Navy TAO(X) Oiler Shipbuilding Program: Background and Issues for Congress

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Summary

The TAO(X) oiler shipbuilding program is a program to build a new class of fleet oilers for the Navy. 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. The Navy wants to procure the first TAO(X) in FY2016. The program has received a total of $62.5 million in research and development funding through FY2014.

The Navy’s proposed FY2015 budget does not request any funding for the TAO(X) program; the Navy states that FY2015 activities for the program will be financed by funds carried over from FY2014. The Navy’s FY2015 budget submission projects a request for $682.1 million in funding in FY2016 for the procurement of the lead ship.

Under the Navy’s FY2015 budget submission, the Navy anticipates releasing a Request for Proposal (RFP) for the TAO(X) detail design and construction (DD&C) contract in the first quarter of FY2015. The Navy anticipates completing its evaluation of the proposals in the fourth quarter of FY2015, and awarding the DD&C contract to the winning bidder in the third quarter of FY2016. The contract would be for the design and construction of the lead ship.

One potential issue for Congress is how much funding, if any, to provide for the TAO(X) program in FY2015. In marking up the Navy’s FY2015 budget, potential options for Congress include approving the Navy’s request for no funding or providing some amount of research and development funding or advance procurement (AP) funding for the program.

Another potential issue for Congress concerns the acquisition strategy for the later ships in the TAO(X) program. Although the Navy has announced that it will compete the contract for the detail design and construction of the lead ship in the program, the Navy has not announced an acquisition strategy for the remaining ships in the 17-ship program.

Another potential issue for Congress concerns the proposal in the Navy’s FY2015 budget submission to disestablish the National Defense Sealift Fund (NDSF), an account in the Department of Defense’s (DOD’s) budget that has been used in recent years for funding the construction of new DOD sealift ships and Navy auxiliary ships. Prior to the Navy’s proposal to disestablish the NDSF, observers might have expected the construction of TAO(X)s to be funded through the NDSF. Under the Navy’s proposal to disestablish the NDSF, TAO(X)s would instead be funded through the Navy’s main shipbuilding account, which is called the Shipbuilding and Conversion, Navy (SCN) account.
Introduction

This report provides background information and issues for Congress on the TAO(X) oiler shipbuilding program, a program to build a new class of fleet oilers for the Navy. The Navy wants to procure the first TAO(X) in FY2016. The issue for Congress is whether to approve, reject, or modify the Navy’s funding requests and acquisition strategy for the TAO(X) program. Decisions that Congress makes regarding the program could affect Navy capabilities and funding requirements and the U.S. shipbuilding industrial base.

Background

Role of Navy 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).

Figure 1. Fleet Oiler Conducting An UNREP

Figure 2. Fleet Oiler Conducting An UNREP


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.

Navy oilers carry the designation TAO (sometimes written as T-AO). The T means that the ships are operated by the Military Sealift Command (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.

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 MSC.
Figure 3. Fleet Oiler Conducting An UNREP

Source: 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.

Existing Henry J. Kaiser (TAO-187) Class Oilers

The Navy’s existing force of fleet oilers consists of 15 Henry J. Kaiser (TAO-187) class ships (Figure 4). These ships were procured between FY1982 and FY1989 and entered service between 1986 and 1996. They have an expected service life of 35 years; the first ship in the class will reach that age in 2021. 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 Orleans, LA, a shipyard that eventually became part of the shipbuilding firm Huntington Ingalls Industries (HII). HII is currently winding down Navy shipbuilding operations at Avondale and plans to have Avondale exit the Navy shipbuilding business. (HII continues to operate two other shipyards that build Navy ships.)

1 The oilers shown in Figure 1, Figure 2, and Figure 3 are also Kaiser-class class oilers.
TAO(X) Program

Total of 17 Ships Envisaged

The Navy envisages building 17 new TAO(X) oilers as replacements for the 15 Kaiser-class ships. In the designation TAO(X), the (X) means that the exact design of the ship has not yet been determined. The figure of 17 TAO(X)s was determined as part of a Force Structure Analysis (FSA) that the Navy completed in 2012 and presented to Congress in 2013. This FSA established a goal of achieving and maintaining a future Navy fleet of 306 battle force ships of various kinds, including 17 oilers. 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.

Program Schedule

The Navy wants to procure the first TAO(X) in FY2016 and the remaining 16 ships at a rate of one per year during the period FY2018-FY2033. If this procurement schedule were

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For more on the Navy’s 306-ship plan, see CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

The “gap” year in FY2017 is intended to give the Navy and the shipbuilder time to correct problems in the ship’s (continued...)
implemented, the Navy projects that the lead ship would enter service in FY2020 and that the remaining ships would enter service at a rate of one per year during the period FY2021-FY2036.

Under the Navy’s FY2015 budget submission, the Navy anticipates releasing a Request for Proposal (RFP) for the TAO(X) detail design and construction (DD&C) contract in the first quarter of FY2015. The Navy anticipates completing its evaluation of the proposals in the fourth quarter of FY2015, and awarding the DD&C contract to the winning bidder in the third quarter of FY2016. The contract would be for the design and construction of the lead ship.

### Program Funding

The TAO(X) program has received a total of $62.5 million in research and development funding through FY2014 (see Table 1). Of the $34.0 million in FY2013 funding that the program received, $25.0 million was added by Congress in marking up the Navy’s FY2013 budget.

<table>
<thead>
<tr>
<th>Table 1. TAO(X) Program Funding</th>
<th>(Millions of dollars, rounded to nearest tenth)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY12</td>
</tr>
<tr>
<td>Research and development</td>
<td>4.5</td>
</tr>
<tr>
<td>Procurement</td>
<td>0</td>
</tr>
<tr>
<td>(Procurement quantity)</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Source: Navy FY2015 budget submission.

As shown in the table, the Navy’s proposed FY2015 budget does not request any funding for the TAO(X) program; the Navy states that FY2015 activities for the program will be financed by funds carried over from FY2014. By comparison, the Navy’s FY2014 budget submission had projected that the Navy would request $8.8 million in research and development funding for the program in FY2015.

The estimated procurement cost of the lead ship ($682.1 million) includes most of the detailed design/non-recurring engineering (DD/NRE) cost for the class. This one-time cost accounts for most of the difference in estimated procurement cost between the first ship and the follow-on ships. Incorporating most or all of the DD/NRE cost for a class of ship into the procurement cost of the lead ship in the class is a traditional budgeting practice for Navy shipbuilding programs.

### Preliminary Contracts for Trade Studies

On July 3, 2013, the Navy awarded three shipbuilding firms—General Dynamics’ National Steel and Shipbuilding Company (GD/NASSCO) of San Diego, CA; HII’s Ingalls Shipbuilding...
Division (HII/Ingalls) of Pascagoula, MS; and VT Halter Marine (VTHM) of Pascagoula, MS—contracts of $1.7 million each to conduct eight-month design trade-off studies for the TAO(X). The studies are intended to help to inform Navy deliberations regarding the capabilities and cost of the TAO(X).

### Ship Capabilities and Design

Although the design of the TAO(X) has not yet been determined in detail, the Navy anticipates that the ship will have capabilities similar to those of the Kaiser-class ships, and that the TAO(X) will rely on existing technologies rather than new technologies. To guard against oil spills, TAO(X)s 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 were double-hulled, but earlier ships in the class were single-hulled.)

At an April 24, 2013, hearing on Navy and Air Force acquisition before the Seapower and Projection Forces subcommittee of the House Armed Services Committee, Sean Stackley, the Assistant Secretary of the Navy for Research, Development, and Acquisition (i.e., the Navy’s acquisition executive) testified that

> we’re doing design studies leading up to the ultimate competition for procurement in 2016. We are, in fact, doing everything we can to just leverage mature technologies.

> There is no invention or breakthrough required for TAOX. We want to leverage commercial design to the extent practical, and we’re working through those details right now, inside the building [i.e., the Pentagon], inside the process and with industry.\(^5\)

A July 15, 2013, press report quoted Frank McCarthy, the Navy’s program manager for support ships, boats, and craft, as stating that

> We know the [TAO(X)’s] basic capacities, the size, the relative speed, how much dry cargo we're going to hold, and whether it’s going to be aircraft-capable or not, and how capable it’s going to be.... So we do know those things, and we have tons of lessons learned from the T-AO-187 program and the [Lewis and Clark class] T-AKE [dry cargo ship] program because it’s a similar mission ship in terms of being a shuttle [i.e., UNREP] ship. We’ve taken all those lessons learned and rolled them into the system specification, and we’ve involved our operators and users at Military Sealift Command to help inform the system specification.

The press report stated that the TAO(X) would have capabilities similar to the Kaiser-class ships, but that compared to the Kaiser-class design, the TAO(X) will have increased space for dry cargo, as well as a refueling capability for helicopters on its deck.\(^6\)

At an April 10, 2014, hearing on Navy shipbuilding programs before the Seapower subcommittee of the Senate Armed Services Committee, the Navy testified that

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\(^4\) See, for example, Megan Eckstein, “Navy Awards Three Trade-Off Industry Study Contracts For T-AO(X) Oilers,” *Inside the Navy*, July 8, 2013.

\(^5\) Transcript of hearing.

Research and development efforts continue as the Navy matures its concept for the replacement of the KAISER Class (T-AO 187) of Fleet Replenishment Oilers. The new replacement oilers, currently designated as T-AO(X), will be double-hulled and meet Oil Pollution Act 1990 and International Marine Pollution Regulations. Similar to the LHA(R) and LX(R) [amphibious ship acquisition] programs, T-AO(X) benefitted from early industry engagement in terms of cost/capability trade-off studies that will help to refine the ship specifications.7

Potential Bidders

The Navy intends to conduct a full and open competition for the contract to design the TAO(X) and build the lead ship in the class. The TAO(X) program is one of two new multi-ship shipbuilding programs that the Navy expects to award in the next few years—the other is the LX(R) amphibious ship program, whose lead ship is to be procured in FY2020.8 Both of these programs are expected to attract strong bidding interest from U.S. shipyards. The Navy’s decisions on which yard or yards will build these two classes of ships will affect the U.S. shipbuilding industrial base. Potential bidders for the TAO(X) contract include GD/NASSCO, HII/Ingalls, and VTHM (i.e., the three firms that received the contracts for the design trade-off studies), and possibly other shipbuilding firms as well.

Issues for Congress

FY2015 Funding

One potential issue for Congress is how much funding, if any, to provide for the TAO(X) program in FY2015. In marking up the Navy’s FY2015 budget, potential options for Congress include approving the Navy’s request for no funding or providing some amount of research and development funding or advance procurement (AP) funding for the program.

Acquisition Strategy

Another potential issue for Congress concerns the acquisition strategy for the later ships in the TAO(X) program. Although the Navy has announced that it will compete the contract for the detail design and construction of the lead ship in the program, the Navy has not announced an acquisition strategy for the remaining ships in the 17-ship program. Among other things, the Navy has not announced whether it intends to use one builder or multiple builders to build the remaining ships, whether it will use annual contracting or multiyear contracting (i.e., multiyear procurement [MYP] or block buy contracting) to contract for them,9 and whether and how it

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7 Statement of The Honorable Sean J. Stackley, Assistant Secretary of the Navy (Research, Development and Acquisition) and Vice Admiral Joseph P. Mulloy, Deputy Chief of Naval Operations for Integration of Capabilities and Resources and Vice Admiral William H. Hilarides, Commander, Naval Sea Systems Command, Before the Subcommittee on Seapower of the Senate Armed Services Committee on Department of the Navy Shipbuilding Programs, April 10, 2014, p. 16.

8 For more on the LX(R) program, see CRS Report R43543, Navy LX(R) Amphibious Ship Program: Background and Issues for Congress, by Ronald O'Rourke.

9 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 and Moshe Schwartz.
intends to employ competition in determining who builds them. A related potential issue for Congress is how the Navy intends to take industrial-base considerations into account in determining which yard or yards will build TAO(X)s, and how the Navy’s decision on who will build TAO(X)s will be related, if at all, to the Navy’s subsequent decision regarding who will build the LX(R) amphibious ships.

Proposal to Disestablish National Defense Sealift Fund (NDSF)

Another potential issue for Congress concerns the proposal in the Navy’s FY2015 budget submission to disestablish the National Defense Sealift Fund (NDSF), an account in the Department of Defense’s (DOD’s) budget that has been used in recent years for funding the construction of new DOD sealift ships and Navy auxiliary ships. Prior to the Navy’s proposal to disestablish the NDSF, observers might have expected the construction of TAO(X)s to be funded through the NDSF. Under the Navy’s proposal to disestablish the NDSF, TAO(X)s would instead be funded through the Navy’s main shipbuilding account, which is called the Shipbuilding and Conversion, Navy (SCN) account.

The NDSF was established by the FY1993 Defense Authorization Act, as amended by the FY1993 Defense Appropriations Act, to fund the construction of Department of Defense (DOD) sealift ships. The provision in the U.S. Code governing the NDSF (10 U.S.C. 2218) was amended in 1999 to, among other things, permit the NDSF to also be used for the construction of CLF ships and other auxiliary support ships. Consistent with congressional views expressed in committee reports on the FY2001 Defense Authorization Bill, the NDSF since FY2003 has been used to fund the construction of Navy auxiliaries.

The NDSF was established and later amended in large part so that DOD sealift ships and Navy auxiliary ships would not have to compete directly against Navy combat ships for finite shipbuilding funds in the SCN account.

The NDSF is located in a part of the DOD budget that is outside the procurement title of the annual DOD appropriations act. Consequently, ships whose construction is funded through the NDSF are not subject to the DOD full funding policy in the same way as are ships and other

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For an earlier discussion of the issue of the changing composition of the SCN account, including the transfer to the NDSF of ships previously funded in the SCN account, see Statement of Ronald O’Rourke, Specialist in National Defense, Congressional Research Service, before the House Armed Services Committee Subcommittee on Military Procurement hearing on The Navy’s Proposed Shipbuilding Program for FY2003, March 20, 2002, pp. CRS-20 to CRS-23.
DOD procurement programs that are funded through the procurement title of the annual DOD appropriations act. In explaining the use of NDSF funding, DOD in 1995 stated:

The National Defense Sealift Fund (NDSF) is not a procurement appropriation but a revolving fund. Dollars appropriated by Congress for the fund are not appropriated to purchase specific hulls as in the case of, for example the Navy’s DDG-51 [destroyer] program. Rather, dollars made available to the NDSF are executed on an oldest money first basis. Therefore, full funding provisions as normally understood for ship acquisition do not apply.

For NDSF-funded ships, what this has meant is that although Congress in a given year would nominally fund the construction of an individual ship of a certain class, the Navy in practice could allocate that amount across multiple ships in that class. This is what happened with both the NDSF-funded Lewis and Clark (TAKE-1) class dry cargo ships and, before that, an NDSF-funded class of DOD sealift ships called Large, Medium-Speed Roll-on/Roll-off (LMSR) ships. In both cases, the result was that although ships in these two programs were each nominally fully funded in a single year, they in fact had their construction financed with funds from amounts that were nominally appropriated in other fiscal years for other ships in the class.

In discussing its proposal to disestablish the NDSF, the Navy states that

The FY 2015 President’s Budget includes no funding for the National Defense Sealift Fund (NDSF). The [funding] requirements have been moved to the Shipbuilding and Conversion, Navy (SCN), Research, Development, Test, and Evaluation, Navy (RDTEN), and Operation and Maintenance, Navy (OMN) appropriations as appropriate, and the NDSF appropriation is recommended for disestablishment. This proposal streamlines the number of DoN [Department of the Navy] accounts, reducing financial complexity, and supports the Department’s audit readiness goals.

The Strategic Sealift programs will continue to be funded within the Department [of the Navy], meeting COCOM [Combatant Commander] mobility requirements.

The question for Congress is how to respond to the Navy’s proposal to disestablish the NDSF and fund the construction of TAO(X)s through the SCN account rather than the NDSF.

Supporters of the Navy’s proposal might cite the Navy justification shown above relating to streamlining the number of accounts and reducing financial complexity. They might also argue that funding ships through the NDSF weakens the application of the DOD full funding policy, since ships funded through NDSF are not be subject to the policy in the same way as are ships and other DOD procurement programs that are funded through the procurement title of the annual

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13 For more on the full funding policy, see CRS Report RL31404, Defense Procurement: Full Funding Policy—Background, Issues, and Options for Congress, by Ronald O'Rourke and Stephen Daggett.

14 DOD information paper on strategic sealift acquisition program provided to CRS by U.S. Navy Office of Legislative Affairs, January 25, 1995, p. 1. For additional discussion, see the subsection entitled “DOD Sealift and Auxiliary Ships in NDSF” in the Background section of CRS Report RL31404. For a similar discussion, see the section entitled “DOD LMSR-Type Sealift Ships” in Appendix C to CRS Report RL32776, Navy Ship Procurement: Alternative Funding Approaches—Background and Options for Congress, by Ronald O'Rourke.

15 This situation can be summarized in a funding matrix of hulls vs. funding sources of the kind shown for the LMSR program in Table 1 on page CRS-6 of CRS Report 96-257 F, Sealift (LMSR) Shipbuilding and Conversion Program: Background and Status, by Valerie Bailey Grasso. This report is out of print and is available from Ronald O’Rourke.

16 Department of the Navy, Highlights of the Department of the Navy FY 2015 Budget, 2014, pp. 4-5.
DOD appropriations act, and that the way in which funds for NDSF-funded ships are used makes it more difficult to track the use of annual appropriations.

Opponents of the Navy’s proposal might argue that the flexibility in using annually appropriated funds that is provided by funding ships through NDSF can help reduce at the margin the acquisition cost of ships funded through the NDSF,\(^\text{\textsuperscript{17}}\) and that the loss of this flexibility is not worth the gains cited in the Navy justification shown above. Opponents could also argue that the existence of the NDSF since the early 1990s has not prevented DOD from enforcing the full funding policy for other DOD-procured weapons and platforms, and that less-glamorous Navy auxiliary ships like the TAO(X) might be disadvantaged in a competition against other Navy ships for finite funds within the SCN account.

### Legislative Activity for FY2015

#### FY2015 Budget

The Navy’s proposed FY2015 budget was submitted to Congress on March 4, 2014. The budget does not request any FY2015 research and development funding or procurement funding for the TAO(X) program. The budget submission proposes the disestablishment of the National Defense Sealift Fund (NDSF), which is a fund in the DOD budget that in recent years has been used to fund the construction of Navy auxiliary ships like the TAO(X).


**House**

H.R. 4435 as reported by the House Armed Services Committee (H.Rept. 113-446 of May 13, 2014) does not recommend any FY2015 research and development funding or FY2015 procurement funding for the TAO(X) program.

Regarding the proposal to disestablish the NDSF, H.Rept. 113-446 states:

> **National Defense Sealift Fund**

The committee notes that the Navy is proposing to disestablish the National Defense Sealift Fund (NDSF) and, as part of this, is proposing to shift funding for new construction ships from the NDSF to the Shipbuilding and Conversion, Navy (SCN) account. NDSF was created by section 1077 of the National Defense Authorization Act for Fiscal Year 1993 (Public Law 102–484) in part to fund new ship construction related to Department of Defense sealift ships and was later amended to permit the funding of new construction Navy auxiliary ships. NDSF is not a procurement account, but a revolving fund, and appropriations

\(^{17}\) Opponents of the Navy’s proposal to disestablish the NDSF could argue, for example, that the flexibility in using annually appropriated funds permits the Navy to place economic batch orders for common components to be used on several of the ships in the class without needing to gain approval for the use of an MYP contract for the program. (In a program with an MYP contract, such a batch order of components would be known as an Economic Order Quantity, or EOQ.)
made available to the fund are not executed in the same way as dollars made available to SCN. In addition, new-construction ships funded through the NDSF, unlike SCN-funded ships, must have certain major components manufactured in the United States. The committee is concerned that transferring appropriations from NDSF to SCN for certain ships could result in potential cost increases as well as a reduction in major shipboard components that are manufactured in the United States.

Therefore, the committee directs the Secretary of the Navy to review the proposal to disestablish the NDSF and the budget recommendation to appropriate new construction Navy auxiliary ships through the SCN account. The Secretary is directed to prepare a report to the congressional defense committees by March 1, 2015, detailing how the Navy would proceed if the NDSF were disestablished, how the Navy would ensure that there would be no cost increases, and how the Navy would plan to maximize the use of major shipboard components manufactured in the United States in the construction of Department of Defense sealift and Navy auxiliary ships. (Pages 30-31)

**Senate**

S. 2410 as reported by the Senate Armed Services Committee (S.Rept. 113-176 of June 2, 2014) does not recommend any FY2015 research and development funding or FY2015 procurement funding for the TAO(X) program.

**FY2015 DOD Appropriations Act (H.R. 4870)**

**House**

H.R. 4870 as reported by the House Appropriations Committee (H.Rept. 113-473 of June 13, 2014) does not recommend any FY2015 research and development funding or FY2015 procurement funding for the TAO(X) program.

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