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Navy John Lewis (TAO-205) Class Oiler Shipbuilding Program: Background and Issues for Congress

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Summary

The Navy procured its first John Lewis (TAO-205) class oiler in FY2016, and a total of 10 have been procured through FY2024. The first six were procured under a block buy contract authorized by Section 127 of the FY2016 National Defense Authorization Act (NDAA) (S. 1356/P.L. 114-92 of November 25, 2015). TAO-205s are being built by General Dynamics/National Steel and Shipbuilding Company (GD/NASSCO) of San Diego, CA. The first TAO-205 was delivered to the Navy on July 26, 2022, and the second was delivered on July 11, 2023.

Current Navy plans call for procuring a total of 20 TAO-205s. The Navy's FY2025 budget submission programs the procurement of the next two TAO-205s (which would be the 11th and 12th ships in the class) for FY2026, and does not request any funding for FY2025 for the procurement of additional TAO-205s. The Navy's proposed FY2025 budget does request $227.2 million in cost-to-complete funding to cover cost growth on TAO-205s procured in prior fiscal years.

Section 128 of the FY2023 NDAA (H.R. 7776/P.L. 117-263 of December 23, 2022) provides authority for the Navy during FY2023 and FY2024 to use multiyear contracting to procure not more than eight TAO-205s. Using multiyear contracting in the form of a multiyear procurement (MYP) contract would require additional approval in a DOD appropriations act. Using multiyear contracting in the form of a block buy contract would not require additional approval in a DOD appropriations act—the authorization provided by Section 128 of the FY2023 NDAA would be sufficient for using a block buy contract.

Issues for Congress include the following:

- cost growth and schedule delays in the TAO-205 program;
- whether to procure in FY2025 no TAO-205 class ship (as programmed in the Navy's FY2025 budget submission), one TAO-205 class ship, or two TAO-205 class ships;
- whether to procure TAO-205s in FY2024 and subsequent years under MYP or block buy contract;
- issues regarding the TAO-205 program discussed in a June 2024 Government Accountability Office (GAO) report and a January 2024 Director of Operational Test and Evaluation (DOT&E) report; and
- whether to encourage or direct the Navy to build TAO-205s with more ship self-defense equipment than currently planned by the Navy.

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Introduction

This report provides background information and issues for Congress on the John Lewis (TAO-205) class oiler shipbuilding program, a program to build a new class of 20 fleet oilers for the Navy. The issue for Congress is whether to approve, reject, or modify the Navy's annual ship authorization and funding requests and acquisition strategy for the program. Congress's decisions on this issue could affect Navy capabilities and funding requirements and the U.S. shipbuilding industrial base.

Background

Navy Fleet Oilers

Role of Fleet Oilers

The primary role of Navy fleet oilers is to transfer fuel to Navy surface ships that are operating at sea, so as to extend the operating endurance of these surface ships and their embarked aircraft. Fleet oilers also provide other surface ships with lubricants, fresh water, and small amounts of dry cargo. Fleet oilers transfer fuel and other supplies to other surface ships in operations called underway replenishments (UNREPs). During an UNREP, an oiler steams next to the receiving ship and transfers fuel by hose (see **Figure 1**, **Figure 2**, and **Figure 3**).[1]

Oilers are one kind of Navy UNREP ship; other Navy UNREP ships include ammunition ships, dry cargo ships, and multiproduct replenishment ships. The Navy's UNREP ships are known more formally as the Navy's combat logistics force (CLF). Most of the Navy's CLF ships are operated by the Military Sealift Command (MSC).

Although the role of fleet oilers might not be considered as glamorous as that of other Navy ships, fleet oilers are critical to the Navy's ability to operate in forward-deployed areas around the world on a sustained basis. The U.S. Navy's ability to perform UNREP operations in a safe and efficient manner on a routine basis is a skill that many other navies lack. An absence of fleet oilers would significantly complicate the Navy's ability to operate at sea on a sustained basis in areas such as the Western Pacific or the Indian Ocean/Persian Gulf region. The Navy states that

> the ability to rearm, refuel and re-provision our ships at sea, independent of any restrictions placed on it by a foreign country, is critical to the Navy's ability to project warfighting power from the sea.

[1] The Navy states that

> A typical connected replenishment starts when a warship makes an "approach" on a CLF ship. The CLF ship maintains steady course and speed while the "customer ship" approaches and comes alongside the CLF ship, matching course and speed. The distance between the two ships is usually between 120-200 feet. The CLF ship then passes heavy metal wires, to the customer ship, that are connected at the replenishment stations. These wires are placed under tension to support fuel hoses for refueling operations or trolleys that move pallets of provisions, ammunition, or other cargo from ship to ship. Ships with flight decks can also receive provisions and ammunition via vertical replenishment. During this evolution a helicopter transfers cargo in external sling loads, or in the case of mail or passengers, inside the helicopter.
>
> (Statement of Mr. F. Scott DiLisio, Director, Strategic Mobility / Combat Logistics Division, Office of the Chief of Naval Operations, on the Logistics and Sealift Force Requirements and Force Structure Assessment Before the House Armed Services Committee Seapower and Projection Forces Subcommittee, July 30, 2014, p. 3.)

As the lifeline of resupply to Navy operating forces underway, the ships of the Navy's Combat Logistic Force (CLF) enable Carrier Strike Groups and Amphibious Ready Groups to operate forward and remain on station during peacetime and war, with minimal reliance on host nation support.[2]

Figure 1. Fleet Oiler Conducting an UNREP

Source: Navy photo accessed May 5, 2014, at http://www.navy.mil/view_image.asp?id=163895. The Navy states that the photo is dated October 24, 2013, and shows the oiler *Tippecanoe* (TAO-199) extending its fuel probe to the Aegis cruiser USS *Antietam* (CG-54), a part of the *George Washington* (CVN-73) Carrier Strike Group, in the South China Sea.

TAO Designation

Navy fleet oilers carry the designation TAO (also typed as T-AO). The T means the ship is operated by MSC with a mostly civilian crew; the A means it is an auxiliary ship of some kind; and the O means that it is, specifically, an oiler.

Existing Kaiser (TAO-187) Class Oilers

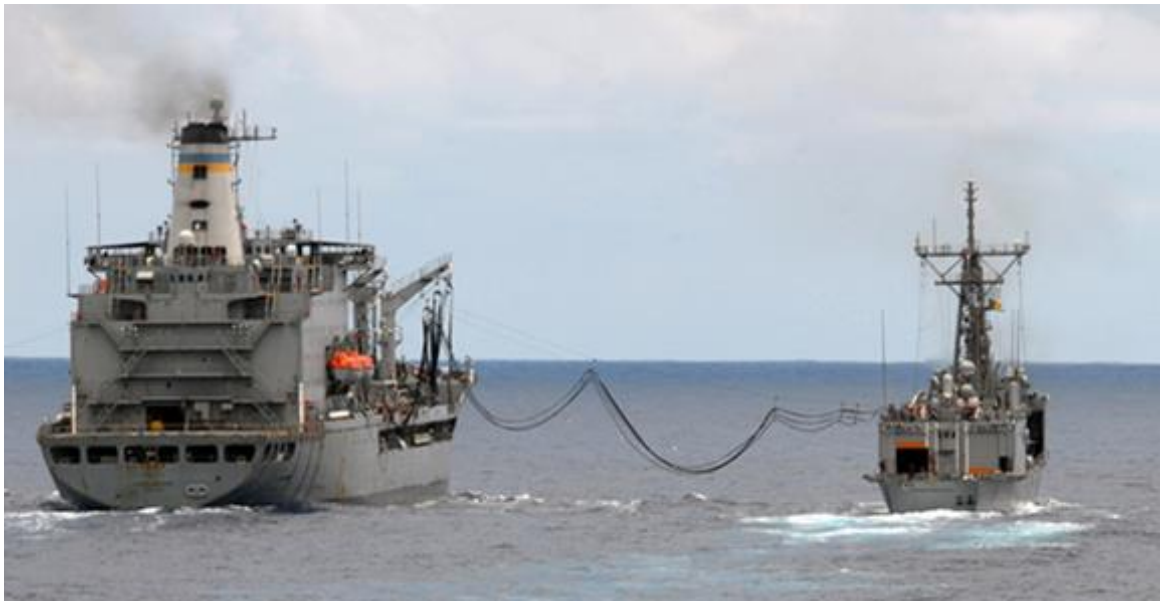
The Navy's older fleet oilers—the ships that are to be replaced by TAO-205s—are Henry J. Kaiser (TAO-187) class ships (**Figure 4**), or Kaiser-class oilers for short.[3] The Kaiser-class oilers were procured between FY1982 and FY1989 and entered service between 1986 and 1996. The ships are about 677 feet long and have a full load displacement of about 41,000 tons, including about 26,500 tons of fuel and other cargo. The ships were built by Avondale Shipyards of New

[2] Statement of Mr. F. Scott DiLisio, Director, Strategic Mobility / Combat Logistics Division, Office of the Chief of Naval Operations, on the Logistics and Sealift Force Requirements and Force Structure Assessment Before the House Armed Services Committee Seapower and Projection Forces Subcommittee, July 30, 2014, pp. 2-3.

[3] The oilers shown in **Figure 1**, **Figure 2**, and **Figure 3** are also Kaiser-class class oilers.

Orleans, LA, a shipyard that eventually became part of the shipbuilding firm Huntington Ingalls Industries (HII). HII subsequently wound down Navy shipbuilding operations at Avondale, and the facility no longer builds ships. (HII continues to operate two other shipyards that build Navy ships.) Kaiser-class oilers have an expected service life of 35 years; the first ship in the class reached that age in 2021. Fourteen Kaiser-class oilers remained in service as of the end of FY2023, and the Navy's FY2025 30-year (FY2025-FY2054) shipbuilding plan calls for retiring seven of them during the period FY2025-FY2029.

Figure 2. Fleet Oiler Conducting an UNREP



Source: Cropped version of Navy photo accessed May 5, 2014, at http://www.navy.mil/view_image.asp?id=61415. The Navy states that the photo is dated July 13, 2008, and shows the oiler *Leroy Grumman* (TAO-195) refueling the frigate *Underwood* (FFG-36) during an exercise with the *Iwo Jima* (LHD-7) Expeditionary Strike Group in the Atlantic Ocean.

Figure 3. Fleet Oiler Conducting an UNREP

Source: Cropped version of Navy photo accessed May 5, 2014, at http://www.navy.mil/view_image.asp?id=1737. The Navy states that the photo is dated June 19, 2002, and shows the oiler *Walter S. Diehl* (TAO-193), at center,

conducting simultaneous UNREPs with the aircraft carrier *John F. Kennedy* (CV-67) and the Aegis destroyer *Hopper* (DDG-70). CV-67, a conventionally powered carrier, has since retired from the Navy, and all of the Navy's aircraft carriers today are nuclear powered. Even so, Navy oilers continue to conduct UNREPs with Navy aircraft carriers to provide fuel for the carriers' embarked air wings.

Figure 4. Kaiser (TAO-187) Class Fleet Oiler

Source: Cropped version of U.S. Navy image accessed April 14, 2014, at http://www.navy.mil/management/photodb/photos/130703-N-TG831-240.jpg. (The oilers shown in **Figure 1**, **Figure 2**, and **Figure 3** are also Kaiser-class class oilers.)

TAO-205 Program

Program Name

TAO-205 is the Navy's next oiler after TAO-204, which is the final Kaiser-class oiler. On January 6, 2016, then-Secretary of the Navy Ray Mabus announced that the TAO-205 class ships will be named for "people who fought for civil rights and human rights,"[4] and that the first ship in the class, TAO-205, which was procured in FY2016, was being be named for Representative John Lewis,[5] making TAO-205 one of a small number of Navy ships that have been named for people who were living at the time that the naming announcement was made.[6] TAO-205 class ships consequently are now known as John Lewis-class oilers.

[4] Valerie Insinna, "Navy to Name Next Generation Oilers for Civil Rights Icons," *Defense Daily*, January 7, 2016. For more on the names of TAO-205 class ships, see CRS Report RS22478, *Navy Ship Names: Background for Congress*, by Ronald O'Rourke.

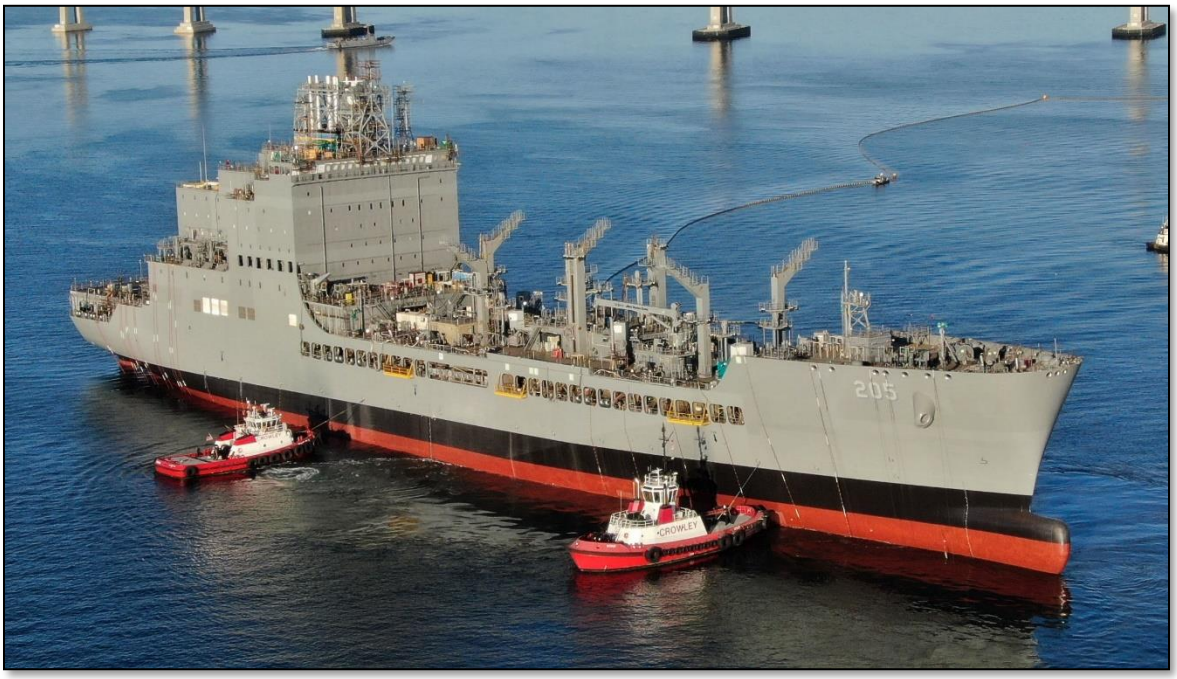
[5] "Secretary of the Navy Ray Mabus Names Fleet Replenishment Oiler," *Navy News Service*, January 6, 2016; Sam LaGrone, "SECNAV Mabus Names First TAO(X) Next Generation Oiler After Rep. John Lewis," *USNI News*, January 6, 2016; "Navy to Name New Oiler after Civil Rights Icon," *Military.com*, January 6, 2020; Valerie Insinna, "Navy to Name Next Generation Oilers for Civil Rights Icons," *Defense Daily*, January 7, 2016.

[6] Representative Lewis died on July 17, 2020. For more on Navy ships named for people who were living at the time that the naming announcement was made, see CRS Report RS22478, *Navy Ship Names: Background for Congress*, by Ronald O'Rourke.

Ship Design and Capabilities

The TAO-205 class design (**Figure 5** and **Figure 6**) will have capabilities similar to those of the Kaiser-class ships, and will rely on existing technologies rather than new technologies. To guard against oil spills, TAO-205s are to be double-hulled, like modern commercial oil tankers, with a space between the two hulls to protect the inner hull against events that puncture the outer hull. (The final Kaiser-class ships are double-hulled, but earlier ships in the class are single-hulled.)

Figure 5. *John Lewis* (TAO-205)



Source: Cropped version of photograph accompanying National Steel and Shipbuilding Company, "General Dynamics NASSCO Launches First Ship in the T-AO Fleet Oiler Program for the U.S. Navy," January 13, 2021.

Note: Launching is when a ship that is under construction is put into the water for the final phases of its construction.

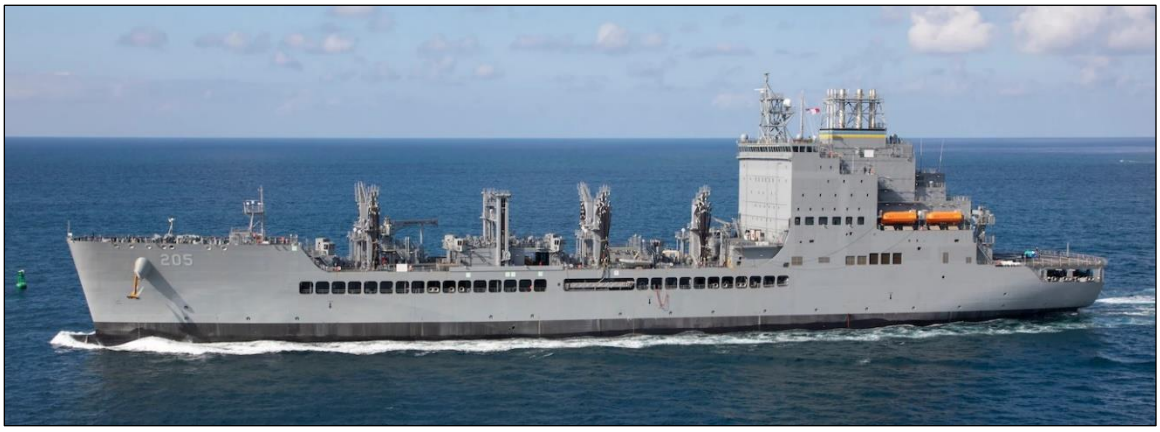
Planned Total Procurement Quantity

Planned Total Procurement Quantity of 20

The required number of oilers largely depends on the numbers and types of other surface ships (and their embarked aircraft) to be refueled, and the projected operational patterns for these ships and aircraft. Navy plans call for procuring a total of 20 TAO-205s, and for supplementing these 20 ships with 13 additional light replenishment oilers (TAOLs) that would be smaller and individually less expensive than TAO-205s. The Navy wants to procure the first TAOL in FY2027. Another CRS report discusses the TAOL program in more detail.[7]

[7] See CRS In Focus IF11674, *Navy Light Replenishment Oiler (TAOL) Program: Background and Issues for Congress*, by Ronald O'Rourke.

Figure 6. *John Lewis* (TAO-205)



Source: Cropped version of photograph accompanying Team Ships Public Affairs, "USNS John Lewis Conducts Builder's Trials," Naval Sea Systems Command, February 7, 2022.

Annual Procurement Quantities

The Navy procured the first TAO-205 in FY2016, and a total of 10 have been procured through FY2024 in annual procurement quantities for the period FY2016-FY2024 of 1-0-1-2-2-0-2-1-1. The Navy's five-year (FY2025-FY2029) shipbuilding plan programs the procurement of six more TAO-205s in FY2025-FY2029, in annual quantities of 0-2-1-2-1.

Unit Procurement Cost

Under the Navy's FY2025 budget submission, the TAO-205s to be procured in the five-year period FY2025-FY2029 have estimated unit procurement costs of more than $800 million each.

Builder

TAO-205s are being built by General Dynamics/National Steel and Shipbuilding Company (GD/NASSCO) of San Diego, CA, a shipyard that builds Navy auxiliaries, DOD sealift ships, and commercial cargo ships. The first TAO-205 was delivered to the Navy on July 26, 2022, and the second was delivered on July 11, 2023.

Block Buy Contract for First Six Ships

The first six TAO-205s were procured under a block buy contract that was authorized by Section 127 of the FY2016 National Defense Authorization Act NDAA) (S. 1356/P.L. 114-92 of November 25, 2015). It was earlier estimated that the block buy contract would reduce the procurement cost of the second through sixth TAO-205s by an average of about $45 million each, compared to costs under the standard or default DOD approach of annual contracting.[8] The Navy

[8] The Senate Armed Services Committee, in its report (S.Rept. 114-49 of May 19, 2015) on the FY2016 National Defense Authorization Act (S. 1376), stated

> **Fleet replenishment oiler program (sec. 118)**
>
> The committee recommends a provision [Section 118] that would grant the Secretary of the Navy contracting authority to procure up to six fleet replenishment oilers (T–AO(X)). This new ship class is a nondevelopmental recapitalization program based on existing commercial technology and standards. The ship design is considered to be low risk by the Navy, with the design scheduled to

(continued...)

states that about $35 million of the $45 million in per-ship savings will come from using advance procurement (AP) funding for batch-ordering TAO-205 components. The Navy states that this use of AP funding could have occurred under annual contracting, and that the savings that are intrinsic to the block buy contract are thus about $10 million per ship.[9]

Authority for Using Multiyear Contracting in FY2023 and FY2024

Section 128 of the FY2023 NDAA (H.R. 7776/P.L. 117-263 of December 23, 2022) provides authority for the Navy during FY2023 and FY2024 to use multiyear contracting to procure not more than eight TAO-205s. Using multiyear contracting in the form of a multiyear procurement (MYP) contract would require additional approval in a DOD appropriations act. Using multiyear contracting in the form of a block buy contract would not require additional approval in a DOD appropriations act—the authorization provided by Section 128 of the FY2023 NDAA would be sufficient for using a block buy contract.[10]

Legislation Regarding U.S. Content Requirement for Certain Components

Section 845 of the FY2021 National Defense Authorization Act (H.R. 6395/P.L. 116-283 of January 1, 2021) states (emphasis added)

> SEC. 845. MISCELLANEOUS LIMITATIONS ON THE PROCUREMENT OF GOODS OTHER THAN UNITED STATES GOODS.
>
> (a) IN GENERAL.—Section 2534 of title 10, United States Code, is amended—
>
> (1) in subsection (a)—
>
> (A) by striking paragraphs (2) through (5) and redesignating paragraph (6) as paragraph (3);
>
> (B) by inserting after paragraph (1) the following new paragraph:
>
> ‘‘(2) COMPONENTS FOR NAVAL VESSELS.—The following components of vessels, to the extent they are unique to marine applications:

> be complete prior to the start of construction on the lead ship. This provision would generate an estimated $45.0 million in savings per ship compared to annual procurement cost estimates. In addition, the provision would provide a long-term commitment to the shipbuilder and vendors, which would enable workforce stability and planning efficiency. (Pages 11-12)

The committee print that includes the legislative text and joint explanatory statement for the enacted FY2016 National Defense Authorization Act (S. 1356/P.L. 114-92 of November 25, 2015) stated

> *Fleet replenishment oiler program (sec. 127)*
>
> The Senate amendment contained a provision (sec. 118) that would grant the Secretary of the Navy contracting authority to procure up to six fleet replenishment oilers (T–AO (X)). This new ship class is a non-developmental recapitalization program based on existing commercial technology and standards. The ship design is considered to be low risk by the Navy, with the design scheduled to be complete prior to the start of construction on the lead ship. This provision would enable an estimated $45.0 million in savings per ship, for ships 2–6, for a total of $225.0 million in savings compared to current annual procurement cost estimates.
>
> (114th Congress, 1st Session, Committee Print No. 2, *National Defense Authorization Act for Fiscal Year 2016, Legislative Text and Joint Explanatory Statement to accompany* S. 1356, P.L. 114-92, *November 2015*, Printed for the use of the Committee on Armed Services of the House of Representatives, p. 608).

[9] Source: Navy briefing on TAO-205 program for CRS and CBO, April 12, 2019.

[10] For more on MYP and block buy contracting, see CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke.

‘‘(A) Gyrocompasses.

‘‘(B) Electronic navigation chart systems.

‘‘(C) Steering controls.

‘‘(D) Propulsion and machinery control systems.

‘‘(E) Totally enclosed lifeboats.’’;

(C) in paragraph (3), as so redesignated, by striking ‘‘subsection (k)’’ and inserting ‘‘subsection (j)’’; and

(D) by adding at the end the following new paragraph:

‘‘(4) COMPONENTS FOR T–AO 205 CLASS VESSELS.—The following components of T–AO 205 class vessels:

‘‘(A) Auxiliary equipment, including pumps, for all shipboard services.

‘‘(B) Propulsion system components, including engines, reduction gears, and propellers.

‘‘(C) Shipboard cranes.

‘‘(D) Spreaders for shipboard cranes.’’;

(2) by amending subsection (b) to read as follows:

‘‘(b) MANUFACTURER IN THE NATIONAL TECHNOLOGY AND INDUSTRIAL BASE.—A manufacturer meets the requirements of this subsection if the manufacturer is part of the national technology and industrial base.’’;

(3) in subsection (c)—

(A) by striking ‘‘ITEMS.—’’ and all that follows through ‘‘Subsection (a) does not apply’’ and inserting ‘‘ITEMS.—Subsection (a) does not apply’’; and

(B) by striking paragraphs (2) though (5);

(4) in subsection (g)—

(A) by striking ‘‘(1) This section’’ and inserting ‘‘This section’’; and

(B) by striking paragraph (2);

(5) in subsection (h), by striking ‘‘subsection (a)(3)(B)’’ and inserting ‘‘subsection (a)(2)’’;

(6) in subsection (i)(3), by striking ‘‘Under Secretary of Defense for Acquisition, Technology, and Logistics’’ and inserting ‘‘Under Secretary of Defense for Acquisition and Sustainment’’;

(7) by striking subsection (j);

(8) by redesignating the first subsection designated subsection (k) (relating to ‘‘Limitation on Certain Procurements Application Process’’) as subsection (j); and

(9) in subsection (k) (relating to ‘‘Implementation of Auxiliary Ship Component Limitation’’), by striking ‘‘Subsection (a)(6)’’ and inserting ‘‘Subsection (a)(3)’’.

(b) REVIEW OF SELECT COMPONENTS.—The Secretary of the Defense shall expedite the review period under paragraph (3)(B) of section 2534(j) of title 10, United States Code, as redesignated by subsection (a), to not more than 60 days for applications submitted pursuant to such section 2534(j) for the following components for auxiliary ships:

(1) Auxiliary equipment, including pumps, for all shipboard services.

(2) Propulsion system components, including engines, reduction gears, and propellers.

(3) Shipboard cranes.

(4) Spreaders for shipboard cranes.

Section 8100(a) of the FY2023 DOD Appropriations Act (Division C of H.R. 2617/P.L. 117-2328 of December 29, 2022) states

> SEC. 8100. (a) None of the funds provided in this Act for the TAO Fleet Oiler program shall be used to award a new contract that provides for the acquisition of the following components unless those components are manufactured in the United States: Auxiliary equipment (including pumps) for shipboard services; propulsion equipment (including engines, reduction gears, and propellers); shipboard cranes; spreaders for shipboard cranes; and anchor chains, specifically for the seventh and subsequent ships of the fleet.

FY2025 Funding

The Navy's FY2025 budget submission programs the procurement of the next two TAO-205s (which would be the 11th and 12th ships in the class) for FY2026 and does not request any funding for FY2025 for the procurement of additional TAO-205s. The Navy's proposed FY2025 budget does request $227.2 million in cost-to-complete funding to cover cost growth on TAO-205s procured in prior fiscal years.

Issues for Congress

Cost Growth and Schedule Delays

One issue for Congress concerns cost growth and schedule delays in the TAO-205 program. Regarding cost growth, in the Navy's FY2021 budget submission, the four TAO-205s programmed for procurement during the five-year period FY2021-FY2025 had an average estimated procurement cost of $556.9 million per ship, while in the Navy's FY2025 budget submission, the six TAO-205s programmed for procurement during the five-year period FY2025-FY2029 have an average estimated procurement cost of $859.6 million pe ship, a figure that is about 54% greater.

Cost growth in the TAO-205 program has required the Navy to request cost-to-complete funding to cover cost growth on TAO-205s procured in prior years. The TAO-205 program has received a total of $396.7 million in cost-to-complete funding through FY2024. The Navy's proposed FY2025 budget, as noted earlier, requests an additional $227.2 million in cost-to-complete funding, and the Navy's FY2025 budget submission projects that an additional $21.0 million and $2.3 million will be requested for FY2026 and FY2027, respectively. The sum of all these figures is $647.2 million, which equates to roughly three quarters of the above-cited average unit procurement cost of $859.6 million for the six TAO-205s programmed for procurement in FY2025-FY2029.

Regarding schedule delays, under the Navy's budget submission for FY2016 (the year that the first TAO-205 was procured), the first TAO-205 was scheduled for delivery in August 2020. As noted earlier, the ship was delivered on July 26, 2022, almost two years after the originally scheduled delivery date. The delivery dates for subsequent ships in the program have also been delayed.

One cause of the cost growth and schedule delays in the TAO-205 program is an incident in July 2018 that flooded a graving dock (i.e., dry dock) at the TAO-205 shipbuilder, GD/NASSCO.[11] Other causes of cost growth include cybersecurity change orders that were not provided in the original shipbuilding construction contract award and cost growth in government-furnished equipment (GFE) for the ship.[12]

The Navy stated in July 2021 that the delivery date for TAO-205 has been delayed from June 2021 to March 2022 due to the graving dock incident, late delivery of outfitting materials, and a need to repair or carry out rework on other parts of the ship, and that the delivery dates of the second through sixth ships in the class had been delayed by 12 to 15 months due to the graving dock incident, late delivery of materials, throughput delays caused by delays in building the first ship, and impacts from the COVID-19 situation.[13]

The Navy's FY2024 budget submission stated

> Delay in delivering T-AO 205 to July 2022, combined with delays on other Navy work at NASSCO and continued COVID driven labor shortages that resulted in yard wide manpower shifts, resulted in a seven month delay for T-AO 206 delivery.... Delay in delivering T-AO 205 to July 2022, combined with delays on other Navy work at NASSCO and continued COVID driven labor shortages that resulted in yard wide manpower shifts, resulted in a four month delay for T-AO 207 delivery.... The twelve month T-AO 208 delivery delay is due to a delay caused by the late receipt of the Main Reduction Gear (MRG).... T-AO 209 through T-AO 217 have seven to twenty month delivery delays resulting from TAO 205 through T-AO 208 delays and delays in production timelines reflecting actual shipyard performance.... The production timelines, delivery dates, and Completion of Fitting Out dates for ships awarded in FY 2022 and later assume material costs, supply chain availability, and production timelines that reflect the pre-COVID 19 market place with adjustments for inflation.[14]

For additional discussion of cost growth and schedule delays in the TAO-205 program, see the section below on issues for the TAO-205 program that are discussed in a June 2024 Government Accountability Office (GAO) report assessing major DOD acquisition programs.

Potential oversight questions for Congress include the following:

- What is the likelihood that estimated unit procurement costs for TAO-205s will continue to increase above the figures in the Navy's FY2025 budget submission? What factors will affect whether the program continues to experience growth in estimated unit procurement costs?
- What impact, if any, has cost growth in the TAO-205 program had on the Navy's ability to fund other Navy program priorities?

[11] For press reports about the graving dock incident and its impacts on work being done at GD/NASSCO, see, for example, Megan Eckstein, "NASSCO Drydock Floods, Damaging Under-Construction Expeditionary Sea Base," *USNI News*, July 13, 2018; David Larter, "Partial Dry-Dock Collapse Floods US Navy Ship Under Construction," *Defense News*, July 13, 2018; Tyler Rogoway, "Dry Dock Collapse In San Diego Floods Expeditionary Sea Base Under Construction," *The Drive*, July 13, 2018; Maritime Executive, "Graving Dock Failure at NASSCO Leads to Layoffs," *Maritime Executive*, August 14, 2018; Ben Werner, "Navy: Dry Dock Accident Will Set Back Miguel Keith Construction At Least 6 Months," *USNI News*, October 18, 2018.

[12] Source: Navy FY2022 program briefing on TAO-205 program for CRS and Congressional Budget Office (CBO), July 19, 2021.

[13] Source: Navy FY2022 program briefing on TAO-205 program for CRS and Congressional Budget Office (CBO), July 19, 2021.

[14] *Department of Defense, Fiscal Year (FY) 2024 Budget Estimates, Justification Book Volume 1 of 1, Shipbuilding and Conversion, Navy*, March 2023, p. 349.

- How, if at all, does the 54% increase in estimated unit procurement costs for TAO-205s since the Navy's FY2021 budget submission affect the cost-effectiveness of the TAO-205 program relative to other Navy investments?

Number of TAO-205s to Procure in FY2025

Another issue for Congress is whether to procure in FY2025 no TAO-205 class ship (as programmed in the Navy's FY2025 budget submission), one TAO-205 class ship, or two TAO-205 class ships. In assessing this issue, Congress may consider various factors, including the following:

- the expected service lives and scheduled retirement dates of the existing TAO-187 class oilers;
- construction times for new TAO-205s;
- shipyard workloads and employment levels at GD/NASSCO;
- the amount of funding that would be needed to procure one or two TAO-205s in FY2025; and
- competing Navy or other DOD uses for such funding.

As noted earlier, from FY2016 through FY2024, annual TAO-205 procurement quantities have been as follows: 1-0-1-2-2-0-2-1-1.

Multiyear Procurement (MYP) or Block Buy Contracting

Another issue for Congress is whether to procure TAO-205s in FY2024 and subsequent years under a multiyear procurement (MYP) or block buy contract. MYP and block buy contracting are two types of multiyear contracting. As discussed in the CRS report on MYP and block buy contracting, using MYP or block buy contracting can reduce the combined procurement cost of the ships being procured, but can also reduce Navy and congressional flexibility for responding to changes in strategic or budgetary circumstances that might affect Navy shipbuilding plans.[15]

As noted earlier, Section 128 of the FY2023 NDAA (H.R. 7776/P.L. 117-263 of December 23, 2022) provides authority for the Navy during FY2023 and FY2024 to use multiyear contracting to procure not more than eight TAO-205s. Using multiyear contracting in the form of an MYP contract would require additional approval in a DOD appropriations act. Using multiyear contracting in the form of a block buy contract would not require additional approval in a DOD appropriations act—the authorization provided by Section 128 of the FY2023 NDAA would be sufficient for using a block buy contract.

At an April 26, 2022, hearing on Navy and Marine Corps investment programs before the Seapower subcommittee of the Senate Armed Services Committee, the Department of the Navy witnesses were asked about the savings that might be realized by using Economic Order Quantity (EOQ) purchasing (a feature of MYP contracting and some block buy contracts) for procuring TAO-205s to be procured in FY2023 and subsequent years. A Navy official replied that the Navy had estimated a 7% savings for using a block buy contract to procure a certain group of four amphibious ships (three LPD-17 Flight II class amphibious ships and one LHA-type amphibious

[15] See CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke.

assault ship),[16] and that the percentage savings for a group of TAO-205s could be higher, since the ships to be procured in this case would all be of the same class, which would maximize the potential for achieving savings through batch-ordering of common components.[17]

Issues Discussed in June 2024 GAO Report and January 2024 DOT&E Report

June 2024 GAO Report

A June 2024 GAO report—the 2024 edition of an annual GAO report assessing major DOD acquisition programs—stated the following about the TAO-205 program:

> **Technology Maturity, Design Stability, and Production Readiness**
>
> Since our last assessment, T-AO experienced construction and testing delays to its schedule that was rebaselined in October 2022. According to the program, T-AO 205 to T-AO 207 delivery delays required the Navy to extend the service life of two of the legacy vessels that T-AO was intended to replace. However, in March 2024, the program noted that production milestones have begun to stabilize and the program is tracking to delivery dates rebaselined in October 2022 for T-AO 208 and the following ships.
>
> The Navy accepted delivery of the lead ship in July 2022 according to the rebaselined schedule. However, the second ship was not delivered until July 2023—about 2 months beyond its rebaselined schedule. The program office attributed the delays to slower-than-projected testing progress due to other shipyard work, lack of materiel readiness that delayed ship trials and, for the second ship, ripple effects from the lead ship delivery delay.
>
> Similarly, the program expects the shipbuilder to deliver the next ship in the class, T-AO 207—currently under construction—at least 5 months later than planned in the rebaselined schedule. Per the program, the shipbuilder attributed this delay to continued labor issues and a failure of robotic steel cutting and welding equipment.
>
> The program also completed some testing but encountered delays to its overall test plan. For example, some survivability events were delayed by at least 1 year due to ship availability for testing. The program has test events planned in fiscal year 2024, including finalizing the initial operational test and evaluation report and the final survivability assessment.
>
> **Cybersecurity**
>
> In June 2023, the program completed two cybersecurity assessments—an adversarial assessment and a cooperative vulnerability and penetration assessment.
>
> **Other Program Issues**
>
> We previously reported that delivery of the main reduction gear for the fourth ship—T-AO 208—was delayed for 12 months. Program officials stated that they implemented a mitigation plan, and that the gear—a critical propulsion component comprised of gears that harness the power generated by the engines to move the shaft and propeller—has since been delivered. The delay had a ripple effect on future hulls, which was accounted for in

[16] For additional discussion of the authority that Congress granted for using such a contract, see CRS Report R43543, *Navy LPD-17 Flight II and LHA Amphibious Ship Programs: Background and Issues for Congress*, by Ronald O'Rourke.

[17] Source: Spoken testimony at the hearing of Frederick J. Stefany, Principal Civilian Deputy, Assistant Secretary of the Navy (Research, Development and Acquisition), Performing the Duties of the Assistant Secretary of the Navy (Research, Development and Acquisition).

the October 2022 revised schedule. Program officials stated that they have not seen delays beyond the revised schedule.

The program office estimates that the first six vessels will exceed their original contract ceiling price, including T-AO 207, which is scheduled for delivery in May 2024. As a result, the Navy requested an additional $42 million in its fiscal year 2024 budget request to complete construction of T-AO 208 through T-AO 212. The program also continues to implement cost reduction measures. For example, it plans to transition to a commercial diesel generator for future ships, in line with our leading practice for ship design to incorporate proven design elements when possible. This action is expected to reduce costs on T-AO 211 through T-AO 213 by an additional $2 million to $4 million per hull. However, based on the program manager's projections, material costs are likely to continue increasing into 2026.

Program officials are considering options for contracting for the ninth ship. The current shipbuilder submitted preliminary pricing, which demonstrated potential significant savings. However, the program has not ruled out competing the contract for the next ship, and is evaluating the benefits of continuing production with the experienced shipbuilder compared to holding a competition. The program plans to award a contract in March 2024.

Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. It stated that the T-AO class is on its way to the fleet with T-AO 206 delivery in July 2023 and no change over the last 22 months in delivery dates for T-AO 208 to T-AO 213.

The program office also stated that the Navy continues to work with the shipbuilder to identify problems earlier in the production cycle to avoid delays during test and trials. It stated that the lead ship, T-AO 205, successfully demonstrated its capability to conduct underway replenishment of ships at sea, is currently finishing post-delivery efforts to address remaining ship deficiencies, and is estimated to finish initial operational test and evaluation by July 2024.

According to the program, it continues to use shipbuilding best practices along with leveraging commercial vessel design practices to minimize risks, reduce ship costs, and drive affordability into the design. The program also stated that, beyond the cost reductions that have been identified to date, the Navy and the shipbuilder continue to seek out opportunities to reduce costs while balancing life-cycle costs and fleet requirements. According to the program, cost performance is stabilizing with the leveling of inflation, serial production, and learning.[18]

January 2024 DOT&E Report

A January 2024 report from DOD's Director, Operational Test and Evaluation (DOT&E)—DOT&E's annual report for FY2023—stated the following about the TAO-205 program:

TEST ADEQUACY

The Navy commenced IOT&E [Initial Operational Test and Evaluation] in 3QFY23 [the third quarter of FY2023] aboard USNS John Lewis (T-AO 205) during its post-delivery test and trials period. Testing was in accordance with DOT&E-approved test plans but was incomplete due to unavailability of all ship types that the T-AO 205 is designed to replenish and reduced crew manning. The Navy demonstrated 8 of 23 replenishment events in the operational test design and repeated several of these events for seven supplemental events.

[18] Government Accountability Office, *Weapon Systems Annual Assessment[:] DOD Is Not Yet Well-Positioned to Field Systems with Speed*, GAO-24-106831, June 2024, p. 150.

The Navy has yet to demonstrate replenishment of amphibious-class ships including LHDs, LHAs, LPDs, and LSDs.

Tests focused on the delivery of fuel and cargo, as well as communications, damage control, mobility, replenishment, self-defense, and system reliability. The Navy has yet to demonstrate simultaneous operation of five connected replenishment stations and conduct operationally relevant vertical replenishment of dry cargo onboard the T-AO 205 class.

The Navy evaluated cyber survivability of T-AO 205 in 3QFY23. Testing to assess T-AO 205's cyber survivability posture and the crew's ability to conduct their mission in a cyber-contested environment was conducted in accordance with the DOT&E-approved test plan and observed by DOT&E.

The Navy completed acoustic trials in January 2023 and underwater electromagnetic trials in March 2023 on USNS John Lewis as part of developmental testing. Data from this testing will be leveraged to support LFT&E [Live Fire Test and Evaluation] assessment of the likelihood that the class will set off naval mines as well as determining safe passage depths for unswept routes.

As part of LFT&E assessment of the class, the Navy completed Total Ship Survivability Trials (TSST) in July 2023 aboard USNS John Lewis. The TSST simulated three different weapon hits against USNS John Lewis to exercise the ship's damage control and recoverability capabilities to combat primary and secondary damage.

The results from TSST will be used to assess ship recoverability and update modeling and simulation (M&S) to reflect observed functionality of T-AO 205 systems. Completion of the LFT&E survivability assessment of the class requires the Navy to complete verification, validation, and accreditation (VV&A) of the survivability M&S, including the Advanced Survivability Assessment Program (ASAP).

PERFORMANCE

EFFECTIVENESS

Insufficient data are available to determine operational effectiveness of T-AO 205 due to testing being incomplete. To date, the T-AO 205 has demonstrated the ability to deliver fuel and cargo to several ship classes including the CVN 68 class, DDG 51 class, CG 47 class, DDG 1000 class, and LCS 2 class and also demonstrated the ability to deliver and receive fuel from another combat logistics ship during consolidation operations. Ship propulsion, damage control, communications, and auxiliary systems supported all observed operations.

SUITABILITY

Insufficient data are available to determine operational suitability of T-AO 205 due to testing being incomplete. However, USNS John Lewis could not support scheduled test events on five occasions due to equipment failures.

SURVIVABILITY

DOT&E is conducting analysis of the cyber survivability data collected on T-AO 205 and will provide a classified report in FY24.

Because the Navy has yet to complete LFT&E analyses, survivability assessment of T-AO 205 is not yet possible. DOT&E expects sufficient data to be collected by 2QFY24, but the Navy must complete VV&A of survivability M&S to support assessment. The T-AO 205 TSST identified findings previously not determined through survivability M&S. The Navy expects to deliver a TSST report and a Final Survivability Assessment Report in FY24.

RECOMMENDATIONS

The Navy should

1. Complete the remaining IOT&E events to include simultaneous vertical and underway replenishment and simultaneous operation of five connected replenishment stations.

2. Complete the VV&A of the survivability M&S to support the Final Survivability Assessment Report.

3. Evaluate and correct causes of system reliability failures on T-AO 205 ships.

4. Complete the T-AO 205 TSST Report and Final Survivability Assessment Report.[19]

TAO-205 Ship Self-Defense Equipment

Another issue for Congress is whether to encourage or direct the Navy to build TAO-205s with more ship self-defense equipment than currently planned by the Navy. The issue relates to how changes in the international security environment might affect how the Navy operates and equips its underway replenishment ships. For additional background information on this issue, see **Appendix A**.

Legislative Activity for FY2025

Summary of Congressional Action on FY2025 Funding

Table 1 summarizes congressional action on the Navy's request for FY2025 procurement, advance procurement (AP), and cost-to-complete funding for the TAO-205 program.

Table 1. Congressional Action on FY2025 Funding for TAO-205s

Millions of dollars, rounded to nearest tenth

		Authorization			Appropriation		
	Request	HASC	SASC	Enacted	HAC	SAC	Enacted
Procurement	0	0	0				
(Quantity)	*(0)*	*(0)*	*(0)*				
Advance procurement (AP)	0	0	334.5				
Cost-to-complete	227.2	227.2	227.2				

Source: Navy FY2025 budget submission, committee and conference reports, and explanatory statements on FY2025 National Defense Authorization Act and FY2025 DOD Appropriations Act.

Notes: HASC is House Armed Services Committee; **SASC** is Senate Armed Services Committee; **HAC** is House Appropriations Committee; **SAC** is Senate Appropriations Committee. Cost-to-complete funding, also known as completion of PY (prior-year) shipbuilding programs, is funding for the completion of ships procured in prior fiscal years. Cost-to-complete funding is generally provided to cover cost growth on prior-year-funded ships.

[19] Director, Operational Test & Evaluation, *FY 2023 Annual Report*, January 2024, pp. 244-245.

FY2025 National Defense Authorization Act (H.R. 8070)

House

The House Armed Services Committee, in its report (H.Rept. 118-529 of May 31, 2024) on H.R. 8070, recommends the funding levels shown in the HASC column of **Table 1**. (See page 426, which includes no entry for the TAO-205 program, where it would have been line 23.)

FY2025 DOD Appropriations Act (H.R. 8774)

House

The House Appropriations Committee, in its report (H.Rept. 118-557 of June 17, 2024) on H.R. 8774, recommends the funding levels shown in the HAC column of **Table 1**. The recommended increase of $334.5 million in advance procurement (AP) funding is for "Program increase—long lead material for two T-AO ship sets." (Page 129)

Section 8093(a), a recurring provision, states:

> SEC. 8093. (a) None of the funds provided in this Act for the TAO Fleet Oiler program shall be used to award a new contract that provides for the acquisition of the following components unless those components are manufactured in the United States: Auxiliary equipment (including pumps) for shipboard services; propulsion equipment (including engines, reduction gears, and propellers); shipboard cranes; spreaders for shipboard cranes; and anchor chains, specifically for the seventh and subsequent ships of the fleet.

Appendix A. TAO-205 Ship Self-Defense Equipment

This appendix provides additional background information on the issue of whether to encourage or direct the Navy to build TAO-205s with more ship self-defense equipment than currently planned by the Navy.

During the Cold War, the Navy procured underway replenishment ships to support a two-stage approach to underway replenishment in which single-product "shuttle" ships (such as oilers, ammunition ships, and dry stores ships) would take their supplies from secure ports to relatively safe mid-ocean areas, where they would then transfer them to multiproduct "station" ships called TAOEs and AORs. The TAOEs and AORs would then travel to Navy carrier strike groups operating in higher-threat areas and transfer their combined supplies to the carrier strike group ships. As a result, single-product shuttle ships were equipped with lesser amounts of ship self-defense equipment, and TAOEs and AORs were equipped with greater amounts of such equipment.

When the Cold War ended and transitioned to the post-Cold War era, threats to U.S. Navy ships operating at sea were substantially reduced. As a consequence, the amount of ship self-defense equipment on the TAOEs and AORs was reduced, and a single-stage approach to underway replenishment, in which oilers and dry stores ships took supplies from secure ports all the way to carrier strike group ships, was sometimes used.

Now that the post-Cold War era has transitioned to a new strategic environment featuring renewed great power competition with countries like China and Russia,[20] and a consequent renewal of potential threats to U.S. Navy ships operating at sea, the question is whether TAO-205s should be equipped with lesser amounts of ship self-defense equipment, like oilers were during both the Cold War and post-Cold War eras, or with greater amounts of ship self-defense equipment, like TAOEs and AORs were during the Cold War. Building TAO-205s with more ship self-defense equipment than currently planned by the Navy could increase TAO-205 procurement costs by tens of millions of dollars per ship, depending on the amount of additional ship self-defense equipment.

Section 1026 of the FY2016 National Defense Authorization Act (S. 1356/P.L. 114-92 of November 25, 2015) required an independent assessment of the Navy's combat logistics force ships. The report was delivered to Congress in February 2016. A copy of the report was posted by the media outlet Politico on March 11, 2016. The report states the following:

> The T-AO(X) will only have a limited capability to defeat a submarine launched torpedo attack and no capability to defeat a missile attack. When delivered, the TAO(X) will have:
>
> —[the] NIXIE Torpedo Countermeasure System [for decoying certain types of torpedoes]
>
> —[the] Advanced Degaussing System (Anti-Mine) [for reducing the ship's magnetic signature, so as to reduce the likelihood of attack by magnetically fused mines]
>
> When required, the T-AO(X) will also have ability to embark Navy Expeditionary Combat Command Expeditionary Security Teams (EST). The ESTs will embark with several crew served weapons and are designed to provide limited self-defense against a small boat attack.

[20] For more on this transition, see CRS Report R43838, *Renewed Great Power Competition: Implications for Defense—Issues for Congress*, by Ronald O'Rourke.

> The T-AO(X) will have Space, Weight, Power and Cooling (SWAP-C) margins for future installations of the following systems:
>
> —[the] Close In Weapon System (CIWS) or SeaRAM (Rolling Airframe Missile) [for defense against missile attack]
>
> —[the] Anti-Torpedo Torpedo Defense System (ATTDS) [for destroying torpedoes]
>
> Even after the installation of a CIWS or ATTDS, if the T-AO(X) was to operate in anything other than a benign environment, the ship will require both air and surface escorts.
>
> The decision to rely on [other] Fleet assets to provide force protection [i.e., defense against attacks] for the T-AO(X) was validated by the JROC [in June 2015].[21]

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Disclaimer

[21] Department of the Navy, *Report to Congress on Requirements for the Fleet Replenishment Oiler, T-AO(X)*, February 2016 (with cover letter dated February 12, 2016), p. 8. The report was posted by Politico on March 11, 2016, at http://static.politico.com/1e/e0/f26a9fb1471aacd5358c420fcf10/navy-oiler-report.pdf, and accessed by CRS on March 15, 2016.