

Background Information for Briefing on P.L.115-25, the Weather Research and Forecasting Innovation Act of 2017

SAB Materials for August 30th, 2017 at 3:15

Summary of Provisions:

TITLE I—UNITED STATES WEATHER RESEARCH AND FORECASTING IMPROVEMENT

Sec. 101. Public safety priority.

- Language: *In conducting research, the Under Secretary shall prioritize improving weather data, modeling, computing, forecasting, and warnings for the protection of life and property and for the enhancement of the national economy.*
- There is some concern that this directs NOAA to prioritize weather research over all other research.

Sec. 102. Weather research and forecasting innovation.

- Directs the AA of OAR to “conduct a program to develop improved understanding of and forecast capabilities for atmospheric events and their impacts, placing priority on developing more accurate, timely, and effective warnings and forecasts of high impact weather events that endanger life and property.”
- The program elements also includes several aspects including fundamental understanding, improving how public perceives warnings, R&D and transfer, tech transfer initiative, extramural research section, and a report.
- A ‘sense of Congress’ (not a mandate) that not less than 30 percent of the funds for weather research and development at OAR should be made available for the program created in this section.

Sec. 103. Tornado warning improvement and extension program.

- Sets a goal of reducing the loss of life and economic losses from tornadoes through improved and extended tornado forecasts, including the prediction of tornadoes beyond 1 hour. Goals comport with NOAA’s Warn-On-Forecast program. Asks NOAA to develop a plan and also submit a proposed budget for the plan every year.

Sec. 104. Hurricane forecast improvement program.

- Codifies and mandates NOAA’s HFIP program. Requires a plan.

Sec. 105. Weather research and development planning.

- This section directs the AA for OAR in coordination with the AAs for NWS and NESDIS to issue a research and development and R2O plan to restore and maintain US leadership in numerical weather prediction and forecasting.

Sec. 106. Observing system planning.

- This section directs the Under Secretary to develop and maintain a prioritized list of obs requirements, undertake assessment tools (using OSSEs, OSEs, AOAs, and other appropriate assessment tools), ongoing systematic evaluations of the combo of obs systems needed to ensure weather forecasting capabilities, and identify current and potential future data gaps and a range of options to address them.

Sec. 107. Observing system simulation experiments.

- This section requires the AA of OAR to undertake OSSEs or such other quantitative assessments as the Assistant Administrator considers appropriate to quantitatively assess the relative value and benefits of observing capabilities and systems.
- It also requires OSSEs be conducted 1) prior to the acquisition of major Government-owned or Government-leased operational obs systems (including polar and geo) with lifecycle cost greater than \$500M; and 2) prior to the purchase of any major new commercially provided data with lifecycle cost greater than \$500M.
- It also requires two priority OSSEs: one for GNSS-RO (within 30 days of enactment) and one for the geostationary hyperspectral sounder global constellation (within 120 days). When last checked with AOML in September, the GNSS-RO OSSE will be completed Oct 2016 and the hyperspectral sounder OSSE will be completed in Dec 2016 (we are working to get an update on these two OSSEs).

Sec. 108. Annual report on computing resources prioritization.

- Requires NOAA CIO issue a yearly report (and make it public) to support NOAA's advanced research and operational weather prediction models with high performance computing (HPC). Activity largely exists already.

Sec. 109. United States Weather Research program.

- Amends the US Weather Research Program Statute (under the authorized activities of the Secretary of Commerce), to submit an annual report to Congress including a list of ongoing research projects; project goals and point of contact for each project; the 5 projects related to weather within OAR that are closest to operationalization (along with potential benefits, barriers, and the plan for operationalization).
- Establishes teams with staff from OAR and the NWS to oversee the operationalization of research projects; develop mechanisms for research priorities of OAR to be informed by the relevant line offices the user community, and the weather enterprise; develop an internal mechanism to track the progress of each research project within OAR and mechanisms to terminate projects that are not adequately progressing; develop and implement a system to track whether extramural research grant goals were accomplished; provide facilities for products developed by the OAR to be tested in operational simulations, such as test beds; and encourage academic collaborations with OAR and NWS by facilitating visiting scholars. (Note some of this groundwork has already been done with Dr. Spinrad's R2O readiness levels plan.)

Sec. 110. Authorization of appropriations.

Note that other appropriations are scattered throughout this bill, but this section covers OAR's weather lines.

	FY 16 enacted	FY 17 President's budget request (Obama)	FY 17 House Mark	FY 17 Senate Mark	H.R. 353 (House Passed Weather Bill)*	Senate Passed Weather Bill (H.R. 353 as amended)*
Wx Labs and CIs	\$76M	\$72.7M	\$80M	\$72.653M	\$85.758M	\$85.758M
Wx and Air Chemistry Research	\$27.2M (includes \$6M for JTTI)	\$29.3M	\$38.158M (includes \$17M for tech transfer)	\$25.758M	\$25.758M	\$25.758M
Joint Technology Transfer	\$6M (JTTI which is included in Wx & air chemistry number above)	\$10M (RTAP)	\$17M (included in Wx & air chemistry above)	\$2M (for RTAP)	\$20M	\$20M

*for each of fiscal years 2017 and 2018 only

TITLE II—SUBSEASONAL AND SEASONAL FORECASTING INNOVATION

Sec. 201. Improving subseasonal and seasonal forecasts.

- Directs NOAA to provide usable, reliable, and timely forecasts of seasonal & subseasonal temperature and precipitation at national and regional levels. NWS must leverage existing research and models from the academic sector to improve seasonal forecasts. NOAA must develop an Internet clearinghouse for seasonal forecasts. NOAA is authorized and encouraged to work with state liaisons (state climatologists) as “forecast communication coordinators.”
- Amends *Section 1762 of the Food Security Act of 1985 (Public Law 99–198)*. Requires an analysis and report after 18 months.
- Defines “NWS Core Partners” for this section as “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 NWS.”
- Defines “Weather Enterprise/Industry” as “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.”
- Authorizes appropriations of \$26.5M out of NWS appropriations for each of fiscal years 2017 and 2018.

TITLE III—WEATHER SATELLITE AND DATA INNOVATION

Sec. 301. National Oceanic and Atmospheric Administration satellite and data management.

- Section 301(a) approves the COSMIC-2 program, with satellites in both the equatorial and polar orbits. Directs full and open sharing of COSMIC-2 data and requires an annual report.
- Section 301(a)(2) directs NOAA to integrate information from IOOS in regions where the AA of NWS determines that ocean and coastal data would improve forecasts and supports development of real-time data sharing with the regional associations.
- Section 301(b) calls for NOAA to enter into a new study on future satellite data needs with the National Academy of Sciences.
- Authorizes appropriations of \$1M out of NESDIS appropriations for each of fiscal years 2018 through 2019.

Sec. 302. Commercial weather data.

- Directs the Secretary of Commerce to enter into agreements for the purchase of weather data through commercial providers and/or the placement of weather satellite instruments on co-hosted government or private payloads. The Secretary must develop a strategy to enable procurement of quality commercial weather data and submit said strategy to Congress.
- The AA of NESDIS is given the authority to enter into commercial agreements.
- Directs NOAA to publish data and metadata standards and specifications for radio occultation and geostationary hyperspectral sounder data.
- NOAA must enter into at least one pilot contract with a private sector entity capable of providing data that meet NOAA standards and specifications, and requires an assessment of data viability which requires a report to Congress on whether the pilot program has demonstrated the viability of assimilating the commercially provided data into NOAA's meteorological models.
- Authorizes appropriations of \$6M for NESDIS PAC for each of fiscal years 2017 through 2020.

Sec. 303. Unnecessary duplication.

- NOAA shall avoid unnecessary duplication between public and private sources of data and the corresponding expenditure of funds and employment of personnel.

TITLE IV—FEDERAL WEATHER COORDINATION

Sec. 401. Environmental Information Services Working Group.

- Directs the NOAA to maintain the SAB's EISWG to provide advice on prioritizing weather research initiatives; on emerging technologies; and to identify opportunities to improve communications between forecasters and the public, fed/state/local partners, and the private/academic sector. Mandates the composition of the EISWG. Directs EISWG to submit an annual report to Congress via SAB and NOAA.

Sec. 402. Interagency weather research and forecast innovation coordination.

- Directs OSTP to establish an interagency committee for advancing weather services to improve coordination of weather research and forecast innovation activities across the Federal Government. Members include NASA, FAA, NOAA, NSF, and other agencies as the President deems appropriate. The co-chair is the OFCM. NOTE: This is the only reference in the bill to the OFCM.

Sec. 403. Office of Oceanic and Atmospheric Research and National Weather Service exchange program.

- Authorizes (with “may”) OAR & NWS to establish a program to detail personnel between the LOs with the goal of enhancing forecasting innovation through regular, direct interaction between OAR and NWS. Mandates an annual report from the Under Secretary on participation and any innovations that come from this interaction.

Sec. 404. Visiting fellows at National Weather Service.

- Authorizes (with “may”) NWS to establish a program to host postdoc fellows and academic researchers at any NCEP center. The goal is to provide direct interaction between forecasters and academic and private sector researchers in an effort to bring innovation to forecasting tools and techniques at NWS. Would essentially codify the NWS-NSF visiting fellows program.

Sec. 405. Warning coordination meteorologists at weather forecast offices of National Weather Service.

- Codifies existing WCMs at NWS WFOs, with their existing roles, mandating at least one at each WFO. Gives NWS authority to expand their roles, and to place/embed them with partners, but does not require this. Codifies WCM/WFO role to provide and increase impact-based decision support services.

Sec. 406. Improving National Oceanic and Atmospheric Administration communication of hazardous weather and water events.

- Requires NOAA to assess the NWS Watch/Warning/Advisory system and submit a report on the results to Congress, and to make recommendations for improvements. NOAA must collaborate or consult with Enterprise partners, fed./state/local EMs, media/broadcasters, and social/behavioral scientists, among others.

Sec. 407. National Oceanic and Atmospheric Administration Weather Ready All Hazards Award Program.

- Authorizes NWS to establish the NOAA Weather Ready All Hazards Award Program (similar to the former “Mark Trail”) . This award provides annual awards to honor individuals or organizations that use or provide NOAA Weather Radio All Hazards receivers or transmitters, or other “early warning tools and applications” to save lives and protect property. NOAA/NWS had a similar program, focused solely on NOAA Weather Radio, for years before it was discontinued due to funding and other concerns.

Sec. 408. Department of Defense weather forecasting activities.

- Requires NOAA to submit a report within 60 days “analyzing the impacts of the proposed Air Force divestiture in the United States Weather Research and Forecasting Model...”

Sec. 409. National Weather Service operations and workforce analysis.

- Codifies the NWS’s Operations and Workforce Analysis, and use of a contractor to do so.

Sec. 410. Report on contract positions at National Weather Service.

- Requires NOAA to submit a detailed report to Congress on the use of contractors at NWS within 180 days. NOAA must maintain an online database with annually-updated information on use of contractors, mirroring the report requirements. Language is related to the recent OIG investigative report.

Sec. 411. Weather impacts to communities and infrastructure.

- NWS must review existing research, products and services that meet the specific needs of urban environment and then report the results to Congress.

Sec. 412. Weather enterprise outreach.

- Provides authority, but not a mandate (with “*may*”), for NOAA to “establish mechanisms for outreach to the weather enterprise” to assess NOAA products and determine priority needs.

Sec. 413. Hurricane hunter aircraft.

- Requires the Under Secretary to acquire backup capabilities for NOAA’s P3 and G-IV hurricane hunters to prevent a single point of failure. Requires the Under Secretary to negotiate and enter into agreements, to the extent practicable, with gov and non-gov entities.
- Requires the Under Secretary to continue development of the Airborne Phased Array Radar (APAR) under the USWRP.
- Authorizes appropriations (unspecified amount) out of OMAO appropriations for each of fiscal years 2017 through 2020.

Sec. 414. Study on gaps in NEXRAD coverage and recommendations to address such gaps.

- Requires the Secretary to complete a study on the gaps in coverage of NEXRAD within 180 days of enactment.
- In the study, requires the Secretary to identify areas in the US where NEXRAD coverage has resulted in insufficient warnings or degraded forecasts. This is problematic.
- Also requires assessing the feasibility of efforts to integrate and upgrade federal radar capabilities that are not owned or controlled by NOAA, including capabilities of FAA and DoD; feasibility of incorporating state-operated and other non-federal radars into NWS operations; and identifying options to improve hazardous weather detection and forecasting coverage (with a cost estimate and timeline). Completing these estimates within the given deadline is problematic.

- Requires the Secretary to submit a report to Congress with the findings of the study.
- Requires the Secretary to submit to Congress recommendations for improving hazardous weather detection and forecasting coverage within 90 days of completion of the study.

TITLE V—Tsunami warning, education, and research act of 2017

- Reauthorizes and updates NOAA Tsunami Program, from the existing Tsunami Warning and Education Act of 2006, through FY 2021.
- Codifies existence of the two current tsunami warning centers, and the balance of NOAA’s tsunami program activities, and authorizes additional areas of expanded activity, outreach, and research.
- Modifies the National Tsunami Hazard Mitigation Program (NTHMP) in a number of ways, including with respect to education and outreach. Many of the mandates go well beyond current mission and capabilities of NOAA or the NTHMP.
- It also mandates the Administrator designate an existing working group under the SAB to serve as the Tsunami Science and Technology Panel.
- Reduces the authorization levels to the FY17 PresBud level (\$25.8M), holding flat for 5 years, while still mandating grants to states (via the 27% "state level activities" mandate and a requirement to fund “financial assistance to states”). If appropriations are funded at the authorization levels, NWS would have to fund ~\$6-7M in grants and NTHMP activities out of a \$25.8M program level. There would be significant impacts to the observation and warning program at this level. Current program level, including \$6M in grants/administration, is \$31.7M.
- Mandates five reports and notifications to Congress.
- Removes language that was included in the Senate stand alone bill, that gave the NOAA Administrator authority to form a regional coastal risk management coalitions.

Sec. 501. Short title.

Sec. 502. References to the tsunami warning and education act.

Sec. 503. Expansion of purposes of tsunami warning and education act.

Sec. 504. Modification of tsunami forecasting and warning program.

Sec. 505. Modification of National Tsunami hazard mitigation program.

Sec. 506. Modification of Tsunami Research Program.

Sec. 507. Global tsunami warning and mitigation network.

Sec. 508. Tsunami science and technology advisory panel.

Sec. 509. Reports.

Sec. 510. Authorization of appropriations.

Sec. 511. Outreach responsibilities.

Sec. 512. Repeal of duplicate provisions of law.