

SULLIVAN SUBSTITUTE (AS AMENDED)



AMENDMENT NO. _____ Calendar No. _____

Purpose: In the nature of a substitute.

IN THE SENATE OF THE UNITED STATES—119th Cong., 1st Sess.

S. 318

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

Referred to the Committee on _____ and
ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended
to be proposed by _____

Viz:

1 Strike all after the enacting clause and insert the fol-

2 lowing:

3 **SECTION 1. SHORT TITLE.**

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

7 **SEC. 2. DEFINITIONS.**

8 In this Act:

9 (1) DIRECTOR.—The term “Director” means
10 the Director of the National Science Foundation.

1 (2) OCEANOGRAPHIC RESEARCH VESSEL.—The
2 term “oceanographic research vessel” has the mean-
3 ing given the term in section 2101 of title 46,
4 United 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 Sys-
11 tem;

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

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

16 (D) have achieved designation as a mem-
17 ber vessel of the fleet through a standard eval-
18 uation process.

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

22 (a) IN GENERAL.—Not later than 1 year after the
23 date of enactment of this Act, the Director shall, in con-
24 sultation with the head of any Federal agency, university,
25 or laboratory that owns or operates a vessel of the U.S.

1 Academic Research Fleet, submit to the Committee on
2 Commerce, Science, and Transportation of the Senate and
3 the Committee on Science, Space, and Technology of the
4 House of Representatives a plan to improve the cybersecu-
5 rity and telecommunications of the U.S. Academic Re-
6 search Fleet.

7 (b) ELEMENTS.—The plan required by subsection (a)
8 shall include—

9 (1) an assessment of the telecommunications
10 and networking needs of the U.S. Academic Re-
11 search Fleet, consistent with the typical scientific
12 missions of such vessels;

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

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

19 (B) the scientific missions of such vessels;

20 (3) an assessment of the costs necessary to
21 meet the needs described in paragraphs (1) and (2),
22 including—

23 (A) any necessary equipment, such as sat-
24 ellite communications equipment, software,

1 high-performance computing clusters shipboard
2 and shoreside, or enterprise hardware; and

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

6 (4) an assessment of the time required to im-
7 plement any upgrades required to meet the needs
8 described in paragraphs (1) and (2) under varying
9 budgets and funding scenarios;

10 (5) the adoption of common solutions or
11 consortial licensing agreements, or by centralizing
12 elements of fleet cybersecurity, telecommunications,
13 or data management at a single facility; and

14 (6) in consultation with any non-Federal owners
15 of a vessel of the U.S. Academic Research Fleet, a
16 spending plan for the National Science Foundation,
17 the Office of Naval Research, non-Federal owners of
18 vessels of the U.S. Academic Research Fleet, users
19 of the U.S. Academic Research Fleet, or any com-
20 bination thereof, to provide funding to cover the
21 costs described in paragraph (3).

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

24 (1) the network capabilities, including speed
25 and bandwidth targets, necessary to meet the sci-

1 entific mission needs of each class of vessels of the
2 U.S. Academic Research Fleet for such purposes
3 as—

4 (A) executing the critical functions and
5 communications of the vessels;

6 (B) providing network access to conduct
7 medical care via telemedicine or related crisis
8 response care;

9 (C) as necessary to meet operations,
10 uploading any scientific data to a shoreside
11 server, including the copying of data off ship
12 for disaster recovery or risk mitigation pur-
13 poses;

14 (D) as appropriate, conducting real-time
15 streaming to enable shore-based observers to
16 participate in ship-based maintenance or re-
17 search activities; and

18 (E) real-time coordinated viewing of—

19 (i) scientific instrumentation so that it
20 is possible to conduct scientific surveys and
21 seafloor mapping with fully remote subject-
22 matter experts; and

23 (ii) critical operational technology by
24 manufacturers and vendors so that it is
25 possible to carry out maintenance and re-

1 pairs to systems with limited expertise on
2 the vessel, with fully remote subject-matter
3 experts advising; and

4 (2) in consultation with the Director of the Cy-
5 bersecurity and Infrastructure Security Agency, the
6 Director of the National Institute of Standards and
7 Technology, and the heads of other Federal agen-
8 cies, as appropriate—

9 (A) the cybersecurity recommendations in
10 the report of the private scientific advisory
11 group known as JASON entitled “Cybersecurity
12 at NSF Major Facilities” (JSR-21-10E) and
13 dated October 2021 as applied to the U.S. Aca-
14 demic Research Fleet;

15 (B) standards and guidance for informa-
16 tion security, including the use of encryption for
17 sensitive information, the detection and han-
18 dling of security incidents, and other areas de-
19 termined relevant by the Director;

20 (C) facilitating access to cybersecurity per-
21 sonnel and training of research and support
22 personnel; and

23 (D) the requirements for controlled unclas-
24 sified or classified information.