

118TH CONGRESS  
2D SESSION

**S.** \_\_\_\_\_

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

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IN THE SENATE OF THE UNITED STATES

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Mr. PADILLA introduced the following bill; which was read twice and referred to the Committee on \_\_\_\_\_

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## 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,*

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:

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

4 (A) have been accepted into, and are active  
5 participants administered within, the Univer-  
6 sity-National Oceanographic Laboratory Sys-  
7 tem;

8 (B) are operated as oceanographic research  
9 vessels by research universities and laboratories;

10 (C) receive funding from the National  
11 Science Foundation; and

12 (D) have achieved designation as a mem-  
13 ber vessel through a standard evaluation proc-  
14 ess.

15 (2) DIRECTOR.—The term “Director” means  
16 the Director of the National Science Foundation.

17 (3) OCEANOGRAPHIC RESEARCH VESSEL.—The  
18 term “oceanographic research vessel” has the mean-  
19 ing given the term in section 2101 of title 46,  
20 United States Code.

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

24 (a) IN GENERAL.—Not later than 1 year after the  
25 date of enactment of this Act, the Director shall, in con-

1 sultation with the head of any Federal agency, university,  
2 or laboratory that owns or operates a vessel of the U.S.  
3 Academic Research Fleet, submit to the Committee on  
4 Commerce, Science, and Transportation of the Senate and  
5 the Committee on Space, Science, and Technology of the  
6 House of Representatives a plan to improve the cybersecu-  
7 rity and telecommunications of the U.S. Academic Re-  
8 search Fleet.

9 (b) ELEMENTS.—The plan required by subsection (a)  
10 shall include—

11 (1) an assessment of the telecommunications  
12 and networking needs of the U.S. Academic Re-  
13 search Fleet, consistent with the typical scientific  
14 mission of that vessel;

15 (2) in accordance with guidance issued by the  
16 Cybersecurity and Infrastructure Security Agency  
17 and the National Institute for Standards and Tech-  
18 nology, an assessment of cybersecurity needs appro-  
19 priate for—

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

22 (B) the typical research functions and top-  
23 ics of such vessels;

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

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

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

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

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

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

1        bination thereof, to provide funding to cover the  
2        costs described in paragraph (3).

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

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

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

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

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

23            (D) as appropriate, conducting real-time  
24            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.