

participation in international research efforts, demonstration of potential operational forecast applications, and education and training required to achieve such goals and priorities; and

(3) set forth the role of each Federal agency and department to be involved in the United States Weather Research Program, identifying and addressing, as appropriate, relevant programs and activities of the Federal agencies and departments that would contribute to such Program.

**(c) Subseasonal defined**

In this section, the term “subseasonal” means the time range between 2 weeks and 3 months.

(Pub. L. 102-567, title I, §108, Oct. 29, 1992, 106 Stat. 4276; Pub. L. 115-25, title I, §109, Apr. 18, 2017, 131 Stat. 97; Pub. L. 115-423, §4(b), Jan. 7, 2019, 132 Stat. 5457.)

CODIFICATION

Pub. L. 115-25, which directed amendment of section 108 of the “Oceanic and Atmospheric Administration Authorization Act of 1992”, was executed to this section, which is section 108 of the National Oceanic and Atmospheric Administration Authorization Act of 1992, to reflect the probable intent of Congress.

Section was formerly set out as a note under section 313 of this title.

Section was enacted as part of the National Oceanic and Atmospheric Administration Authorization Act of 1992, and not as part of the Weather Research and Forecasting Innovation Act of 2017 which comprises this chapter.

AMENDMENTS

2019—Subsec. (a)(12). Pub. L. 115-423 added par. (12).  
2017—Subsec. (a)(5) to (11). Pub. L. 115-25, §109(1), added pars. (5) to (11). See Codification note above.  
Subsec. (b). Pub. L. 115-25, §109(2), substituted “The” for “Not later than 90 days after October 29, 1992, the” in introductory provisions. See Codification note above.

Subsec. (c). Pub. L. 115-25, §109(3), added subsec. (c). See Codification note above.

**§ 8521. Weather and climate information in agriculture**

**(a) Findings**

Congress finds that—

(1) agricultural and silvicultural operations are vulnerable to damage from atmospheric conditions that accurate and timely reporting of weather information can help prevent;

(2) the maintenance of current weather and climate analysis and information dissemination systems, and Federal, State, and private efforts to improve these systems, is essential if agriculture and silviculture are to mitigate damage from atmospheric conditions;

(3) agricultural and silvicultural weather services at the Federal level should be maintained with joint planning between the National Oceanic and Atmospheric Administration and the Department of Agriculture; and

(4) efforts should be made, involving user groups, weather and climate information providers, and Federal and State governments, to expand the use of weather and climate information in agriculture and silviculture.

**(b) Policy**

It, therefore, is declared to be the policy of Congress that it is in the public interest to

maintain an active Federal involvement in providing agricultural and silvicultural weather and climate information and that efforts should be made, among users of this information and among private providers of this information, to improve use of this information.

**(c) Functions**

The Under Secretary, acting through the Director of the National Weather Service and the heads of such other programs of the National Oceanic and Atmospheric Administration as the Under Secretary considers appropriate, shall—

(1) collect and utilize information in order to make usable, reliable, and timely foundational forecasts of subseasonal and seasonal temperature and precipitation;

(2) leverage existing research and models from the weather enterprise to improve the forecasts under paragraph (1);

(3) determine and provide information on how the forecasted conditions under paragraph (1) may impact—

(A) the number and severity of droughts, fires, tornadoes, hurricanes, floods, heat waves, coastal inundation, winter storms, high impact weather, or other relevant natural disasters;

(B) snowpack; and

(C) sea ice conditions; and

(4) develop an Internet clearinghouse to provide the forecasts under paragraph (1) and the information under paragraphs (1) and (3) on both national and regional levels.

**(d) Communication**

The Director of the National Weather Service shall provide the forecasts under paragraph (1) of subsection (c) and the information on their impacts under paragraph (3) of such subsection to the public, including public and private entities engaged in planning and preparedness, such as National Weather Service Core partners at the Federal, regional, State, tribal, and local levels of government.

**(e) Cooperation**

The Under Secretary shall build upon existing forecasting and assessment programs and partnerships, including—

(1) by designating research and monitoring activities related to subseasonal and seasonal forecasts as a priority in one or more solicitations of the Cooperative Institutes of the Office of Oceanic and Atmospheric Research;

(2) by contributing to the interagency Earth System Prediction Capability; and

(3) by consulting with the Secretary of Defense and the Secretary of Homeland Security to determine the highest priority subseasonal and seasonal forecast needs to enhance national security.

**(f) Forecast communication coordinators**

**(1) In general**

The Under Secretary shall foster effective communication, understanding, and use of the forecasts by the intended users of the information described in subsection (d). This may include assistance to States for forecast communication coordinators to enable local interpretation and planning based on the information.

**(2) Requirements**

For each State that requests assistance under this subsection, the Under Secretary may—

(A) provide funds to support an individual in that State—

(i) to serve as a liaison among the National Oceanic and Atmospheric Administration, other Federal departments and agencies, the weather enterprise, the State, and relevant interests within that State; and

(ii) to receive the forecasts and information under subsection (c) and disseminate the forecasts and information throughout the State, including to county and tribal governments; and

(B) require matching funds of at least 50 percent, from the State, a university, a nongovernmental organization, a trade association, or the private sector.

**(3) Limitation**

Assistance to an individual State under this subsection shall not exceed \$100,000 in a fiscal year.

**(g) Cooperation from other Federal agencies**

Each Federal department and agency shall cooperate as appropriate with the Under Secretary in carrying out this section.

**(h) Reports****(1) In general**

Not later than 18 months after April 18, 2017, the Under Secretary shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report, including—

(A) an analysis of the<sup>1</sup> how information from the National Oceanic and Atmospheric Administration on subseasonal and seasonal forecasts, as provided under subsection (c), is utilized in public planning and preparedness;

(B) specific plans and goals for the continued development of the subseasonal and seasonal forecasts and related products described in subsection (c); and

(C) an identification of research, monitoring, observing, and forecasting requirements to meet the goals described in subparagraph (B).

**(2) Consultation**

In developing the report under paragraph (1), the Under Secretary shall consult with relevant Federal, regional, State, tribal, and local government agencies, research institutions, and the private sector.

**(i) Definitions**

In this section:

**(1) Foundational forecast**

The term “foundational forecast” means basic weather observation and forecast data, largely in raw form, before further processing is applied.

**(2) National Weather Service core partners**

The term “National Weather Service core partners” means government and nongovernment entities which are directly involved in the preparation or dissemination of, or discussions involving, hazardous weather or other emergency information put out by the National Weather Service.

**(3) Seasonal**

The term “seasonal” means the time range between 3 months and 2 years.

**(4) State**

The term “State” means a State, a territory, or possession of the United States, including a Commonwealth, or the District of Columbia.

**(5) Subseasonal**

The term “subseasonal” means the time range between 2 weeks and 3 months.

**(6) Under Secretary**

The term “Under Secretary” means the Under Secretary of Commerce for Oceans and Atmosphere.

**(7) Weather industry and weather enterprise**

The terms “weather industry” and “weather enterprise” are interchangeable in this section and include individuals and organizations from public, private, and academic sectors that contribute to the research, development, and production of weather forecast products, and primary consumers of these weather forecast products.

**(j) Authorization of appropriations**

There are authorized to be appropriated to carry out the activities under this section—

- (1) \$26,500,000 for fiscal year 2019;
- (2) \$27,000,000 for fiscal year 2020;
- (3) \$27,500,000 for fiscal year 2021;
- (4) \$28,000,000 for fiscal year 2022; and
- (5) \$28,500,000 for fiscal year 2023.

**(k) Derivation of funds**

Amounts made available to carry out this section shall be derived from amounts appropriated or otherwise made available to the National Weather Service.

(Pub. L. 99-198, title XVII, §1762, Dec. 23, 1985, 99 Stat. 1651; Pub. L. 115-25, title II, §201, Apr. 18, 2017, 131 Stat. 98; Pub. L. 115-423, §3(a), Jan. 7, 2019, 132 Stat. 5455.)

## CODIFICATION

Section was formerly set out as a note under section 313 of this title.

Section was enacted as part of the Food Security Act of 1985, and not as part of the Weather Research and Forecasting Innovation Act of 2017 which comprises this chapter.

## AMENDMENTS

2019—Subsec. (j). Pub. L. 115-423, §3(a)(1), amended subsec. (j) generally. Prior to amendment, text read as follows: “For each of fiscal years 2017 and 2018, there are authorized out of funds appropriated to the National Weather Service, \$26,500,000 to carry out the activities of this section.”

Subsec. (k). Pub. L. 115-423, §3(a)(2), added subsec. (k).  
2017—Subsecs. (a), (b). Pub. L. 115-25, §201(1), (2), inserted headings.

<sup>1</sup> So in original. The word “the” probably should not appear.

Subsecs. (c) to (j). Pub. L. 115–25, §201(3), added subsecs. (c) to (j).

SUBCHAPTER II—WEATHER SATELLITE  
AND DATA INNOVATION

**§ 8531. National Oceanic and Atmospheric Administration satellite and data management**

**(a) Short-term management of environmental observations**

**(1) Microsatellite constellations**

**(A) In general**

The Under Secretary shall complete and operationalize the Constellation Observing System for Meteorology, Ionosphere, and Climate–1 and Climate–2 (COSMIC) in effect on the day before April 18, 2017—

(i) by deploying constellations of microsatellites in both the equatorial and polar orbits;

(ii) by integrating the resulting data and research into all national operational and research weather forecast models; and

(iii) by ensuring that the resulting data of National Oceanic and Atmospheric Administration’s COSMIC–1 and COSMIC–2 programs are free and open to all communities.

**(B) Annual reports**

Not less frequently than once each year until the Under Secretary has completed and operationalized the program described in subparagraph (A) pursuant to such subparagraph, the Under Secretary shall submit to Congress a report on the status of the efforts of the Under Secretary to carry out such subparagraph.

**(2) Integration of ocean and coastal data from the Integrated Ocean Observing System**

In National Weather Service Regions where the Director of the National Weather Service determines that ocean and coastal data would improve forecasts, the Director, in consultation with the Assistant Administrator for Oceanic and Atmospheric Research and the Assistant Administrator of the National Ocean Service, shall—

(A) integrate additional coastal and ocean observations, and other data and research, from the Integrated Ocean Observing System (IOOS) into regional weather forecasts to improve weather forecasts and forecasting decision support systems;

(B) support the development of real-time data sharing products and forecast products in collaboration with the regional associations of such system, including contributions from the private sector, academia, and research institutions to ensure timely and accurate use of ocean and coastal data in regional forecasts; and

(C) support increasing use of autonomous, mobile surface, sub-surface, and submarine vehicle ocean and fresh water sensor systems and the infrastructure necessary to share and analyze these data in real-time and feed them into predictive early warning systems.

**(3) Existing monitoring and observation-capability**

The Under Secretary shall identify degradation of existing monitoring and observation capabilities that could lead to a reduction in forecast quality.

**(4) Specifications for new satellite systems or data determined by operational needs**

In developing specifications for any satellite systems or data to follow the Joint Polar Satellite System, Geostationary Operational Environmental Satellites, and any other satellites, in effect on the day before April 18, 2017, the Under Secretary shall ensure the specifications are determined to the extent practicable by the recommendations of the reports under subsection (b) of this section.

**(b) Independent Study on Future of National Oceanic and Atmospheric Administration satellite systems and data**

**(1) Agreement**

**(A) In general**

The Under Secretary shall seek to enter into an agreement with the National Academy of Sciences to perform the services covered by this subsection.

**(B) Timing**

The Under Secretary shall seek to enter into the agreement described in subparagraph (A) before September 30, 2018.

**(2) Study**

**(A) In general**

Under an agreement between the Under Secretary and the National Academy of Sciences under this subsection, the National Academy of Sciences shall conduct a study on matters concerning future satellite data needs.

**(B) Elements**

In conducting the study under subparagraph (A), the National Academy of Sciences shall—

(i) develop recommendations on how to make the data portfolio of the Administration more robust and cost-effective;

(ii) assess the costs and benefits of moving toward a constellation of many small satellites, standardizing satellite bus design, relying more on the purchasing of data, or acquiring data from other sources or methods;

(iii) identify the environmental observations that are essential to the performance of weather models, based on an assessment of Federal, academic, and private sector weather research, and the cost of obtaining the environmental data;

(iv) identify environmental observations that improve the quality of operational and research weather models in effect on the day before April 18, 2017;

(v) identify and prioritize new environmental observations that could contribute to existing and future weather models; and

(vi) develop recommendations on a portfolio of environmental observations that