

# ARCHIVED REPORT

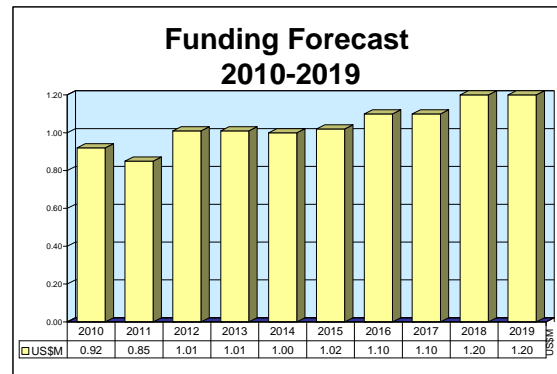
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## Over-the-Horizon Targeting (OTH-T)

### Outlook

- FI forecasts that the United States Navy will spend approximately \$10.4 million on its OTH-T R&D project in the coming years
- In FY11, expect Project 0798 to work on developing and refining advanced relay capabilities that support Coalition Naval Tactical Networking



### Orientation

**Description.** The Over-the-Horizon Targeting (OTH-T) program is a research and development endeavor of the U.S. Navy. The program develops command, control, computing, communications, intelligence, surveillance, and reconnaissance (C<sup>4</sup>ISR) technology for the U.S. Navy for the 21st century. The goal of the program is to support the collection, transmission, correlation, and display of track data into Common Operational and Tactical Pictures (COTP) in support of warfighting requirements.

#### Sponsor

United States Navy  
Space and Naval Warfare Systems Command  
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Tel: + 1 (619) 553-4002  
Web site: <http://www.spawar.navy.mil>

**Status.** Ongoing research and development.

**Application.** C<sup>4</sup>ISR

### Contractors

Contractor(s) not selected or not disclosed.

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to [www.forecastinternational.com](http://www.forecastinternational.com) (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; [rich.pettibone@forecast1.com](mailto:rich.pettibone@forecast1.com)

### Technical Data

The Over-the-Horizon Targeting (OTH-T) Project, Project 0798, is part of Program Element #0604707N: Space & Electronic Warfare (SEW) Architecture.

The first goal of the OTH-T program is to transition the Joint/Navy architectures and systems from older military-standard (MIL-STD) products to state-of-the-

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art commercial and government off-the-shelf products that support Network Centric Warfare.

The second goal of the program is to support development, integration, and joint interoperability of all National Security System (NSS), information technology (IT), and C<sup>4</sup>I systems into warfighting capabilities. This support includes providing technical expertise (afloat and ashore) via a group of highly trained fleet systems engineers in order to integrate, validate, and evaluate new OTH-T/Allied

interoperability capabilities during major fleet exercises and demonstrations.

Coalition and joint interoperability is a key concern for future naval operations, especially given the Navy initiative to expand Internet Protocol (IP) networking throughout the U.S. Navy fleet. Currently, IP connectivity with Coalition forces is limited. Funding has been allocated for the development of solutions to IP connectivity issues in an effort to meet emerging Coalition and joint interoperability requirements.



U.S. Navy Over-the-Horizon Targeting (OTH-T) Program

Source: Public Domain

## Program Review

**PE#0604707N, Project 0798, Over-the-Horizon Targeting (OTH-T).** In FY01 and FY02, Project 0798 validated the interoperability of a variety of architectures for new capabilities and supporting systems for the U.S. Navy fleet. In addition, the Repeatable Performance Evaluation Analysis Tool (REPEAT) software was modified for use in interoperability testing. The software was distributed to more than 75 additional Department of Defense (DoD) users.

In FY03, Project 0798 conducted research to exploit and coordinate subnet relay protocols and multi-frequency band channels to provide greater data throughput in the HF and UHF line-of-sight radio frequency (RF) mediums.

In FY04, Project 0798 continued conducting research to exploit HF beyond-line-of-sight and extended-line-of-sight ground and sky waveforms to improve long-range tactical communications. In FY05, the project evaluated engineering development models of subnet relay communications.

In FY06, Project 0798 was involved with the development and testing of Generation 1 and Generation 2 Spatially Aware Wireless Network (SPAWN) prototype antennas (in breadboard form). Work also included developing the high-level network architecture for SPAWN.

In FY07, work on Project 0798 continued, focused on the designing, fabricating, and testing of Generation 3 SPAWN prototype antennas in brassboard form. In addition, improvements to the subnet relay protocol were investigated. (subnet relay is a suite of protocols that permits the deployment of master-less, ad-hoc, self-configuring tactical Internet Protocol networks with inherent relay capabilities.)

In FY08, Project 0798 continued its work designing, fabricating, and testing Generation 4 SPAWN prototype antennas in seaworthy brassboard form with wireless network equipment, in addition to the line-of-sight (LOS) field demonstration of SPAWN.

In FY09, Project 0798 work has taken place on designing, fabricating, and testing Generation 5

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SPAWN antennas in integrated form with wireless network equipment. Also in FY09, an Over-the-Horizon (OTH) field demonstration of SPAWN has been performed.

In FY10, Project 0798 worked on designing, fabricating, and testing of Generation 6 SPAWN antennas in an integrated form with wireless network equipment. The project also worked on developing advanced routing,

application, and Information Assurance/Computer Network Defense (IA/CND) architectures and solutions for the coalition Naval Tactical Networking (NTN) environment.

In FY11, look for Project 0798 to continue its work developing and refining advanced relay capabilities that support Coalition Naval Tactical Networking. Solutions for this work will address advanced relay technologies, coalition routing architectures (with an emphasis on cipher text or "black core" routing), application architectures/configurations and IA/CND solutions that maximize network efficiency using multiple, dissimilar bearers in the CNTN environment on the Combined Enterprise Regional Information Exchange System (CENTRIXS).

## Funding

U.S. FUNDING								
		FY09	FY09	FY10	FY10	FY11	FY11	
		<u>QTY</u>	<u>AMT</u>	<u>QTY</u>	<u>AMT</u>	<u>QTY</u>	<u>AMT</u>	
<b>RDT&amp;E (U.S. Navy)</b>								
PE#0604707N								
Project 0798		-	1.41	-	0.92	-	0.85	
		FY12	FY12	FY13	FY13	FY14	FY14	FY15
		<u>QTY</u>	<u>AMT</u>	<u>QTY</u>	<u>AMT</u>	<u>QTY</u>	<u>AMT</u>	<u>AMT</u>
<b>RDT&amp;E (U.S. Navy)</b>								
PE#0604707N								
Project 0798		-	1.01	-	1.01	-	1.00	1.02

All \$ are in millions.

Source: U.S. Navy FY11 RDT&E Budget Document

## Contracts/Orders & Options

Contract information regarding the U.S. Navy's Over-the-Horizon Targeting (OTH-T) program has not been made public. Consequently, no recent contracts have been identified.

## Timetable

<u>Year</u>	<u>Major Development</u>
FY82	First P-3 aircraft deployed with OTH-T
FY90	P-3 OASIS deployed
FY91	OUTLAW HAWKEYE for E-2 aircraft and OUTLAW VIKING software for S-3B aircraft deployed
FY93	OASIS developed and deployed for the S-3
FY97	OUTLAW HAWKEYE demonstrated in conjunction with fielding of a UHF satellite communications data package for the E-2C aircraft
FY98	Engineering support provided to Fleet CINCs
FY99	Hardware/software packages developed for C <sup>2</sup> aircraft
FY00	Integration testing conducted on various combat systems
FY01	Interoperability of a variety of architectures for new capabilities validated
FY02	Interoperability of architectures for new capabilities and supporting systems validated

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<b>Year</b>	<b>Major Development</b>
FY03	Research to exploit and coordinate subnet relay protocols and multi-frequency band channels
FY04	HF beyond-line-of-sight and extended-line-of-sight ground and sky waveforms researched
FY05	Engineering development models of subnet relay communications evaluated
FY06	Generation 1 and Generation 2 SPAWN prototype antennas developed and tested
FY07	Improvements to subnet relay protocol investigated
FY08	Design, fabrication, and testing of Generation 4 SPAWN prototype antennas
FY09	Validation of GIG technologies prior to shipboard installation
FY10	Project 0798 works on designing, fabricating, and testing Generation 6 SPAWN antennas in an integrated form with wireless network equipment
FY11	Look for Project 0798 work on developing and refining advanced relay capabilities that support Coalition Naval Tactical Networking

## Worldwide Distribution/Inventories

This is a **United States Navy** program.

## Forecast Rationale

The U.S. Navy's Over-the-Horizon Targeting (OTH-T) R&D program develops command, control, computing, communications, intelligence, surveillance, and reconnaissance (C4ISR) technology for the 21st century. The program's goal is to support the collection, transmission, and correlation of track data and the display of that data on Common Operational and Tactical Pictures (COTP) in support of warfighting requirements.

Forecast International projects that the United States Navy will spend some \$10.4 million on its OTH-T R&D project over the next 10 years. This projected investment stream is being driven by the U.S. Navy's desire to develop, test, and validate C4ISR architectures to support joint naval missions.

According to an FY11 U.S. Navy budget document, the main goal of the Navy's OTH-T project is to transition joint Navy architectures and systems to state-of-the-art commercial off-the-shelf and government off-the-shelf products that support network-centric warfare. A secondary program objective is to support development,

integration, and joint interoperability of all National Security System (NSS), information technology (IT), and C4I systems into warfighting capabilities.

According to the same FY11 U.S. Navy budget document, increases in data throughput are required for the effective exchange of rich data sets and services via service oriented architectures within the limitations of high frequency, ultra-high frequency and other portions of the radio frequency spectrum (coupled with appropriate information assurance and computer network defense mechanisms). Development and assessment of potential solutions will integrate improved transmission control protocol/IP capabilities with the Advanced Digital Network Systems and existing international standards (e.g., NATO Standardization Agreement 5066). The continued development and refinement of advanced tactical networking technologies and protocols, as well as automatic link establishment standards, will provide for a significant improvement in data sharing within, and between, coalition maritime elements.

## Ten-Year Outlook

ESTIMATED CALENDAR YEAR RDT&E FUNDING (in millions \$)												
Designation or Program	High Confidence					Good Confidence			Speculative			Total
	Thru 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
<b>MFR Varies</b>												
<b>OTH-TARGETING Military &lt;-&gt; United States &lt;-&gt; Navy</b>												
	82.81	.92	.85	1.01	1.01	1.00	1.02	1.10	1.10	1.20	1.20	10.41

Over-the-Horizon Targeting (OTH-T)

Total	82.81	.92	.85	1.01	1.01	1.00	1.02	1.10	1.10	1.20	1.20	10.41
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