill gaps in  
5 technology;

6 “(iii) large scale computing resources  
7 and research to advance modeling of coast-  
8 al, ocean, and Great Lakes processes;

9 “(iv) models to improve regional  
10 weather forecasting capabilities and re-  
11 gional weather forecasting products; and

12 “(v) reviews of data collection proce-  
13 dures across regions and programs to  
14 make recommendations for data collection  
15 standards across the System to meet na-  
16 tional ocean, coastal, and Great Lakes ob-  
17 servation, applied research, and weather  
18 forecasting needs.”.

19 (2) AVAILABILITY OF DATA.—Section  
20 12304(b)(3) of such Act (33 U.S.C. 3603(b)(3)) is  
21 amended by inserting “for research and for use in  
22 the development of products to address societal  
23 needs” before the period at the end.

24 (b) POLICY OVERSIGHT, ADMINISTRATION, AND RE-  
25 GIONAL COORDINATION.—Section 12304(c) of the Inte-

1 grated Coastal and Ocean Observation System Act of  
2 2009 (33 U.S.C. 3603(e)) is amended by striking para-  
3 graphs (2), (3), and (4), and inserting the following:

4           “(2) INTERAGENCY OCEAN OBSERVATION COM-  
5           MITTEE.—

6           “(A) ESTABLISHMENT.—The Council shall  
7           establish or designate a committee, which shall  
8           be known as the Interagency Ocean Observation  
9           Committee.

10           “(B) DUTIES.—The Interagency Ocean  
11           Observation Committee shall—

12           “(i) prepare annual and long-term  
13           plans for consideration and approval by the  
14           Council for the integrated design, oper-  
15           ation, maintenance, enhancement, and ex-  
16           pansion of the System to meet the objec-  
17           tives of this subtitle and the System Plan;

18           “(ii) develop and transmit to Con-  
19           gress, along with the budget submitted by  
20           the President to Congress pursuant to sec-  
21           tion 1105(a) of title 31, United States  
22           Code, an annual coordinated, comprehen-  
23           sive budget—

1                   “(I) to operate all elements of  
2                   the System identified in subsection  
3                   (b); and

4                   “(II) to ensure continuity of data  
5                   streams from Federal and non-Fed-  
6                   eral assets;

7                   “(iii) establish requirements for obser-  
8                   vation data variables to be gathered by  
9                   both Federal and non-Federal assets and  
10                  identify, in consultation with regional  
11                  coastal observing systems, priorities for  
12                  System observations;

13                  “(iv) establish and define protocols  
14                  and standards for System data processing,  
15                  management, collection, configuration  
16                  standards, formats, and communication for  
17                  new and existing assets throughout the  
18                  System network;

19                  “(v) develop contract requirements for  
20                  each regional coastal observing system—

21                         “(I) to establish eligibility for in-  
22                         tegration into the System;

23                         “(II) to ensure compliance with  
24                         all applicable standards and protocols  
25                         established by the Council; and

1                   “(III) to ensure that regional ob-  
2                   servations are integrated into the Sys-  
3                   tem on a sustained basis;

4                   “(vi) identify gaps in observation cov-  
5                   erage or needs for capital improvements of  
6                   both Federal assets and non-Federal as-  
7                   sets;

8                   “(vii) subject to the availability of ap-  
9                   propriations, establish through 1 or more  
10                  Federal agencies participating in the Inter-  
11                  agency Ocean Observation Committee, in  
12                  consultation with the System advisory com-  
13                  mittee established under subsection (d), a  
14                  competitive matching grant or other pro-  
15                  grams—

16                  “(I) to promote intramural and  
17                  extramural research and development  
18                  of new, innovative, and emerging ob-  
19                  servation technologies including test-  
20                  ing and field trials; and

21                  “(II) to facilitate the migration  
22                  of new, innovative, and emerging sci-  
23                  entific and technological advances  
24                  from research and development to  
25                  operational deployment;

1 “(viii) periodically—

2 “(I) review the System Plan; and

3 “(II) submit to the Council such  
4 recommendations as the Interagency  
5 Ocean Observation Committee may  
6 have for improvements to the System  
7 Plan;

8 “(ix) ensure collaboration among Fed-  
9 eral agencies participating in the Inter-  
10 agency Ocean Observation Committee; and

11 “(x) perform such additional duties as  
12 the Council may delegate.

13 “(3) LEAD FEDERAL AGENCY.—

14 “(A) IN GENERAL.—The National Oceanic  
15 and Atmospheric Administration shall function  
16 as the lead Federal agency for the implementa-  
17 tion and administration of the System.

18 “(B) CONSULTATION REQUIRED.—In car-  
19 rying out this paragraph, the Administrator  
20 shall consult with the Council, the Interagency  
21 Ocean Observation Committee, other Federal  
22 agencies that maintain portions of the System,  
23 and the regional coastal observing systems.

24 “(C) REQUIREMENTS.—In carrying out  
25 this paragraph, the Administrator shall—

1 “(i) establish and operate an Inte-  
2 grated Ocean Observing System Program  
3 Office within the National Oceanic and At-  
4 mospheric Administration that—

5 “(I) utilizes, to the extent nec-  
6 essary, personnel from Federal agen-  
7 cies participating in the Interagency  
8 Ocean Observation Committee; and

9 “(II) oversees daily operations  
10 and coordination of the System;

11 “(ii) implement policies, protocols,  
12 and standards approved by the Council  
13 and delegated by the Interagency Ocean  
14 Observation Committee;

15 “(iii) promulgate program guide-  
16 lines—

17 “(I) to certify and integrate re-  
18 gional associations into the System;  
19 and

20 “(II) to provide regional coastal  
21 and ocean observation data that meet  
22 the needs of user groups from the re-  
23 spective regions;

24 “(iv) have the authority to enter into  
25 and oversee contracts, leases, grants, or co-

1           operative agreements with non-Federal as-  
2           sets, including regional coastal observing  
3           systems, to support the purposes of this  
4           subtitle on such terms as the Adminis-  
5           trator deems appropriate;

6                   “(v) implement and maintain a merit-  
7           based, competitive funding process to sup-  
8           port non-Federal assets, including the de-  
9           velopment and maintenance of a national  
10          network of regional coastal observing sys-  
11          tems, and develop and implement a process  
12          for the periodic review and evaluation of  
13          the regional associations;

14                   “(vi) provide opportunities for com-  
15          petitive contracts and grants for dem-  
16          onstration projects to design, develop, inte-  
17          grate, deploy, maintain, and support com-  
18          ponents of the System;

19                   “(vii) establish and maintain efficient  
20          and effective administrative procedures for  
21          the timely allocation of funds among con-  
22          tractors, grantees, and non-Federal assets,  
23          including regional coastal observing sys-  
24          tems;

1           “(viii) develop and implement a pro-  
2           cess for the periodic review and evaluation  
3           of the regional coastal observing systems;

4           “(ix) formulate an annual process by  
5           which gaps in observation coverage or  
6           needs for capital improvements of Federal  
7           assets and non-Federal assets of the Sys-  
8           tem are—

9                   “(I) identified by the regional as-  
10                  sociations described in the System  
11                  plan, the Administrator, or other  
12                  members of the System; and

13                   “(II) submitted to the Inter-  
14                  agency Ocean Observation Committee;

15           “(x) develop and be responsible for a  
16           data management and communication sys-  
17           tem, in accordance with standards and  
18           protocols established by the Interagency  
19           Ocean Observation Committee, by which  
20           all data collected by the System regarding  
21           ocean and coastal waters of the United  
22           States including the Great Lakes, are proc-  
23           essed, stored, integrated, and made avail-  
24           able to all end-user communities;



1           “(xi) not less frequently than once  
2           each year, submit to the Interagency  
3           Ocean Observation Committee a report on  
4           the accomplishments, operational needs,  
5           and performance of the System to con-  
6           tribute to the annual and long-term plans  
7           prepared pursuant to paragraph (2)(B)(i);

8           “(xii) develop and periodically update  
9           a plan to efficiently integrate into the Sys-  
10          tem new, innovative, or emerging tech-  
11          nologies that have been demonstrated to be  
12          useful to the System and which will fulfill  
13          the purposes of this subtitle and the Sys-  
14          tem Plan; and

15          “(xiii) work with users and regional  
16          associations to develop products to enable  
17          real-time data sharing for decision makers,  
18          including with respect to weather fore-  
19          casting and modeling, search and rescue  
20          operations, corrosive seawater forecasts,  
21          water quality monitoring and communica-  
22          tion, and harmful algal bloom forecasting.

23                 “(4) REGIONAL COASTAL OBSERVING SYS-  
24                 TEMS.—



1 commercial interests, and other users  
2 and beneficiaries of the System and  
3 other requirements specified under  
4 this subtitle and the System Plan;

5 “(iv) identifies—

6 “(I) gaps in observation coverage  
7 needs for capital improvements of  
8 Federal assets and non-Federal assets  
9 of the System; and

10 “(II) other recommendations to  
11 assist in the development of the an-  
12 nual and long-term plans prepared  
13 pursuant to paragraph (2)(B)(i) and  
14 transmits such information to the  
15 Interagency Ocean Observation Com-  
16 mittee through the Program Office es-  
17 tablished under paragraph (3)(C)(i);

18 “(v) develops and operates under a  
19 strategic plan that will ensure the efficient  
20 and effective administration of programs  
21 and assets to support daily data observa-  
22 tions for integration into the System, pur-  
23 suant to the standards approved by the  
24 Council;

1                   “(vi) works cooperatively with govern-  
2                   mental and nongovernmental entities at all  
3                   levels to identify and provide information  
4                   products of the System for multiple users  
5                   within the service area of the regional  
6                   coastal observing system; and

7                   “(vii) complies with all financial over-  
8                   sight requirements established by the Ad-  
9                   ministrators, including requirements relat-  
10                  ing to audits.

11                  “(B) PARTICIPATION.—For the purposes  
12                  of this subtitle, employees of Federal agencies  
13                  are permitted to be members of the governing  
14                  body for the regional coastal observing systems  
15                  and may participate in the functions of the re-  
16                  gional coastal ocean observing systems.”.

17                  (c) SYSTEM ADVISORY COMMITTEE.—Section  
18                  12304(d) of the Integrated Coastal and Ocean Observa-  
19                  tion System Act of 2009 (33 U.S.C. 3603(d)) is amend-  
20                  ed—

21                   (1) in paragraph (1), by striking “or the Inter-  
22                   agency Ocean Observing Committee.” and inserting  
23                   “or the Council under this subtitle”; and

24                   (2) in paragraph (2)—

## 21

1 (A) in subparagraph (A), by inserting “,  
2 data sharing,” after “data management”;

3 (B) in subparagraph (C), by striking  
4 “and” at the end; and

5 (C) by striking subparagraph (D) and in-  
6 serting the following:

7 “(D) additional priorities, including—

8 “(i) a national surface current map-  
9 ping network designed to improve fine  
10 scale sea surface mapping using high fre-  
11 quency radar technology and other emerg-  
12 ing technologies to address national prior-  
13 ities, including Coast Guard search and  
14 rescue operation planning and harmful  
15 algal bloom forecasting and detection  
16 that—

17 “(I) is comprised of existing high  
18 frequency radar and other sea surface  
19 current mapping infrastructure oper-  
20 ated by national programs and re-  
21 gional coastal observing systems;

22 “(II) incorporates new high fre-  
23 quency radar assets or other fine scale  
24 sea surface mapping technology as-  
25 sets, and other assets needed to fill

1 gaps in coverage on United States  
2 coastlines; and

3 “(III) follows a deployment plan  
4 that prioritizes closing gaps in high  
5 frequency radar infrastructure in the  
6 United States, starting with areas  
7 demonstrating significant sea surface  
8 current data needs, especially in areas  
9 where additional data will improve  
10 Coast Guard search and rescue mod-  
11 els;

12 “(ii) fleet acquisition for unmanned  
13 maritime systems for deployment and data  
14 integration to fulfill the purposes of this  
15 subtitle;

16 “(iii) an integrative survey program  
17 for application of unmanned maritime sys-  
18 tems to the real-time or near real-time col-  
19 lection and transmission of sea floor, water  
20 column, and sea surface data on biology,  
21 chemistry, geology, physics, and hydrog-  
22 raphy;

23 “(iv) remote sensing and data assimi-  
24 lation to develop new analytical methodolo-

1                   gies to assimilate data from the System  
2                   into hydrodynamic models;

3                   “(v) integrated, multi-State moni-  
4                   toring to assess sources, movement, and  
5                   fate of sediments in coastal regions;

6                   “(vi) a multi-region marine sound  
7                   monitoring system to be—

8                   “(I) planned in consultation with  
9                   the Interagency Ocean Observation  
10                  Committee, the National Oceanic and  
11                  Atmospheric Administration, the De-  
12                  partment of the Navy, and academic  
13                  research institutions; and

14                  “(II) developed, installed, and op-  
15                  erated in coordination with the Na-  
16                  tional Oceanic and Atmospheric Ad-  
17                  ministration, the Department of the  
18                  Navy, and academic research institu-  
19                  tions; and

20                  “(E) any other purpose identified by the  
21                  Administrator or the Council.”;

22                  (D) in paragraph (3)(B), by inserting  
23                  “The Administrator may stagger the terms of  
24                  the System advisory committee members.” be-  
25                  fore “Members”; and

1 (E) in paragraph (4)—

2 (i) in subparagraph (A), by striking  
3 “and the Interagency Ocean Observing  
4 Committee”; and  
5 (ii) in subparagraph (C), by striking  
6 “Observing” and inserting “Observation”.

7 (d) CIVIL LIABILITY.—Section 12304(e) of the Inte-  
8 grated Coastal and Ocean Observation System Act of  
9 2009 (33 U.S.C. 3603(e)) is amended—

10 (1) by striking “information coordination enti-  
11 ty” each place it appears and inserting “coastal ob-  
12 serving system”; and

13 (2) by striking “contract, lease, grant, or coop-  
14 erative agreement under subsection (c)(3)(D)” and  
15 inserting “a memorandum of agreement of certifi-  
16 cation under subsection (c)(3)(C)(iii)”.

17 (e) CONFORMING AMENDMENTS.—The Integrated  
18 Coastal and Ocean Observation System Act of 2009 (33  
19 U.S.C. 3601 et seq.) is amended by striking “regional in-  
20 formation coordination entities” each place it appears and  
21 inserting “regional ocean observing systems”.

22 **SEC. 104. FINANCING AND AGREEMENTS.**

23 Section 12305(a) of the Integrated Coastal and  
24 Ocean Observation System Act of 2009 (33 U.S.C.  
25 3604(a)) is amended to read as follows:



1           “(a) IN GENERAL.—The Secretary of Commerce may  
2 execute an agreement, on a reimbursable or nonreimburs-  
3 able basis, with any State or subdivision thereof, any Fed-  
4 eral agency, any public or private organization, or any in-  
5 dividual to carry out activities under this subtitle.”.

6 **SEC. 105. REPORTS TO CONGRESS.**

7           Section 12307 of the Integrated Coastal and Ocean  
8 Observation System Act of 2009 (33 U.S.C. 3606) is  
9 amended to read as follows:

10 **“SEC. 12307. REPORT TO CONGRESS.**

11           “(a) REQUIREMENT.—Not later than 2 years after  
12 March 30, 2020, and every 5 years thereafter, the Admin-  
13 istrator shall prepare, and the President acting through  
14 the Council shall approve and transmit to Congress, a re-  
15 port on progress made in implementing this subtitle.

16           “(b) CONTENTS.—Each report required under sub-  
17 section (a) shall include—

18                   “(1) a description of activities carried out under  
19 this subtitle and the System Plan;

20                   “(2) an evaluation of the effectiveness of the  
21 System, including an evaluation of progress made by  
22 the Council to achieve the goals identified under the  
23 System Plan;

24                   “(3) the identification of Federal and non-Fed-  
25 eral assets as determined by the Council that have

1       been integrated into the System, including assets es-  
2       sential to the gathering of required observation data  
3       variables necessary to meet the respective missions  
4       of Council agencies;

5               “(4) a review of procurements, planned or initi-  
6       ated, by each department or agency represented on  
7       the Council to enhance, expand, or modernize the  
8       observation capabilities and data products provided  
9       by the System, including data management and  
10      communication subsystems;

11              “(5) a summary of the existing gaps in observa-  
12      tion infrastructure and monitoring data collection,  
13      including—

14                   “(A) priorities considered by the System  
15      advisory committee;

16                   “(B) the national sea surface current map-  
17      ping network;

18                   “(C) coastal buoys;

19                   “(D) ocean chemistry monitoring;

20                   “(E) marine sound monitoring; and

21                   “(F) unmanned maritime systems tech-  
22      nology gaps;

23              “(6) an assessment regarding activities to inte-  
24      grate Federal and non-Federal assets, nationally and  
25      on the regional level, and discussion of the perform-

1       ance and effectiveness of regional coastal observing  
2       systems to coordinate regional observation oper-  
3       ations;

4               “(7) a description of benefits of the program to  
5       users of data products resulting from the System  
6       (including the general public, industries, scientists,  
7       resource managers, emergency responders, policy  
8       makers, and educators);

9               “(8) recommendations concerning—

10                       “(A) modifications to the System; and

11                       “(B) funding levels for the System in sub-  
12       sequent fiscal years; and

13               “(9) the results of a periodic external inde-  
14       pendent programmatic audit of the System.”.

15       **SEC. 106. PUBLIC-PRIVATE USE POLICY.**

16       Section 12308 of the Integrated Coastal and Ocean  
17       Observation System Act of 2009 (33 U.S.C. 3607) is  
18       amended to read as follows:

19       **“SEC. 12308. PUBLIC-PRIVATE USE POLICY.**

20               “The Council shall maintain a policy that defines  
21       processes for making decisions about the roles of the Fed-  
22       eral Government, the States, regional coastal observing  
23       systems, the academic community, and the private sector  
24       in providing to end-user communities environmental infor-  
25       mation, products, technologies, and services related to the

1 System. The Administrator shall ensure that National  
2 Oceanic and Atmospheric Administration adheres to the  
3 decision making process developed by the Council regard-  
4 ing the roles of the Federal Government, the States, the  
5 regional coastal observing systems, the academic commu-  
6 nity, and the private sector in providing end-user commu-  
7 nities environmental information, data products, tech-  
8 nologies, and services related to the System.”.

9 **SEC. 107. REPEAL OF INDEPENDENT COST ESTIMATE.**

10 (a) IN GENERAL.—The Integrated Coastal and  
11 Ocean Observation System Act of 2009 (33 U.S.C. 3601  
12 et seq.) is amended by striking section 12309 (33 U.S.C.  
13 3608).

14 (b) TABLE OF CONTENTS AMENDMENT.—The table  
15 of contents in section 1(b) of the Omnibus Public Land  
16 Management Act of 2009 (Public Law 111–11; 123 Stat.  
17 991) is amended by striking the item related to section  
18 12309.

19 **SEC. 108. AUTHORIZATION OF APPROPRIATIONS.**

20 Section 12311 of the Integrated Coastal and Ocean  
21 Observation System Act of 2009 (33 U.S.C. 3610) is  
22 amended to read as follows:

23 **“SEC. 12311. AUTHORIZATION OF APPROPRIATIONS.**

24 “To fulfill the purposes set forth in section 12302  
25 and to support activities identified in the annual coordi-

1 nated System budget developed by the Interagency Ocean  
2 Observation Committee, there are authorized to be appro-  
3 priated to the Secretary of Commerce—

4 “(1) \$54,900,000 for fiscal year 2020;

5 “(2) \$61,600,000 for fiscal year 2021;

6 “(3) \$68,300,000 for fiscal year 2022;

7 “(4) \$75,000,000 for fiscal year 2023; and

8 “(5) \$81,700,000 for fiscal year 2024.”.

9 **SEC. 109. REPORTS AND RESEARCH PLANS.**

10 Section 12404(c) of the Federal Ocean Acidification  
11 Research And Monitoring Act of 2009 (33 U.S.C.  
12 3703(c)) is amended by adding at the end the following:

13 “(4) ECONOMIC VULNERABILITY REPORT.—

14 “(A) IN GENERAL.—Not later than 2 years  
15 after the date of the enactment of the Coordi-  
16 nated Ocean Monitoring and Research Act, and  
17 every 6 years thereafter, the Subcommittee  
18 shall transmit to the appropriate committees of  
19 Congress a report that—

20 “(i) is named the ‘Ocean Chemistry  
21 Coastal Community Vulnerability Assess-  
22 ment’;

23 “(ii) identifies gaps in ocean acidifica-  
24 tion monitoring by public, academic, and

1 private assets in the network of regional  
2 coastal observing systems;

3 “(iii) identifies geographic areas which  
4 have gaps in ocean acidification research;

5 “(iv) identifies United States coastal  
6 communities, including fishing commu-  
7 nities, low-population rural communities,  
8 tribal and subsistence communities, and is-  
9 land communities, that may be impacted  
10 by ocean acidification;

11 “(v) identifies impacts of changing  
12 ocean carbonate chemistry on the commu-  
13 nities described in clause (iv), including  
14 impacts from changes in ocean and coastal  
15 marine resources that are not managed by  
16 the Federal Government;

17 “(vi) identifies gaps in understanding  
18 of the impacts of ocean acidification on  
19 economically or commercially important  
20 species, particularly those which support  
21 United States commercial, recreational,  
22 and tribal fisheries and aquaculture;

23 “(vii) identifies habitats that may be  
24 particularly vulnerable to corrosive sea  
25 water, including areas experiencing mul-

1           multiple stressors such as hypoxia, sedimenta-  
2           tion, and harmful algal blooms;

3           ““(viii) identifies areas in which exist-  
4           ing National Integrated Coastal and Ocean  
5           Observation System assets, including un-  
6           manned maritime systems, may be lever-  
7           aged as platforms for the deployment of  
8           new sensors or other applicable observing  
9           technologies; and

10           ““(ix) is written in collaboration with  
11           the agencies responsible for carrying out  
12           this subtitle.

13           “(B) FORM OF REPORT.—

14           ““(i) INITIAL REPORT.—The initial re-  
15           port required under subparagraph (A)  
16           shall include the information described in  
17           clauses (i) through (ix) on a national level.

18           ““(ii) SUBSEQUENT REPORTS.—Each  
19           report required under subparagraph (A)  
20           after the initial report—

21           ““(I) may describe the informa-  
22           tion described in clauses (i) through  
23           (ix) on a national level; or

24           ““(II) may consist of separate re-  
25           ports for each region of the National

1 Oceanic and Atmospheric Administra-  
2 tion.

3 “(iii) REGIONAL REPORTS.—If the  
4 Subcommittee opts to prepare a report re-  
5 quired under subparagraph (A) as separate  
6 regional reports under clause (ii)(II), the  
7 Subcommittee shall submit a report for  
8 each region of the National Oceanic and  
9 Atmospheric Administration not less fre-  
10 quently than once during each 6-year re-  
11 porting period.

12 “(C) APPROPRIATE COMMITTEES OF CON-  
13 GRESS DEFINED.—In this paragraph and in  
14 paragraph (5), the term ‘appropriate commit-  
15 tees of Congress’ means the Committee on  
16 Commerce, Science, and Transportation of the  
17 Senate, the Committee on Science, Space, and  
18 Technology of the House of Representatives,  
19 and the Committee on Natural Resources of the  
20 House of Representatives.

21 “(5) MONITORING PRIORITIZATION PLAN.—Not  
22 later than 180 days after the date of the submission  
23 of the initial report under paragraph (4)(A), the  
24 Subcommittee shall transmit to the appropriate com-  
25 mittees of Congress a report that develops a plan to



1       deploy new sensors or other applicable observing  
2       technologies such as unmanned maritime systems—  
3               “(A) based on such initial report;  
4               “(B) prioritized by—  
5                       “(i) the threat to coastal economies  
6                       and ecosystems;  
7                       “(ii) gaps in data; and  
8                       “(iii) research needs; and  
9               “(C) that leverage existing platforms,  
10       where possible.”.

11 **SEC. 110. STRATEGIC RESEARCH PLAN.**

12       (a) CONTENTS.—Section 12405(b) of the Federal  
13 Ocean Acidification Research And Monitoring Act of 2009  
14 (33 U.S.C. 3704(b)) is amended—

15               (1) in paragraph (8), by striking “and” at the  
16       end;

17               (2) in paragraph (9), by striking the period at  
18       the end and inserting “; and”; and

19               (3) by adding at the end the following:

20                       “(10) make recommendations for research to be  
21       conducted, including in the social sciences and eco-  
22       nomics, to address the key knowledge gaps identified  
23       in the Ocean Chemistry Coastal Community Vulner-  
24       ability Assessment conducted under section  
25       12404(c)(4).”.

1 (b) PROGRAM ELEMENTS.—Section 12405(c) of the  
2 Federal Ocean Acidification Research And Monitoring Act  
3 of 2009 (33 U.S.C. 3704(c)) is amended by adding at the  
4 end the following:

5 “(6) Research to understand the combined im-  
6 pact of changes in ocean chemistry and other  
7 stressors, including sediment delivery, hypoxia, and  
8 harmful algal blooms, on each other and on living  
9 marine resources, including aquaculture and coastal  
10 ecosystems.

11 “(7) Applied research to identify adaptation  
12 strategies for species impacted by changes in ocean  
13 chemistry including vegetation-based systems, shell  
14 recycling, species and genetic diversity, applied tech-  
15 nologies, aquaculture methodologies, and manage-  
16 ment recommendations.”.

17 (c) REVISED STRATEGIC RESEARCH PLAN.—Not  
18 later than one year after the date of the enactment of this  
19 Act, the Joint Subcommittee on Ocean Science and Tech-  
20 nology of the National Science and Technology Council  
21 shall submit to Congress a revised strategic research plan  
22 under section 12405 of the Federal Ocean Acidification  
23 Research And Monitoring Act of 2009 (33 U.S.C. 3704)  
24 that includes the matters required by the amendments  
25 made by this section.

1 **SEC. 111. STAKEHOLDER INPUT ON MONITORING.**

2 Section 12406(a) of the Federal Ocean Acidification  
3 Research And Monitoring Act of 2009 (33 U.S.C.  
4 3705(a)) is amended—

5 (1) in paragraph (2), by striking “and” at the  
6 end;

7 (2) in paragraph (3), by striking the period at  
8 the end and inserting “; and”; and

9 (3) by adding at the end the following:

10 “(4) includes an ongoing mechanism that allows  
11 industry, coastal stakeholders, fishery management  
12 councils and commissions, non-Federal resource  
13 managers, and scientific experts to provide input on  
14 monitoring needs that are necessary to support on  
15 the ground management, decision making, and adap-  
16 tation related to ocean acidification.”.

17 **SEC. 112. RESEARCH ACTIVITIES.**

18 Section 12407(a) of the Federal Ocean Acidification  
19 Research And Monitoring Act of 2009 (33 U.S.C.  
20 3706(a)) is amended to read as follows:

21 “(a) RESEARCH ACTIVITIES.—The Director of the  
22 National Science Foundation shall continue to carry out  
23 research activities on ocean acidification which shall sup-  
24 port competitive, merit-based, peer-reviewed proposals for  
25 research, observation, and monitoring of ocean acidifica-  
26 tion and its impacts, including—

1           “(1) impacts on marine organisms, including  
2 species cultured for aquaculture, and marine eco-  
3 systems;

4           “(2) impacts on ocean, coastal, and estuarine  
5 biogeochemistry;

6           “(3) the development of methodologies and  
7 technologies to evaluate ocean acidification and its  
8 impacts; and

9           “(4) impacts of multiple stressors on eco-  
10 systems exhibiting hypoxia, harmful algal blooms, or  
11 sediment delivery, combined with changes in ocean  
12 chemistry.”.

13 **TITLE II—NAMED STORM EVENT**  
14 **MODEL AND POST-STORM AS-**  
15 **SESSMENTS**

16 **SEC. 201. NAMED STORM EVENT MODEL AND POST-STORM**  
17 **ASSESSMENTS.**

18           (a) AMENDMENTS TO THE OMNIBUS PUBLIC LAND  
19 MANAGEMENT ACT OF 2009.—Section 12312 of the Om-  
20 nibus Public Land Management Act of 2009 (33 U.S.C.  
21 3611) is amended—

22           (1) in subsection (a)—

23                   (A) in paragraph (2), by striking the pe-  
24 riod at the end and inserting the following: “,  
25 except that the term shall not apply with re-

1 spect to a State or territory that has an oper-  
2 ational wind and flood loss allocation system.”;

3 (B) in paragraph (6), by inserting “sus-  
4 tained” before “winds”; and

5 (C) in paragraph (7), by striking “that  
6 threaten any portion of a coastal State” and in-  
7 serting “for which post-storm assessments are  
8 conducted”;

9 (2) in subsection (b)—

10 (A) in paragraph (1)—

11 (i) in subparagraph (A)—

12 (I) by striking “540 days after  
13 the date of the enactment of the Con-  
14 sumer Option for an Alternative Sys-  
15 tem to Allocate Losses Act of 2012”  
16 and inserting “December 31, 2019”;  
17 and

18 (II) by striking “by regulation”;

19 (ii) in subparagraph (B), by striking  
20 “every” and inserting “an”; and

21 (iii) by adding at the end the fol-  
22 lowing:

23 “(C) PUBLIC REVIEW.—The Administrator  
24 shall seek input and suggestions from the public  
25 before the Named Storm Event Model, or any

1 modification to the Named Storm Event Model,  
2 takes effect.”; and

3 (B) in paragraph (2)—

4 (i) by redesignating subparagraphs  
5 (B) and (C) as subparagraphs (D) and  
6 (E), respectively;

7 (ii) by inserting after subparagraph  
8 (A) the following:

9 “(B) DATA COLLECTION.—

10 “(i) IN GENERAL.—Upon identifica-  
11 tion of a named storm under subparagraph  
12 (A), and pursuant to the protocol estab-  
13 lished under subsection (c), the Adminis-  
14 trator may deploy sensors to enhance the  
15 collection of covered data in the areas in  
16 coastal States that the Administrator de-  
17 termines are at the highest risk of experi-  
18 encing geophysical events that would cause  
19 indeterminate losses.

20 “(ii) RULE OF CONSTRUCTION.—If  
21 the Administrator takes action under  
22 clause (i), that action may not be con-  
23 strued as indicating that a post-storm as-  
24 sessment will be developed for any coastal  
25 State in which that action is taken.

1           “(C) IDENTIFICATION OF INDETERMINATE  
2           LOSSES IN COASTAL STATES.—Not later than  
3           30 days after the first date on which sustained  
4           winds of not less than 39 miles per hour are  
5           measured in a coastal State during a named  
6           storm identified under subparagraph (A), the  
7           Secretary of Homeland Security shall notify the  
8           Administrator with respect to the existence of  
9           any indeterminate losses in that coastal State  
10          resulting from that named storm.”;

11                   (iii) in subparagraph (D), as so reded-  
12          ignated—

13                           (I) by striking “identification of  
14                           a named storm under subparagraph  
15                           (A)” and inserting “confirmation of  
16                           indeterminate losses identified under  
17                           subparagraph (C) with respect to a  
18                           named storm”; and

19                           (II) by striking “assessment for  
20                           such named storm” and inserting “as-  
21                           sessment for each coastal State that  
22                           suffered such indeterminate losses as  
23                           a result of the named storm”;

24                   (iv) in subparagraph (E), as so reded-  
25          ignated—

1 (I) by striking “an identification  
2 of a named storm is made under sub-  
3 paragraph (A)” and inserting “any in-  
4 determinate losses are identified  
5 under subparagraph (C)”;

6 (II) by striking “for such storm  
7 under subparagraph (B)” and insert-  
8 ing “under subparagraph (D) for any  
9 coastal State that suffered such inde-  
10 terminate losses”; and

11 (v) by adding at the end the following:

12 “(F) SEPARATE POST-STORM ASSESS-  
13 MENTS FOR A SINGLE NAMED STORM.—

14 “(i) IN GENERAL.—The Administrator  
15 may conduct a separate post-storm assess-  
16 ment for each coastal State in which inde-  
17 terminate losses are identified under sub-  
18 paragraph (C).

19 “(ii) TIMELINE.—If the Administrator  
20 conducts a separate post-storm assessment  
21 under clause (i), the Administrator shall  
22 complete the assessment based on the  
23 dates of actions that the Administrator  
24 takes under subparagraphs (C) and (D).”;  
25 and



1 (3) in subsection (c)—

2 (A) in paragraph (1), by striking “540  
3 days after the date of the enactment of the  
4 Consumer Option for an Alternative System to  
5 Allocate Losses Act of 2012” and inserting  
6 “December 31, 2019”;

7 (B) in paragraph (2), by inserting “, in the  
8 discretion of the Administrator,” after “of sen-  
9 sors as may”; and

10 (C) in paragraph (4)(B), by inserting “and  
11 expend” after “receive”.

12 (b) AMENDMENTS TO THE NATIONAL FLOOD INSUR-  
13 ANCE ACT OF 1968.—Section 1337 of the National Flood  
14 Insurance Act of 1968 (42 U.S.C. 4057) is amended—

15 (1) in subsection (a)—

16 (A) in paragraph (3), by striking the pe-  
17 riod at the end and inserting the following: “,  
18 except that the term shall not apply with re-  
19 spect to a State or territory that has an oper-  
20 ational wind and flood loss allocation system.”;  
21 and

22 (B) in paragraph (5), by inserting “sus-  
23 tained” after “maximum”;

24 (2) in subsection (b)—

1 (A) in paragraph (1), by striking “estab-  
2 lish by rule” and inserting “publish for com-  
3 ment in the Federal Register”; and

4 (B) in paragraph (2)(B), by inserting after  
5 “Elevation Certificate” the following: “, or  
6 other data or information used to determine a  
7 property’s current risk of flood, as determined  
8 by the Administrator,”;

9 (3) in subsection (c)(3)(A)(i), by striking “the  
10 issuance of the rule establishing the COASTAL For-  
11 mula” and inserting “publication of the COASTAL  
12 Formula in the Federal Register as required by sub-  
13 section (b)(1)”;

14 (4) in subsection (h)—

15 (A) by inserting “that issues a standard  
16 flood insurance policy under the national flood  
17 insurance program” after “company”; and

18 (B) by striking “or the COASTAL For-  
19 mula” and inserting “, the COASTAL For-  
20 mula, or any other loss allocation or post-storm  
21 assessment arising under the laws or ordinances  
22 of any State”;

23 (5) in subsection (i), by striking “after the date  
24 on which the Administrator issues the rule estab-  
25 lishing the COASTAL Formula under subsection

1 (b)” and inserting “60 days after publication of the  
2 COASTAL Formula in the Federal Register as re-  
3 quired by subsection (b)(1)”;

4 (6) by adding at the end the following:

5 “(k) RULE OF CONSTRUCTION.—Nothing in this sec-  
6 tion shall be construed to create a cause of action under  
7 this Act.”.

## 8 **TITLE III—WATER PREDICTION** 9 **AND FORECASTING**

### 10 **SEC. 301. WATER PREDICTION AND FORECASTING.**

11 (a) NATIONAL WATER CENTER.—

12 (1) ESTABLISHMENT.—

13 (A) IN GENERAL.—The Under Secretary of  
14 Commerce for Oceans and Atmosphere shall es-  
15 tablish a center—

16 (i) to serve as the research and oper-  
17 ational center of excellence for hydrologic  
18 analyses, forecasting, and related decision  
19 support services within the National Oce-  
20 anic and Atmospheric Administration and  
21 the National Weather Service; and

22 (ii) to facilitate collaboration across  
23 Federal and State departments and agen-  
24 cies, academia, and the private sector on  
25 matters relating to water resources.

1           (B) DESIGNATION.—The center estab-  
2           lished under subparagraph (A) shall be known  
3           as the “National Water Center”.

4           (2) FUNCTIONS.—The functions of the National  
5           Water Center shall include the following:

6           (A) Improving understanding of water re-  
7           sources, stakeholder needs regarding water re-  
8           sources, and identifying science and services  
9           gaps relating to water resources.

10          (B) Developing and implementing ad-  
11          vanced water resources modeling capabilities.

12          (C) Facilitating the transition of hydro-  
13          logic research into operations.

14          (D) Delivering analyses, forecasts, and in-  
15          undation information and guidance for all hy-  
16          drologic events in the United States, including  
17          flash flooding, riverine flooding, and water re-  
18          sources outlooks.

19          (E) In coordination with warning coordina-  
20          tion meteorologists, providing decision-support  
21          services to inform emergency management and  
22          water resources decisions.

23          (b) NATIONAL INSTRUCTIONS.—

24           (1) IN GENERAL.—Not later than one year  
25           after the date of the enactment of this Act, the

1 Under Secretary, acting through the Director of the  
2 National Weather Service, shall make public an op-  
3 erations and services policy directive for the Na-  
4 tional Water Center.

5 (2) CONTENTS.—The directive required by  
6 paragraph (1) shall include national instructions to  
7 perform the functions of the National Water Center,  
8 including the following:

9 (A) Operational staff responsibilities.

10 (B) Guidelines for content, format, and  
11 provision of hydrologic and inundation products  
12 developed by the National Water Center.

13 (C) Procedures for cooperation and coordi-  
14 nation between the National Water Center, the  
15 National Weather Service National Centers for  
16 Environmental Prediction, National Weather  
17 Service River Forecast Centers, and National  
18 Weather Service Weather Forecast Offices.

19 (c) TOTAL WATER PREDICTION.—The Under Sec-  
20 retary, acting through the Director of the Office of Water  
21 Prediction of the National Weather Service, shall—

22 (1) initiate and lead research and development  
23 activities to develop operational water resource pre-  
24 diction and related decision support products;

1           (2) collaborate with, and provide decision sup-  
2           port regarding total water prediction to—

3                   (A) the relevant Federal agencies rep-  
4                   resented on the National Science and Tech-  
5                   nology Council, Committee on Environment,  
6                   Natural Resources, and Sustainability and the  
7                   Subcommittee on Disaster Reduction;

8                   (B) State water resource agencies; and

9                   (C) State and local emergency manage-  
10                  ment agencies; and

11           (3) in carrying out the responsibilities described  
12           in paragraphs (1) and (2), collaboratively develop  
13           capabilities necessary for total water predictive ca-  
14           pacity, including observations, modeling, data man-  
15           agement, supercomputing, social science, and com-  
16           munications.

17           (d) **AUTHORIZATION OF APPROPRIATIONS.**—There  
18           are authorized to be appropriated to carry out the activi-  
19           ties under this section amounts as follows:

20                   (1) \$44,000,000 for fiscal year 2020.

21                   (2) \$44,500,000 for fiscal year 2021.

22                   (3) \$45,000,000 for fiscal year 2022.

23                   (4) \$45,500,000 for fiscal year 2023.

24                   (5) \$46,000,000 for fiscal year 2024.

1       (e) DERIVATION OF FUNDS.—Amounts made avail-  
2 able to carry out this section shall be derived from  
3 amounts appropriated or otherwise made available to the  
4 National Weather Service and the National Ocean Service.