

Calendar No. 169119TH CONGRESS
1ST SESSION**S. 318****[Report No. 119-64]**

To require a plan to improve the cybersecurity and telecommunications of the U.S. Academic Research Fleet, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 29, 2025

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

SEPTEMBER 29, 2025

Reported by Mr. CRUZ, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]**A BILL**

To require a plan to improve the cybersecurity and telecommunications of the U.S. Academic Research Fleet, 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.**

2 This Act may be cited as the “Accelerating Net-
3 working, Cyberinfrastructure, and Hardware for Oceanic
4 Research Act” or the “ANCHOR Act”.

5 **SEC. 2. DEFINITIONS.**

6 In this Act:

7 (1) **U.S. ACADEMIC RESEARCH FLEET.**—The
8 term “U.S. Academic Research Fleet” means the
9 United States-flagged vessels that—

10 (A) have been accepted into, and are active
11 participants administered within, the Univer-
12 sity-National Oceanographic Laboratory Sys-
13 tem;

14 (B) are operated as oceanographic research
15 vessels by research universities and laboratories;

16 (C) receive funding from the National
17 Science Foundation; and

18 (D) have achieved designation as a mem-
19 ber vessel through a standard evaluation proe-
20 cess.

21 (2) **DIRECTOR.**—The term “Director” means
22 the Director of the National Science Foundation.

23 (3) **OCEANOGRAPHIC RESEARCH VESSEL.**—The
24 term “oceanographic research vessel” has the mean-
25 ing given the term in section 2101 of title 46,
26 United States Code.

1 **SEC. 3. PLAN TO IMPROVE CYBERSECURITY AND TELE-**
2 **COMMUNICATIONS OF U.S. ACADEMIC RE-**
3 **SEARCH FLEET.**

4 (a) **IN GENERAL.**—Not later than 1 year after the
5 date of enactment of this Act, the Director shall, in con-
6 sultation with the head of any Federal agency, university,
7 or laboratory that owns or operates a vessel of the U.S.
8 Academic Research Fleet, submit to the Committee on
9 Commerce, Science, and Transportation of the Senate and
10 the Committee on Space, Science, and Technology of the
11 House of Representatives a plan to improve the cybersecu-
12 rity and telecommunications of the U.S. Academic Re-
13 search Fleet.

14 (b) **ELEMENTS.**—The plan required by subsection (a)
15 shall include—

16 (1) an assessment of the telecommunications
17 and networking needs of the U.S. Academic Re-
18 search Fleet, consistent with the typical scientific
19 mission of that vessel;

20 (2) in accordance with guidance issued by the
21 Cybersecurity and Infrastructure Security Agency
22 and the National Institute for Standards and Tech-
23 nology, an assessment of cybersecurity needs appro-
24 priate for—

25 (A) the ownership of vessels within the
26 U.S. Academic Research Fleet; and

1 ~~(B)~~ the typical research functions and top-
2 ics of such vessels;

3 ~~(3)~~ an assessment of the costs necessary to
4 meet the needs described in paragraphs ~~(1)~~ and ~~(2)~~;
5 including—

6 ~~(A)~~ any necessary equipment, such as sat-
7 ellite communications equipment, software,
8 high-performance computing clusters shipboard
9 and shoreside, or enterprise hardware; and

10 ~~(B)~~ estimated personnel costs in excess of
11 current expenditures, including any necessary
12 training, support, or logistics;

13 ~~(4)~~ an assessment of the time required to im-
14 plement any upgrades required to meet the needs
15 described in paragraphs ~~(1)~~ and ~~(2)~~ under varying
16 budgets and funding scenarios;

17 ~~(5)~~ the adoption of common solutions or
18 consortial licensing agreements, or by centralizing
19 elements of fleet cybersecurity, telecommunications
20 or data management at a single facility; and

21 ~~(6)~~ in consultation with any non-Federal owners
22 of a vessel of the U.S. Academic Research Fleet, a
23 spending plan for the National Science Foundation,
24 the Office of Naval Research, non-Federal owners of
25 vessels of the U.S. Academic Research Fleet, users

1 of the U.S. Academic Research Fleet, or any com-
2 bination thereof, to provide funding to cover the
3 costs described in paragraph (3).

4 (e) CONSIDERATIONS.—The Director shall, in pre-
5 paring the plan required by subsection (a), consider—

6 (1) the network capabilities, including speed
7 and bandwidth targets, necessary to meet the sci-
8 entific mission needs of each class of vessel within
9 the U.S. Academic Research Fleet for such purposes
10 as—

11 (A) executing the critical functions and
12 communications of the vessel;

13 (B) providing network access for the
14 health and well-being of deployed personnel, in-
15 cluding communications to conduct telemedicine
16 (including mental health care), counseling,
17 interviews with crisis response providers, and
18 other remote individual care and services;

19 (C) as necessary to meet operations,
20 uploading any scientific data to a shoreside
21 server, including the copying of data off ship
22 for disaster recovery or risk mitigation pur-
23 poses;

24 (D) as appropriate, conducting real-time
25 streaming to enable shore-based observers to

1 participate in ship-based maintenance or re-
2 search activities;

3 ~~(E)~~ real-time coordinated viewing of—

4 (i) scientific instrumentation so that it
5 is possible to conduct scientific surveys and
6 seafloor mapping with fully remote subject-
7 matter experts; and

8 (ii) critical operational technology by
9 manufacturers and vendors so that it is
10 possible to carry out maintenance and re-
11 pairs to systems with limited expertise on
12 the vessel; with fully remote subject-matter
13 experts advising; and

14 ~~(F)~~ as appropriate, enabling video commu-
15 nications to allow improved outreach to, and
16 other educational services for, K-12 students,
17 including occasional remote classroom teaching
18 for instructors at sea to improve oceanographic
19 access for students; and

20 ~~(2)~~ in consultation with the Director of the Cy-
21 bersecurity and Infrastructure Security Agency, the
22 Director of the National Institute for Standards and
23 Technology, and the heads of other Federal agen-
24 cies, as appropriate—

1 (A) the cybersecurity recommendations in
2 the report of the private scientific advisory
3 group known as JASON entitled “Cybersecurity
4 at NSF Major Facilities” (JSR-21-10E) and
5 dated October 2021 as applied to the U.S. Aca-
6 demic Research Fleet;

7 (B) aligning with international standards
8 and guidance for information security, including
9 the use of encryption for sensitive information,
10 the detection and handling of security incidents,
11 and other areas determined relevant by the Di-
12 rector;

13 (C) facilitating access to cybersecurity per-
14 sonnel and training of research and support
15 personnel; and

16 (D) the requirements for controlled unclas-
17 sified or classified information.

18 **SECTION 1. SHORT TITLE.**

19 *This Act may be cited as the “Accelerating Networking,*
20 *Cyberinfrastructure, and Hardware for Oceanic Research*
21 *Act” or the “ANCHOR Act”.*

22 **SEC. 2. DEFINITIONS.**

23 *In this Act:*

24 (1) *DIRECTOR.*—*The term “Director” means the*
25 *Director of the National Science Foundation.*

1 (2) *OCEANOGRAPHIC RESEARCH VESSEL.*—*The*
 2 *term “oceanographic research vessel” has the meaning*
 3 *given the term in section 2101 of title 46, United*
 4 *States Code.*

5 (3) *U.S. ACADEMIC RESEARCH FLEET.*—*The*
 6 *term “U.S. Academic Research Fleet” means the*
 7 *United States flagged vessels that—*

8 (A) *have been accepted into, and are active*
 9 *participants administered within, the Univer-*
 10 *sity-National Oceanographic Laboratory System;*

11 (B) *are operated as oceanographic research*
 12 *vessels by research universities and laboratories;*

13 (C) *receive funding from the National*
 14 *Science Foundation; and*

15 (D) *have achieved designation as a member*
 16 *vessel of the fleet through a standard evaluation*
 17 *process.*

18 **SEC. 3. PLAN TO IMPROVE CYBERSECURITY AND TELE-**
 19 **COMMUNICATIONS OF U.S. ACADEMIC RE-**
 20 **SEARCH FLEET.**

21 (a) *IN GENERAL.*—*Not later than 1 year after the date*
 22 *of enactment of this Act, the Director shall, in consultation*
 23 *with the head of any Federal agency, university, or labora-*
 24 *tory that owns or operates a vessel of the U.S. Academic*
 25 *Research Fleet, submit to the Committee on Commerce,*

1 *Science, and Transportation of the Senate and the Com-*
2 *mittee on Science, Space, and Technology of the House of*
3 *Representatives a plan to improve the cybersecurity and*
4 *telecommunications of the U.S. Academic Research Fleet.*

5 (b) *ELEMENTS.—The plan required by subsection (a)*
6 *shall include—*

7 (1) *an assessment of the telecommunications and*
8 *networking needs of the U.S. Academic Research*
9 *Fleet, consistent with the typical scientific missions of*
10 *the vessels of such fleet;*

11 (2) *in consultation with the Cybersecurity and*
12 *Infrastructure Security Agency and the National In-*
13 *stitute of Standards and Technology, an assessment of*
14 *cybersecurity needs appropriate for—*

15 (A) *the ownership of vessels within the U.S.*
16 *Academic Research Fleet; and*

17 (B) *the scientific missions of such vessels;*

18 (3) *an assessment of the costs necessary to meet*
19 *the needs described in paragraphs (1) and (2), includ-*
20 *ing—*

21 (A) *any necessary equipment, such as sat-*
22 *ellite communications equipment, software, high-*
23 *performance computing clusters shipboard and*
24 *shoreside, or enterprise hardware; and*

1 (B) *estimated personnel costs in excess of*
2 *current expenditures, including any necessary*
3 *training, support, or logistics;*

4 (4) *an assessment of the time required to imple-*
5 *ment any upgrades required to meet the needs de-*
6 *scribed in paragraphs (1) and (2) under varying*
7 *budgets and funding scenarios;*

8 (5) *the adoption of common solutions or*
9 *consortial licensing agreements, or by centralizing ele-*
10 *ments of fleet cybersecurity, telecommunications, or*
11 *data management at a single facility; and*

12 (6) *in consultation with any non-Federal owners*
13 *of a vessel of the U.S. Academic Research Fleet, a*
14 *spending plan for the National Science Foundation,*
15 *the Office of Naval Research, non-Federal owners of*
16 *vessels of the U.S. Academic Research Fleet, users of*
17 *the U.S. Academic Research Fleet, or any combina-*
18 *tion thereof, to provide funding to cover the costs de-*
19 *scribed in paragraph (3).*

20 (c) *CONSIDERATIONS.—The Director shall, in pre-*
21 *paring the plan required by subsection (a), consider—*

22 (1) *the network capabilities, including speed and*
23 *bandwidth targets, necessary to meet the scientific*
24 *mission needs of each class of vessels of the U.S. Aca-*
25 *demical Research Fleet for such purposes as—*

1 (A) *executing the critical functions and*
2 *communications of the vessels;*

3 (B) *providing network access to conduct*
4 *medical care via telemedicine or related crisis re-*
5 *sponse care;*

6 (C) *as necessary to meet operations,*
7 *uploading any scientific data to a shoreside serv-*
8 *er, including the copying of data off ship for dis-*
9 *aster recovery or risk mitigation purposes;*

10 (D) *as appropriate, conducting real-time*
11 *streaming to enable shore-based observers to par-*
12 *ticipate in ship-based maintenance or research*
13 *activities; and*

14 (E) *real-time coordinated viewing of—*

15 (i) *scientific instrumentation so that it*
16 *is possible to conduct scientific surveys and*
17 *seafloor mapping with fully remote subject-*
18 *matter experts; and*

19 (ii) *critical operational technology by*
20 *manufacturers and vendors so that it is pos-*
21 *sible to carry out maintenance and repairs*
22 *to systems with limited expertise on the ves-*
23 *sel, with fully remote subject-matter experts*
24 *advising; and*

1 (2) *in consultation with the Director of the Cy-*
2 *bersecurity and Infrastructure Security Agency, the*
3 *Director of the National Institute of Standards and*
4 *Technology, and the heads of other Federal agencies,*
5 *as appropriate—*

6 (A) *the cybersecurity recommendations in*
7 *the report of the private scientific advisory group*
8 *known as JASON entitled “Cybersecurity at*
9 *NSF Major Facilities” (JSR–21–10E) and dated*
10 *October 2021 as applied to the U.S. Academic*
11 *Research Fleet;*

12 (B) *standards and guidance for information*
13 *security, including the use of encryption for sen-*
14 *sitive information, the detection and handling of*
15 *security incidents, and other areas determined*
16 *relevant by the Director;*

17 (C) *facilitating access to cybersecurity per-*
18 *sonnel and training of research and support per-*
19 *sonnel; and*

20 (D) *the requirements for controlled unclassi-*
21 *fied or classified information.*

Calendar No. 169

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