135TH CONGRESS
1ST SESSION

S. 19

IN THE SENATE OF THE UNITED STATES
DECEMBER 4, 2020

Mr. LOULOU, (for himself, Ms. CHAN, Mr. SEAVER)

A BILL

To reform our national space and discovery technology to move for interplanetary exploration, protect satellites from space debris and lower appropriations for the James Webb Space Telescope, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I — SPECIFICATIONS

SECTION 101. SHORT TITLE

(a) SHORT TITLE — This Act may be cited as the "Interplanetary Horizons Act".

SECTION 102. DEFINITIONS

(a) DEFINITIONS — For the purposes of this Act —

(i) NASA — National Aeronautics and Space Administration, a subsidiary administration of the Department of Transportation.

(ii) STS — Space Transportation System, a program developed by NASA for transportation of up to 7 astronauts into orbit.

(iii) SLS — Space Launch System, a program to use old technologies to send astronauts in space, to the moon and eventually to Mars.

(iv) LEO — Low Earth Orbit, any orbit between 70 and 1200 miles above the Earth.

(v) POINT NEMO — A vague geographical area located in the Pacific Ocean as the furthest point from any landmass.

(vi) GEOSTATIONARY ORBIT — Any orbit around 22,000 and 22,500 miles above the Earth.

(vii) ADMINISTRATOR — The Administrator of NASA, appointed by the President and confirmed by the Senate.

(viii) JWST — James Webb Space Telescope, a proposed cryogenic light spectrum telescope to be NASA's flagship mission.

SECTION 103. SEVERABILITY

(a) SEVERABILITY — Should any provision of this Act be deemed invalid or unconstitutional for any reason in a court with relevant jurisdiction, the rest of the Act, and the application of the remaining provisions, shall not be affected.

SECTION 104. FINDINGS

(a) ISS FINDINGS — Congress finds that —

(i) The ISS is a valuable, recognisable, beloved by the public, international collaboration, that should be maintained to train astronauts, perform psychological and physical experiments, and additionally test space systems in orbit.

(ii) As such, the ISS should remain operational until 2025 to protect it.

(b) SLS FINDINGS — Congress finds that —

(i) The SLS Lander program needs to be enhanced to have deadlines to ensure that all components of the SLS are ready for EM-2 and EM-3.

(ii) The SLS Lander program needs to have requirements for general launch and procedure, as well as reusing tried and tested technologies.

(iii) Orion and SLS also need to have their deadlines pushed back in construction.

(iv) Orion and SLS additionally do not need to dock to the ISS anymore.

(c) JWST FINDINGS — Congress finds that —

(i) The JWST costs between $300,000,000 and $500,000,000 mil yearly.

(ii) The cuts to the JWST will be equivalent to the funding for Space Debris Cleanup Technologies, and as such, will provide no change in appropriations.

(d) SPACE DEBRIS FINDINGS — Congress finds that —

(i) Space debris are highly dangerous and can, and has caused, problems on spacecraft, manned or unmanned, including the ISS.

(ii) The butterfly effect method of multiplication of space debris increases the threat of space debris.

(iii) Space debris should be limited and cleaned up as such.

TITLE II — LOW EARTH ORBIT VEHICLES

SECTION 201. STS RETIREMENT

(a) REPEAL — Title VI, Section 601, Point b of the NASA Authorization Act of 2010 is repealed.

(b) REPLACEMENT — Title VI, Section 601, Point b of the NASA Authorization Act of 2010 is inserted as follows —
"SENSE OF CONGRESS — It is the sense of Congress that —

(i) The use and experience of the technologies used within the STS Program are to be used for future exploration of the outer space.

(ii) The aforementioned technologies used to go into LEO must be aided with new technologies and upgraded technologies from the Apollo Program.

(iii) The United States must maintain the ability to be independent in space, from launch to recovery for its astronauts.

"

SECTION 202. ISS RETIREMENT

(a) AMENDMENT — Title V, Section 501, Point b of the NASA Authorization Act of 2010 is amended by striking "at least 2020" and inserting in lieu —
"at least 2025"

(b) AMENDMENT — Title V, Section 503, Point a of the NASA Authorization Act of 2010 is amended by striking "September 30, 2020" and inserting in lieu —
"December 31, 2025"

SECTION 203. ISS GATEWAY

(a) AMENDMENT — Title V, Section 502, Point b of the NASA Authorization Act of 2010 is amended by inserting Subpoint 4 below Subpoint 3 as follows —
"GATEWAYS — The ISS shall be used by the United States as a method of testing vehicles and technologies, as well as psychological, emotional, physical and mental effects on the human body, for deep space interplanetary missions."

SECTION 204. TECHNOLOGY TESTS

(a) AMENDMENT — Title VII, Section 706 of the NASA Authorization Act of 2010 is amended by appending the following —

"The use of CubeSats or similar technologies for development of minor technologies is encouraged. The use of the ISS as a launchpad via the Kibo module is encouraged in contrast to a secondary payload within a launch vehicle."

TITLE III — SPACE LAUNCH SYSTEM

SECTION 301. IMPROVING LANDERS

(a) ADDING DEADLINES — Title III, Section 4 (bis) of the NASA Authorization Act of 2020 is amended by renaming Point b Point c, and inserting Point b below Point a, as follows —

"It shall be the goal to achieve full operational capability for the transportation vehicle developed pursuant to this subsection by not later than December 31, 2023."

(b) ADDING REQUIREMENTS — Title III, Section 4 of the NASA Authorization Act of 2020 is amended by inserting Point d below Point c, as follows

"The lander developed pursuant to Points a and b of this Section shall be designed to have, at a minimum, the following —

(i) The capability to land on the lunar surface from a standard orbit around the moon.

(ii) The capability to ascend from the lunar surface and dock with an orbital module.

(iii) The capability to provide for a moonwalk.

(c) ADDING CONSTRUCTION REQUIREMENTS — Title III, Section 4, Point 2 of the NASA Authorization Act of 2020 is amended by inserting Subpoint C below Subpoint B, as follows —

"use existing contracts, investments, workforce, industrial base, and capabilities from the Space Shuttle and Orion and Ares 1 projects."

SECTION 302. AMENDING DEADLINES

(a) FOR SLS — Title III, Section 302, Point c, Subpoint 4 of the NASA Authorization Act of 2010 is amended by striking "December 31, 2016" and inserting in lieu —
"December 31, 2023"

(b) FOR ORION — Title III, Section 303, Point A, Subpoint 2 of the NASA Authorization Act of 2010 is amended by striking "December 31, 2016" and inserting in lieu —
"December 31, 2023"

SECTION 303. REMOVING ISS REQUIREMENTS

(a) FOR SLS — Title III, Section 302, Point c, Subpoint 1, Clause D of the NASA Authorization Act of 2010 is repealed.

(b) FOR ORION — Title III, Section 303, Point b, Subpoint 3 of the NASA Authorization Act of 2010 is repealed.

TITLE IV — JAMES WEBB TELESCOPE

SECTION 401. JWST DEFUNDING

(a) IN GENERAL — Funding for the JWST shall be decreased and a deadline given.

(b) DEADLINE — The JWST should aim to be finished by December 31, 2022.

(c) FUNDING — The monthly funding for the JWST shall be decreased by $10,500,000.

SECTION 402. JWST TERMINATION

(a) IN GENERAL — Funding for the JWST shall be terminated if the JWST is not finished by a certain deadline.

(b) TERMINATION — If the JWST is not ready for encapsulation by December 31, 2025, appropriations for 2027 shall have the appropriations for the JWST lowered to $50,000,000 per year.

(c) SUBSEQUENT APPROPRIATIONS — Subsequent appropriations for the JWST shall be maintained at $50,000,000 until the transfer of the JWST is complete.

(d) TRANSFER — The unfinished JWST shall be transferred to the European Space Agency, with the terms of the agreement to be considered in subsequent legislation. Appropriations appropriated after December 31, 2025 under the JWST program shall be used exclusively for maintenance of and transfer of the JWST.

TITLE V — SPACE DEBRIS

SECTION 501. SENSE OF CONGRESS

(a) SENSE OF CONGRESS — It is the Sense of Congress that —

(i) The velocity of space debris being sufficient to cause the destruction of a craft, manned or unmanned, poses a major problem to the safety of astronauts in space, and additionally a cause of concern for vehicles in Earth orbit.

(ii) A program should be made to test the ability to recover a craft from space to prevent damage.

(iii) A program should be made to test the efficacity of a system to automatically deorbit a craft at theend of its service life, or having some major critical failure intrinsically terminating mission goals and procedure.

SECTION 502. REPORT ON DEBRIS RECOVERY

(a) IN GENERAL — No later than July 1, 2021, the Administrator shall submit to Congress a report on debris-recovering missions.

(b) SPECIFICATIONS — The report shall concern the possibility of debris-recovering missions with the following to be included —

(i) Feasibility of sending a craft to recover medium or large debris in LEO.

(ii) Costs and Benefits of the recovery, and appropriations to be provided by Congress.

(iii) Possible Timeframe and liekliness that the Timeframe be adhered to.

(iv) Accuracy of the recovery.

(v) Risks of the recovery, especially regarding potential collisions and impacts, and failure of the mission.

(vi) Possible Contractors for construction and launch.

SECTION 503. DEORBIT TECHNOLOGIES

(a) IN GENERAL — It is the policy of the United States that NASA develop a system onboard spacecrafts in LEO and up to Geostationary Orbit to terminate the mission by a destructive re-entry to Point Nemo, to prevent debris in space.

(b) IMPLEMENTATION — NASA and the Administrator shall factor in the addition of a system to move vehicles to reenter over Point Nemo, or other safe location depending on the inclination and eccentricity of the orbit, via re-entry on any new vehicle commissioned after July 1, 2021.

(c) FORMS — The deorbit section of the vehicle shall take the form of —

(i) An onboard thruster, or cluster of, using monopropellant.

(ii) A deployable solar sail.

(iii) An ion engine and xenon ionised fuel combination.

(iv) Or any system that is deemed appropriate by the Administrator.

SECTION 504. APPROPRIATIONS

(a) IN GENERAL — Congress shall appropriate $10,500,000 monthly for the execution of the provisions established within Section 503.

TITLE VI — FINAL PROVISIONS

SECTION 601. RENAMING JPL ROAD C

(a) IN GENERAL — Road C at the Jet Propulsion Laboratory in Pasadena, California is renamed to the "Charles F. Bolden Road".

SECTION 602. ENACTMENT

(a) ENACTMENT — The provisions of this Act shall come into force on January 1st, 2021.