

116TH CONGRESS
1ST SESSION

S. 914

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.

IN THE SENATE OF THE UNITED STATES

MARCH 27, 2019

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

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-

ly integration and dissemination of data and information products from the System, including reviews of data collection procedures across regions and programs to make recommendations for data collection standards across the System to meet national ocean, coastal, and Great Lakes observation, applied research, and weather forecasting needs;

“(D) a product development system to transform observations into products in a format that may be readily used and understood; and

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

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

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

“(II) to ensure improvement of operational assets and products, including related infrastructure, observing technologies such as unmanned 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 proc-
2 ess 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 “(A) IN GENERAL.—A regional coastal ob-
2 serving system described in the System Plan as
3 a regional association may not be certified or
4 established under this subtitle unless it—

5 “(i) has been or shall be certified or
6 established by contract or agreement by
7 the Administrator;

8 “(ii) meets—

9 “(I) the certification standards
10 and compliance procedure guidelines
11 issued by the Administrator; and

12 “(II) the information needs of
13 user groups in the region while adher-
14 ing to national standards;

15 “(iii) demonstrates an organizational
16 structure, that under funding limitations is
17 capable of—

18 “(I) gathering required System
19 observation data;

20 “(II) supporting and integrating
21 all aspects of coastal and ocean ob-
22 serving and information programs
23 within a region; and

24 “(III) reflecting the needs of
25 State, local, and tribal governments,

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 ministrator, 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)—

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;

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-

gies to assimilate data from the System
into hydrodynamic models;

“(v) integrated, multi-State monitoring to assess sources, movement, and fate of sediments in coastal regions; and

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

“(I) planned in consultation with the Interagency Ocean Observation Committee, the National Oceanic and Atmospheric Administration, the Department of the Navy, and academic research institutions; and

“(II) developed, installed, and operated in coordination with the National Oceanic and Atmospheric Administration, the Department of the Navy, and academic research institutions; and

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

(D) in paragraph (3)(B), by inserting “The Administrator may stagger the terms of the System advisory committee members.” before “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

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

(B) in paragraph (2)—

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

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

“(B) DATA COLLECTION.—

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

“(ii) RULE OF CONSTRUCTION.—If
the Administrator takes action under
clause (i), that action may not be con-
strued as indicating that a post-storm as-
sessment will be developed for any coastal
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 redes-
 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 redes-
 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)”; and

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;

(2) collaborate with, and provide decision support regarding total water prediction to—

(A) the relevant Federal agencies represented on the National Science and Technology Council, Committee on Environment, Natural Resources, and Sustainability and the Subcommittee on Disaster Reduction;

(B) State water resource agencies; and

(C) State and local emergency management agencies; and

(3) in carrying out the responsibilities described in paragraphs (1) and (2), collaboratively develop capabilities necessary for total water predictive capacity, including observations, modeling, data management, supercomputing, social science, and communications.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out the activities under this section amounts as follows:

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

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

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

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

(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.

○