

Imagine living in Philadelphia during the early days of the Civil War and reading the latest issue of the Philadelphia *Evening Bulletin*. A front page story reveals a strange and alarming tale: Harbor police have captured a partially-submerged, 33-foot long, cigar-shaped contraption moving slowly down the Delaware River.

This “infernal machine,” as the paper described it, was the creation of French inventor Brutus De Villeroi. Whether a deliberate publicity stunt or not, De Villeroi succeeded in convincing the Union Navy that he could produce a submersible warship from which a diver could place an explosive charge under an enemy ship. Six months later, in November 1861, he was under contract to build the Union’s first submarine.

Hence begins the little-known story of United States Submarine Propeller *Alligator*—a technological wonder akin to other great maritime advances of the Civil War era, including the well-known ironclad USS *Monitor*, and the recently-raised Confederate submarine, CSS *Hunley*.

Built in Philadelphia, the 47-foot-long *Alligator* was primarily intended to counter the threat of the Confederate ironclad, the *Virginia*. Although the Navy specified that the submarine’s construction take no more than 40 days at a cost of \$14,000, the

project suffered long delays. As project supervisor, De Villeroi objected to changes in certain aspects of his plans for the vessel’s construction. In response, he effectively exited himself from the process and was later officially dismissed as supervisor.

About a month after its launch on May 1, 1862, the oar-propelled submarine was towed to Hampton Roads, Virginia. Her first missions: to destroy a strategically important bridge across the Appomattox River and to clear away obstructions in the James River.

When the *Alligator* arrived at the James River, with civilian Samuel Eakins in charge, a fierce battle was being waged in the area. Because neither the James nor the Appomattox was deep enough to permit the vessel to submerge, it was feared that even a partially visible submarine would be vulnerable to seizure by the Confederates. The *Alligator* was sent to the Washington Navy Yard, for further experimentation and testing.

In August 1862, Lt. Thomas O. Selfridge accepted command of the submarine, after being promised promotion to captain if he and the *Alligator*’s new crew destroyed the new Confederate ironclad, the *Virginia II*. During test runs in the Potomac, the *Alligator*

proved to be underpowered and unwieldy. During one particular trial, the sub’s air quickly grew foul, the crew panicked, and all tried to get out of the same hatch at the same time—prompting Selfridge to call the whole enterprise “a failure.” He and his crew were reassigned and the vessel was sent to dry dock for extensive conversion. The dream of using this “secret weapon” against the *Virginia II* was scrapped.

Over the next six months, the *Alligator*’s system of oars was replaced by a screw propeller. In early spring 1863, President Lincoln observed a demonstration of the “improved” vessel. Shortly thereafter, Rear Adm. Samuel Dupont ordered the *Alligator*, once again commanded by Eakins, to participate in the capture of Charleston.

Towed by the USS *Sumpter*, the unmanned *Alligator* left Washington for Port Royal on March 31, 1863. On April 2, a fierce storm

forced the crew of the endangered *Sumpter* to cut the submarine adrift, somewhere off the Cape Hatteras coast. According to reports sent to Secretary of the Navy Welles, the *Alligator* was “lost” at sea.

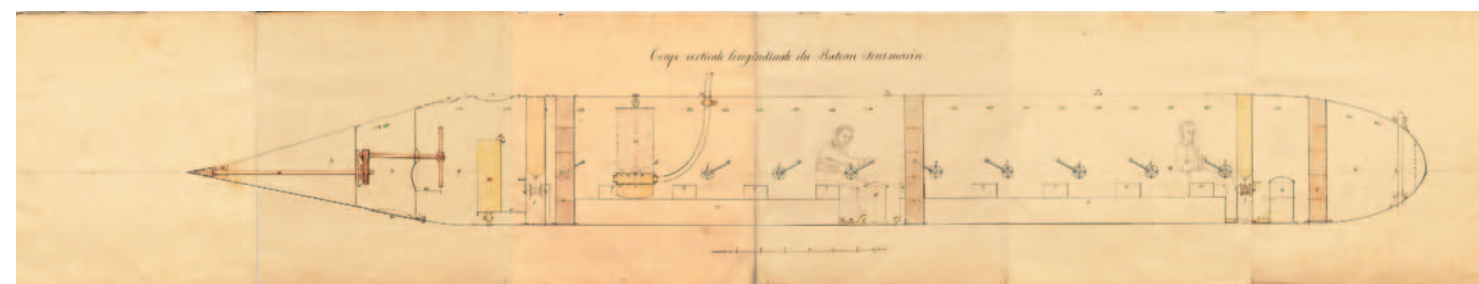
Sources: Cmdr. Richard Poole, USN; James Christley, EMCS(SS), USN (Ret.)

Above: The USS *Sumpter* takes the *Alligator* under tow. Below: The *Alligator* is cut loose. Paintings by James Christley.



## Alligator Facts

<b>Inventor:</b>	Brutus de Villeroi (1794-1874)	<b>Propulsion:</b>	Oars; screw propeller
<b>Shipyard:</b>	Neafie & Levy	<b>Features:</b>	Air purifying system Diver lockout chamber
<b>Contractor:</b>	Martin Thomas	<b>Commander:</b>	Samuel Eakins
<b>Supervisor (USN):</b>	Commodore Smith, Philadelphia Navy Yard	<b>Crew Complement:</b>	22 with oars; 8 with screw propeller
<b>Launch Date:</b>	May 1, 1862	<b>First Mission:</b>	Destroy bridge over Appomattox River; clear obstructions in James River
<b>Length:</b>	47 feet	<b>Lost:</b>	April 2, 1863
<b>Beam (hull):</b>	4’8”		
<b>Height (hull):</b>	5’6”		
<b>Color:</b>	Green		



De Villeroi’s design drawings of the *Alligator*, with modifications. Courtesy Service Historique de la Marine/NOAA

The **National Oceanic and Atmospheric Administration (NOAA)**, the U.S. Navy’s **Office of Naval Research (ONR)** and partners have joined forces to uncover the *Alligator*’s secrets, including:



**What** was the *Alligator*’s final design?

**Who** served aboard the vessel?

**What** was life like on the *Alligator*?

**Were** Villeroi’s submarine prototypes the inspiration for Captain Nemo’s *Nautilus* in *20,000 Leagues Under the Sea*?

**What** happened to the *Alligator* after it was cut loose from the USS *Sumpter*?

**Did** she stay afloat or sink immediately?

**Can** she be found with today’s search technology?

The **Hunt for the *Alligator*** involves many organizations and individuals, including historians, marine archaeologists, meteorologists, oceanographers, engineers, naval experts, Civil War history interpreters, artists, teachers and students. The hunt is taking place in classrooms, libraries, computer labs, and on the sea. The 2004 *Alligator* search and survey mission, led by NOAA with support from ONR, is one of many Hunt for the *Alligator* activities taking place across the nation.

“The Hunt for the *Alligator* combines history, mystery and technology.”

—Daniel J. Basta, Director, NOAA’s National Marine Sanctuary Program

“If we can find the *Alligator*, we can find anything.”

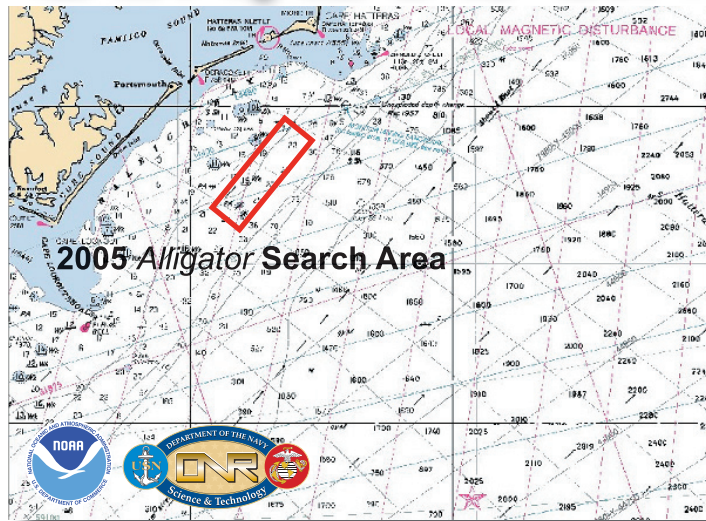
—Rear Adm. Jay M. Cohen, Chief of Naval Research

Join the **Hunt for the *Alligator*** at <http://sanctuaries.noaa.gov/alligator>





# Hunting for the *Alligator* in the Graveyard of the Atlantic



**It's a big ocean out there.** Finding objects under the sea—especially off the coast of North Carolina in the "Graveyard of the Atlantic," where countless ships have met their fate—can be a challenge. The sea can go from tranquil to treacherous in minutes. NOAA and ONR, assisted by East Carolina University, will use a variety of tools and strategies to hunt for the *Alligator*—from historical documents and computer models to sonar devices and a remote-controlled sub.



ONR is supplying its 108-ft. YP-679 "Afloat Lab" for the hunt, from which a variety of sensors will be deployed while the vessel is in the search area.



A video camera-equipped **remotely-operated vehicle** will be used to get a good look at any objects of interest—perhaps even the *Alligator*! Image: Benthos



A **magnetometer** will be towed behind the YP-679 to detect iron objects on the seafloor. Image: IXSEA

**HOW TO FIND A SHIPWRECK**

1. Conduct historical research
2. Narrow search area
3. Pick search team and tools
4. Develop search plan
5. Go find it!

Photo courtesy NPS



Photo: John Williams/ONR

A **sidescan sonar** device supplied by ONR will also be deployed. The device will use reflected sound waves to produce a black-and-white picture (above) of the seafloor.

Join the **Hunt for the *Alligator*** at <http://sanctuaries.noaa.gov/alligator>



Cover and Hunt for the *Alligator* logo design by Larry Behunek, ONR

# THE HUNT FOR THE U.S.S. ALLIGATOR

*The Civil War's First Submarine?*

In 1861, the U.S. Navy built its first submarine, *USS Alligator*. It was an unusual and daring design, conceived by the French inventor, Brutus de Villeroi. Built in Philadelphia, the *Alligator* was intended to surreptitiously place explosives for destroying Confederate ships and harbor obstructions. In April 1863, while being towed south to take part in the attack on Charleston harbor, the *Alligator* was lost in a storm off Cape Hatteras. She has never been found.

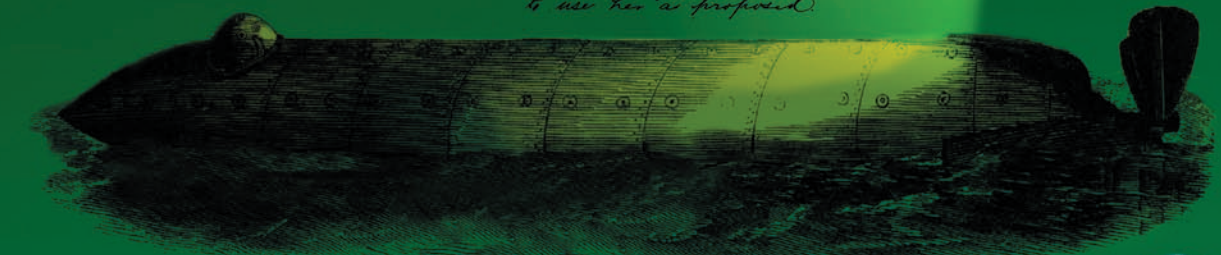


President Abraham Lincoln



Samuel Fikins - Commander, USS Alligator

C. N. W. R.  
 Must. F. D.  
 Philadelphia  
 The Submarine Propeller being reported ready for service, please turn her over to the Commandant of the Yard (Park), to whom I have written directing that she be sent to Fortress Mifflin by the first conveyance.  
 The crew of the vessel will be home on the eve of the 1st of August, and therefore be paid by me.  
 Respectfully,  
 J. G. Foster  
 Secy.  
 The Secretary of the Navy requests that you will make such arrangements with the Master of the boat as will enable him to use her as proposed.



A project of the  
**OFFICE OF NAVAL RESEARCH**  
 and the



**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**