

117TH CONGRESS
1ST SESSION

S. 140

To improve data collection and monitoring of the Great Lakes, oceans, bays, estuaries, and coasts, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 28, 2021

Mr. WHITEHOUSE introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

To improve data collection and monitoring of the Great Lakes, oceans, bays, estuaries, and coasts, 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,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Bolstering Long-term
5 Understanding and Exploration of the Great Lakes,
6 Oceans, Bays, and Estuaries Act” or the “BLUE GLOBE
7 Act”.

8 **SEC. 2. PURPOSE.**

9 The purpose of this Act is to promote and support—

1 (1) the monitoring, understanding, and explo-
2 ration of the Great Lakes, oceans, bays, estuaries,
3 and coasts; and

4 (2) the collection, analysis, synthesis, and shar-
5 ing of data related to the Great Lakes, oceans, bays,
6 estuaries, and coasts to facilitate science and oper-
7 ational decision making.

8 **SEC. 3. SENSE OF CONGRESS.**

9 It is the sense of Congress that—

10 (1) agencies should optimize data collection,
11 management, and dissemination, to the extent prac-
12 ticable, to maximize their impact for research, com-
13 mercial, regulatory, and educational benefits and to
14 foster innovation, scientific discoveries, the develop-
15 ment of commercial products, and the development
16 of sound policy with respect to the Great Lakes,
17 oceans, bays, estuaries, and coasts;

18 (2) agencies should consider current and future
19 needs relating to supercomputing capacity, data
20 storage capacity, and public access, address gaps in
21 those areas, and coordinate across agencies as need-
22 ed;

23 (3) the United States is a leading member of
24 the Intergovernmental Oceanographic Commission of
25 the United Nations Educational, Scientific and Cul-

1 tural Organization, a founding member of the Atlan-
2 tic Ocean Research Alliance, and a key partner in
3 developing the United Nations Decade of Ocean
4 Science for Sustainable Development;

5 (4) the Integrated Ocean Observing System and
6 the Global Ocean Observing System are key assets
7 and networks that bolster understanding of the ma-
8 rine environment;

9 (5) the National Oceanographic Partnership
10 Program is a meaningful venue for collaboration and
11 coordination among Federal agencies, scientists, and
12 ocean users;

13 (6) the National Centers for Environmental In-
14 formation of the National Oceanic and Atmospheric
15 Administration should be looked to by other Federal
16 agencies as a primary, centralized repository for
17 Federal ocean data;

18 (7) the Marine Cadastre, a joint effort of the
19 National Oceanic and Atmospheric Administration
20 and the Bureau of Ocean Energy Management, pro-
21 vides access to data and information for specific
22 issues and activities in ocean resources management
23 to meet the needs of offshore energy and planning
24 efforts;

1 (8) the regional associations of the Integrated
 2 Ocean Observing System, certified by the National
 3 Oceanic and Atmospheric Administration for the
 4 quality and reliability of their data, are important
 5 sources of observation information for the Great
 6 Lakes, oceans, bays, estuaries, and coasts; and

7 (9) the Regional Ocean Partnerships and re-
 8 gional data portals, which provide publicly available
 9 tools such as maps, data, and other information to
 10 inform decisions and enhance marine development,
 11 should be supported by and viewed as collaborators
 12 with Federal agencies and ocean users.

13 **SEC. 4. DEFINITION OF ADMINISTRATOR.**

14 In this Act, the term “Administrator” means the
 15 Under Secretary of Commerce for Oceans and Atmosphere
 16 in the Under Secretary’s capacity as Administrator of the
 17 National Oceanic and Atmospheric Administration.

18 **SEC. 5. INCREASED COORDINATION AMONG AGENCIES**
 19 **WITH RESPECT TO DATA AND MONITORING.**

20 (a) INTERAGENCY OCEAN OBSERVATION COM-
 21 MITTEE.—In addition to its responsibilities as of the date
 22 of the enactment of this Act, and in consultation with the
 23 associated advisory committee authorized by section
 24 12304(d) of the Integrated Coastal and Ocean Observa-

tion System Act of 2009 (33 U.S.C. 3603(d)), the Inter-
agency Ocean Observation Committee shall—

(1) work with international coordinating bodies,
as necessary, to ensure robust, direct measurements
of the Great Lakes, oceans, bays, estuaries, and
coasts, including oceanographic data; and

(2) support cross-agency and multi-platform
synergy, by coordinating overlapping data collection
by satellites, buoys, submarines, gliders, vessels, and
other data collection vehicles and technologies.

(b) FEDERAL GEOGRAPHIC DATA COMMITTEE.—In
addition to its responsibilities as of the date of the enact-
ment of this Act, and in consultation with the National
Geospatial Advisory Committee, the Federal Geographic
Data Committee shall—

(1) work with international coordinating bodies,
as necessary, to ensure robust, continuous measure-
ments of the Great Lakes, oceans, bays, estuaries,
and coasts, including satellite and geospatial data;
and

(2) support new and old data and metadata cer-
tification, quality assurance, quality control, integra-
tion, and archiving.

(c) INTERAGENCY COMMITTEE ON OCEAN AND
COASTAL MAPPING.—In addition to its responsibilities as

1 of the date of the enactment of this Act, and in consulta-
 2 tion with its associated advisory panel authorized by sec-
 3 tion 12203(g) of the Ocean and Coastal Mapping Integra-
 4 tion Act (33 U.S.C. 3502(g)), the Interagency Committee
 5 on Ocean and Coastal Mapping shall—

6 (1) work with international coordinating bodies,
 7 as necessary, to ensure robust, continuous satellite
 8 and direct measurements of the Great Lakes,
 9 oceans, bays, estuaries, and coasts, including bathy-
 10 metric data; and

11 (2) make recommendations on how to make
 12 data, metadata, and model output accessible to a
 13 broader public audience, including through geo-
 14 graphic information system layers, graphics, and
 15 other visuals.

16 **SEC. 6. TECHNOLOGY INNOVATION TO COMBAT ILLEGAL,**
 17 **UNREPORTED, AND UNREGULATED FISHING.**

18 (a) DEFINITIONS.—Section 3532 of the Maritime Se-
 19 curity and Fisheries Enforcement Act (16 U.S.C. 8001)
 20 is amended—

21 (1) by redesignating paragraphs (6) through
 22 (13) as paragraphs (7) through (14), respectively;
 23 and

24 (2) by inserting after paragraph (5) the fol-
 25 lowing:

1 “(6) INNOVATIVE TECHNOLOGIES.—The term
2 ‘innovative technologies’ includes the following:

3 “(A) Improved satellite imagery and track-
4 ing.

5 “(B) Advanced electronic monitoring
6 equipment.

7 “(C) Vessel location data.

8 “(D) Improved genetic, molecular, or other
9 biological methods of tracking sources of sea-
10 food.

11 “(E) Electronic catch documentation and
12 traceability.

13 “(F) Such other technologies as the Ad-
14 ministrator of the National Oceanic and Atmos-
15 pheric Administration considers appropriate.”.

16 (b) TECHNOLOGY PROGRAMS.—Section 3546 of the
17 Maritime Security and Fisheries Enforcement Act (16
18 U.S.C. 8016) is amended—

19 (1) in paragraph (3), by striking “and” after
20 the semicolon;

21 (2) in paragraph (4), by striking the period at
22 the end and inserting “; and”; and

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

1 “(5) coordinating the application of existing in-
 2 novative technologies and the development of emerg-
 3 ing innovative technologies.”.

4 **SEC. 7. WORKFORCE STUDY.**

5 (a) IN GENERAL.—Section 303(a) of the America
 6 COMPETES Reauthorization Act of 2010 (33 U.S.C.
 7 893c(a)) is amended—

8 (1) in the matter preceding paragraph (1), by
 9 striking “Secretary of Commerce” and inserting
 10 “Under Secretary of Commerce for Oceans and At-
 11 mosphere”;

12 (2) in paragraph (2), by inserting “, skillsets,
 13 or credentials” after “degrees”;

14 (3) in paragraph (3), by inserting “or highly
 15 qualified technical professionals and tradespeople”
 16 after “atmospheric scientists”;

17 (4) in paragraph (4), by inserting “, skillsets,
 18 or credentials” after “degrees”;

19 (5) in paragraph (5)—

20 (A) by striking “scientist”; and

21 (B) by striking “; and” and inserting “,
 22 observations, and monitoring;”

23 (6) in paragraph (6), by striking “into Federal”
 24 and all that follows and inserting “, technical profes-

1 sionals, and tradespeople into Federal career posi-
2 tions;”

3 (7) by redesignating paragraphs (2) through
4 (6) as paragraphs (3) through (7), respectively;

5 (8) by inserting after paragraph (1) the fol-
6 lowing:

7 “(2) whether there is a shortage in the number
8 of individuals with technical or trade-based skillsets
9 or credentials suited to a career in oceanic and at-
10 mospheric data collection, processing, satellite pro-
11 duction, or satellite operations;”; and

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

13 “(8) workforce diversity and actions the Fed-
14 eral Government can take to increase diversity in the
15 scientific workforce; and

16 “(9) actions the Federal Government can take
17 to shorten the hiring backlog for such workforce.”.

18 (b) COORDINATION.—Section 303(b) of such Act (33
19 U.S.C. 893c(b)) is amended by striking “Secretary of
20 Commerce” and inserting “Under Secretary of Commerce
21 for Oceans and Atmosphere”.

22 (c) REPORT.—Section 303(c) of such Act (33 U.S.C.
23 893c(c)) is amended—

24 (1) by striking “the date of enactment of this
25 Act” and inserting “the date of the enactment of the

1 Bolstering Long-term Understanding and Explo-
 2 ration of the Great Lakes, Oceans, Bays, and Estu-
 3 aries Act”;

4 (2) by striking “Secretary of Commerce” and
 5 inserting “Under Secretary of Commerce for Oceans
 6 and Atmosphere”; and

7 (3) by striking “to each committee” and all
 8 that follows through “section 302 of this Act” and
 9 inserting “to the Committee on Commerce, Science,
 10 and Transportation of the Senate and the Com-
 11 mittee on Natural Resources and the Committee on
 12 Science, Space, and Technology of the House of
 13 Representatives”.

14 (d) PROGRAM AND PLAN.—Section 303(d) of such
 15 Act (33 U.S.C. 893c(d)) is amended—

16 (1) by striking “Administrator of the National
 17 Oceanic and Atmospheric Administration” and in-
 18 serting “Under Secretary of Commerce for Oceans
 19 and Atmosphere”; and

20 (2) by striking “academic partners” and all
 21 that follows and inserting “academic partners.”.

22 **SEC. 8. ACCELERATING INNOVATION AT COOPERATIVE IN-**
 23 **STITUTES.**

24 (a) FOCUS ON EMERGING TECHNOLOGIES.—The Ad-
 25 ministrator shall ensure that the goals of the Cooperative

1 Institutes of the National Oceanic and Atmospheric Ad-
2 ministration include focusing on advancing or applying
3 emerging technologies, which may include—

4 (1) applied uses and development of real-time
5 and other advanced genetic technologies and applica-
6 tions, including such technologies and applications
7 that derive genetic material directly from environ-
8 mental samples without any obvious signs of biologi-
9 cal source material;

10 (2) deployment of, and improvements to, the
11 durability, maintenance, and other lifecycle concerns
12 of advanced unmanned vehicles, regional small re-
13 search vessels, and other research vessels that sup-
14 port and launch unmanned vehicles and sensors; and

15 (3) supercomputing and big data management,
16 including data collected through electronic moni-
17 toring and remote sensing.

18 (b) DATA SHARING.—Each Cooperative Institute
19 shall ensure that data collected from the work of the insti-
20 tute, other than classified, confidential, or proprietary
21 data, are archived and made publicly accessible.

22 (c) COORDINATION WITH OTHER PROGRAMS.—The
23 Cooperative Institutes shall work with the Interagency
24 Ocean Observation Committee, the regional associations
25 of the Integrated Ocean Observing System, and other

1 ocean observing programs to coordinate technology needs
2 and the transition of new technologies from research to
3 operations.

4 **SEC. 9. OCEAN INNOVATION PRIZE AND PRIORITIZATION.**

5 (a) OCEAN INNOVATIVE PRIZES.—Not later than 4
6 years after the date of the enactment of this Act, and
7 under the authority provided by section 24 of the Steven-
8 son-Wydler Technology Innovation Act of 1980 (15 U.S.C.
9 3719), the Administrator, in consultation with the heads
10 of relevant Federal agencies, including the Secretary of
11 Defense, and in conjunction with nongovernmental part-
12 ners, as appropriate and at the discretion of the Adminis-
13 trator, shall establish at least one Ocean Innovation Prize
14 to catalyze the rapid development and deployment of data
15 collection and monitoring technology related to the Great
16 Lakes, oceans, bays, estuaries, and coasts in at least one
17 of the areas specified in subsection (b).

18 (b) AREAS.—The areas specified in this subsection
19 are the following:

20 (1) Improved eDNA analytics and deployment
21 with autonomous vehicles.

22 (2) Plastic pollution detection, quantification,
23 and mitigation, including with respect to used fish-
24 ing gear and tracking technologies to reduce or
25 eliminate bycatch.

1 (3) Advanced satellite data and other advanced
2 technology for improving scientific assessment.

3 (4) New stock assessment methods using sat-
4 ellite data or other advanced technologies.

5 (5) Advanced electronic fisheries monitoring
6 equipment and data analysis tools, including im-
7 proved fish species recognition software, confidential
8 data management, data analysis and visualization,
9 and storage of electronic reports, imagery, location
10 information, and other data.

11 (6) Autonomous and other advanced surface ve-
12 hicles, underwater vehicles, or airborne platforms for
13 data collection and monitoring.

14 (7) Artificial intelligence and machine learning
15 applications for data collection and monitoring re-
16 lated to the Great Lakes, oceans, bays, estuaries,
17 and coasts.

18 (8) Coral reef ecosystem monitoring.

19 (9) Electronic equipment, chemical or biological
20 sensors, data analysis tools, and platforms to iden-
21 tify and fill gaps in robust and shared continuous
22 data related to the Great Lakes, oceans, bays, estu-
23 aries, and coasts to inform global earth system mod-
24 els.

1 (10) Means for protecting aquatic life from in-
2 jury or other ill effects caused, in whole or in part,
3 by monitoring or exploration activities.

4 (11) Discovery and dissemination of data re-
5 lated to the Great Lakes, oceans, bays, estuaries,
6 and coasts.

7 (12) Water quality monitoring, including im-
8 proved detection and prediction of harmful algal
9 blooms and pollution.

10 (13) Enhancing blue carbon sequestration and
11 other ocean acidification mitigation opportunities.

12 (14) Such other areas as may be identified by
13 the Administrator.

14 (c) PRIORITIZATION OF PROPOSALS.—In selecting re-
15 cipients of Small Business Innovation Research (SBIR)
16 and Small Business Technology Transfer (STTR) solicita-
17 tions and interagency grants for ocean innovation, includ-
18 ing the National Oceanographic Partnership Program, the
19 Administrator shall prioritize proposals for fiscal years
20 2021 and 2022 that address at least one of the areas spec-
21 ified in subsection (b).

22 **SEC. 10. REAUTHORIZATION OF NOAA PROGRAMS.**

23 Section 306 of the Hydrographic Services Improve-
24 ment Act of 1998 (33 U.S.C. 892d) is amended—

1 (1) in paragraph (1), by striking “\$70,814,000
2 for each of fiscal years 2019 through 2023” and in-
3 serting “\$71,000,000 for each of fiscal years 2021
4 through 2024”;

5 (2) in paragraph (2), by striking “\$25,000,000
6 for each of fiscal years 2019 through 2023” and in-
7 serting “\$34,000,000 for each of fiscal years 2021
8 through 2024”;

9 (3) in paragraph (3), by striking “\$29,932,000
10 for each of fiscal years 2019 through 2023” and in-
11 serting “\$38,000,000 for each of fiscal years 2021
12 through 2024”;

13 (4) in paragraph (4), by striking “\$26,800,000
14 for each of fiscal years 2019 through 2023” and in-
15 serting “\$45,000,000 for each of fiscal years 2021
16 through 2024”; and

17 (5) in paragraph (5), by striking “\$30,564,000
18 for each of fiscal years 2019 through 2023” and in-
19 serting “\$35,000,000 for each of fiscal years 2021
20 through 2024”.

21 **SEC. 11. BLUE ECONOMY VALUATION.**

22 (a) MEASUREMENT OF BLUE ECONOMY INDUS-
23 TRIES.—The Administrator, the Director of the Bureau
24 of Economic Analysis, the Commissioner of the Bureau
25 of Labor Statistics, the Secretary of the Treasury, and

1 the heads of other relevant Federal agencies, shall
2 prioritize the collection, aggregation, and analysis of data
3 to measure the value and impact of industries related to
4 the Great Lakes, oceans, bays, estuaries, and coasts on
5 the economy of the United States, including living re-
6 sources, marine construction, marine transportation, off-
7 shore mineral extraction, ship and boat building, tourism,
8 recreation, subsistence, and such other industries the Ad-
9 ministrator considers appropriate (known as “Blue Econ-
10 omy” industries).

11 (b) COLLABORATION.—In carrying out subsection
12 (a), the Administrator shall—

13 (1) work with the Director of the Bureau of
14 Economic Analysis and the heads of other relevant
15 Federal agencies to develop a Coastal and Ocean
16 Economy Satellite Account that includes national
17 and State-level statistics to measure the contribution
18 of the Great Lakes, oceans, bays, estuaries, and
19 coasts to the overall economy of the United States;
20 and

21 (2) collaborate with national and international
22 organizations and governments to promote consist-
23 ency of methods, measurements, and definitions to
24 ensure comparability of results between countries.

1 (c) REPORT.—Not less frequently than once every 2
 2 years, the Administrator, in consultation with the Director
 3 of the Bureau of Economic Analysis, the Commissioner
 4 of the Bureau of Labor Statistics, the Secretary of the
 5 Treasury, and the heads of other relevant Federal agen-
 6 cies, shall publish a report that—

7 (1) defines the Blue Economy, in coordination
 8 with Tribal governments, academia, industry, non-
 9 governmental organizations, and other relevant ex-
 10 perts;

11 (2) makes recommendations for updating North
 12 American Industry Classification System (NAICS)
 13 reporting codes to reflect the Blue Economy; and

14 (3) provides a comprehensive estimate of the
 15 value and impact of the Blue Economy with respect
 16 to each State and territory of the United States, in-
 17 cluding—

18 (A) the value and impact of—

19 (i) economic activities that are de-
 20 pendent upon the resources of the Great
 21 Lakes, oceans, bays, estuaries, and coasts;

22 (ii) the population and demographic
 23 characteristics of the population along the
 24 coasts;

25 (iii) port and shoreline infrastructure;

1 (iv) the volume and value of cargo
 2 shipped by sea or across the Great Lakes;
 3 and

4 (v) data collected from the Great
 5 Lakes, oceans, bays, estuaries, and coasts,
 6 including such data collected by businesses
 7 that purchase and commodify the data, in-
 8 cluding weather prediction and seasonal
 9 agricultural forecasting; and

10 (B) to the extent possible, the qualified
 11 value and impact of the natural capital of the
 12 Great Lakes, oceans, bays, estuaries, and coasts
 13 with respect to tourism, recreation, natural re-
 14 sources, and cultural heritage, including other
 15 indirect values.

16 **SEC. 12. ADVANCED RESEARCH PROJECTS AGENCY-**
 17 **OCEANS.**

18 (a) AGREEMENT.—Not later than 45 days after the
 19 date of the enactment of this Act, the Administrator shall
 20 seek to enter into an agreement with the National Acad-
 21 emy of Sciences to conduct the comprehensive assessment
 22 under subsection (b).

23 (b) COMPREHENSIVE ASSESSMENT.—

24 (1) IN GENERAL.—Under an agreement be-
 25 tween the Administrator and the National Academy

1 of Sciences under this section, the National Acad-
 2 emy of Sciences shall conduct a comprehensive as-
 3 sessment of the need for and feasibility of estab-
 4 lishing an Advanced Research Projects Agency–
 5 Oceans (ARPA–O) that operates in coordination
 6 with and with nonduplication of existing Federal
 7 oceanic research programs, including programs of
 8 the Office of Oceanic and Atmospheric Research of
 9 the National Oceanic and Atmospheric Administra-
 10 tion.

11 (2) ELEMENTS.—The comprehensive assess-
 12 ment carried out pursuant to paragraph (1) shall in-
 13 clude—

14 (A) an assessment of how an ARPA–O
 15 could help overcome the long-term and high-risk
 16 technological barriers in the development of
 17 ocean technologies, with the goal of enhancing
 18 the economic, ecological, and national security
 19 of the United States through the rapid develop-
 20 ment of technologies that result in—

21 (i) improved data collection, moni-
 22 toring, and prediction of the ocean environ-
 23 ment, including sea ice conditions;

24 (ii) overcoming barriers to the appli-
 25 cation of new and improved technologies,

such as high costs and scale of operational missions;

(iii) improved management practices for protecting ecological sustainability;

(iv) improved national security capacity;

(v) improved technology for fishery population assessments;

(vi) expedited processes between and among Federal agencies to successfully identify, transition, and coordinate research and development output to operations, applications, commercialization, and other uses; and

(vii) ensuring that the United States maintains a technological lead in developing and deploying advanced ocean technologies;

(B) an evaluation of the organizational structures under which an ARPA-O could be organized, which takes into account—

(i) best practices for new research programs;

(ii) consolidation and reorganization of existing Federal oceanic programs to ef-

1 fectuate coordination and nonduplication of
2 such programs;

3 (iii) metrics and approaches for peri-
4 odic program evaluation;

5 (iv) capacity to fund and manage ex-
6 ternal research awards; and

7 (v) options for oversight of the activ-
8 ity through a Federal agency, an inter-
9 agency organization, nongovernmental or-
10 ganization, or other institutional arrange-
11 ment; and

12 (C) an estimation of the scale of invest-
13 ment necessary to pursue high priority ocean
14 technology projects.

15 (c) REPORT.—Not later than 18 months after the
16 date of the enactment of this Act, the Administrator shall
17 submit to Congress a report on the comprehensive assess-
18 ment conducted under subsection (b).

○