

A Means to Streamline Historic and Cultural Resource Consultation and Compliance for Pollution Assessment and Recovery Activities on Shipwrecks

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ABSTRACT 300011:

In May 2013, per Congressional direction and to support a better understanding of pollution sources in the U. S. waters, the National Oceanic and Atmospheric Administration (NOAA) provided the U. S. Coast Guard (USCG) a detailed report on the assessment of risks from potentially polluting shipwrecks. The report, *Risk Assessment for Potentially Polluting Wrecks in U.S. Waters*, was a result of the Remediation of Underwater Legacy Environmental Threats (RULET) project that evaluated 20,000 shipwrecks for their pollution potential as well as issues that could impact operations including whether or not those wrecks could be historically significant properties and/or gravesites. “Historic property” is defined by the National Historic Preservation Act of 1966 (NHPA), to be any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP.) The NHPA requires a Federal agency to “take into account” the effects of its undertakings, such as pollution removal from a submerged shipwreck, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. Federal agencies meet Section 106 responsibilities through a consultation process with the ACHP and other parties as set out in the ACHP’s regulations implementing Section 106 of the NHPA (36 CFR Part 800), or through implementation of the nationwide 1997 Programmatic Agreement for emergency response under the National Oil and Hazardous Substances Pollution Contingency Plan.

NOAA evaluated a number of the report’s shipwrecks for eligibility under the NRHP criteria to determine if any could be considered historic properties. The majority of RULET sites are associated with World War II casualties in the Battle of the Atlantic. As of 2013, the average age of each wreck is 83 years old, as many were built or retrofitted for service during WWII, meeting one of the criteria, per the National Park Service’s regulations at 36 CFR Part 60 for eligibility for nomination to the NRHP. Three potentially eligible shipwrecks were subsequently nominated and accepted to the NRHP. The information contained in the RULET risk assessments and the NRHP nominations, facilitates the efforts of USCG to work through the required consultation processes; more effectively balancing responsibilities to address potential environmental impacts and legal mandates to avoid or mitigate impacts to historic resources.

INTRODUCTION:

In support of the U.S. Coast Guard's (USCG) need to better understand pollution sources lying in the U. S. Exclusive Economic Zone, and in response to a Congressional directive and funding, the National Oceanic and Atmospheric Administration (NOAA) provided the (USCG) with an assessment entitled *Risk Assessment for Potentially Polluting Wrecks in U.S. Waters*. This assessment was part of a NOAA initiative called the Remediation of Underwater Legacy Environmental Threats (RULET), which identified the location and nature of potential sources of oil pollution from sunken wrecks (NOAA, 2013a). Following an analysis of several thousand sunken wrecks, the report determined that 87 wrecks, most in federal waters, potentially posed a pollution threat. Not surprisingly, most were over 83 years old and were likely to be eligible for the NRHP and therefore considered historic properties by NOAA. Section 106 of the NHPA requires a Federal agency to take into account the effects of its undertakings on historic properties and complete the Section 106 process or to use the 1997 Programmatic Agreement ('97 PA) prior to the approval of the expenditure of any Federal funds or prior to the issuance of any license or permit. The premise of this paper is that the removal of bunkers and cargo from an historic wreck may trigger the Section 106 process due to the potential injury to the wreck necessary to remove the pollutants. In 1995, the National Response Team Ad Hoc Committee on Cultural Resources was charged with deciding if and how Section 106 *should* be followed, not whether Section 106 is a legal requirement. Both the Committee members and the NRT agreed that it is important to protect historic properties during emergency response and that the OSC, as the Federal official most intimately involved in emergency response, should therefore consider the impact of emergency response on historic properties. However, this paper takes the position that federal agencies dealing with RULET sites have some responsibility, under U.S. law, to consider how assessment and recovery activities may affect historic properties, and to avoid or mitigate impacts.

To proactively test and refine the potential NRHP eligibility well in advance of any oil spill incident, NOAA's Office of National Marine Sanctuaries (ONMS) evaluated three representative (of the larger group of 87) shipwrecks with a high pollution potential to determine which characteristics and historical associations would be eligible for the NRHP, meet the definition of a historic property, and would then be subject to either Section 106 consultation or use of the '97 PA should the USCG move forward with assessment and pollutant recovery activities. NRHP nominations were then prepared for these three sites. The information in the nominations focused on the historical associations of the vessels and historical and archaeological integrity of the wrecks. NRHP works essentially as a sieve through which the "wheat" is separated from the "chaff," i.e. only those wrecks that truly meet the NRHP criteria would be listed or determined eligible. The nominations were intended and serve to not only refine those characteristics of the 87 wrecks which would meet the NRHP, but also provide information about whether or not a site may be eligible for listing on the NRHP. By proactive compliance with the NHPA during contingency planning, or using the '97 PA during response operations, USCG could more efficiently balance consultation and coordination activities to address environmental impacts from potentially polluting wrecks in all U.S. waters while also meeting legal mandates to avoid or mitigate impacts to historic resources.

METHODS:

The RULET report identified which of the 20,000 the shipwrecks in U.S. waters have the most potential for oil pollution impacts. The analysis took into account vessel risk factors combined with environmental impact modeling and ecological as well as socioeconomic resources at risk to determine which sites could be considered a significant threat. It determined that of the 87 submerged wrecks in RULET, 36 could pose a significant oil pollution threat to the nation's coastal and marine resources from a Worst Case discharge, and 6 were identified as high priority for a Most Probable or 10 % discharge. Of those shipwrecks, NOAA recommended 17 of the high and medium priority with known locations for further assessment and potential removal of both fuel oil and cargo. All wrecks were identified for inclusion in Area Contingency Plans (ACP) and many were identified for monitoring efforts (Symons, 2014).

Each of the RULET assessments included all known historical background about each vessel and an archaeological assessment. This provides valuable information to better determine the nature of a specific wreck's fuel and cargo contents, its level of structural stability, and hull design which helps with planning for monitoring, and in-situ assessment and recovery efforts.

Most of the wrecks in the RULET report were merchant vessels sunk off the East Coast and in the Gulf of Mexico during Germany's "Battle of the Atlantic" U-boat campaign against Allied forces in World War II, between 13 January 1942 and 6 May 1945. During the first eight weeks, U-boats or mines sank over 160 merchant vessels off the East Coast and in the Gulf of Mexico. These were mainly freighters and tankers transporting bulk shipments of fuel oil, kerosene, or gasoline and are believed to retain enough integrity to still contain bunkers and cargo (NOAA 2013a). If still present on the wrecks, these materials will pollute the environment, but to what extent depends on the scope, scale and release location. While these World War II's merchant shipping casualties should be regarded as potentially polluting shipwrecks, they are also historical resources, and in many cases gravesites. The initial screening in RULET looked at the age of the wrecks (and used the 50 year rule of thumb) as the initial criteria for being potential historic significance, but did not take the more detailed step of determining which wrecks actually met the NRHP criteria. In the meantime, the report has readily available information about what wrecks may be historically significant in advance of a recovery action.

LEGAL MANDATES:

An overview of the breadth of potential of domestic and international legal mandates can be found in Section 5 of the RULET report (NOAA 2013a). However, the most important law in the context of potentially polluting wrecks that may be of historical significance is the NHPA.

The primary purpose of the NHPA is the establishment of a national program to coordinate and support public and private efforts to identify, evaluate and protect America's historic and archeological resources. Since the 1966 passage of the NHPA, all federal agencies should have developed programs to identify, evaluate, and nominate properties to the NRHP,

including prehistoric or historic districts, sites, buildings, structures or objects subject to their jurisdiction and control.¹

The Section 106 regulations requires all federal agencies to consider the effects of their undertakings on historic properties or resources that are either eligible for listing or are listed in the NRHP (16 U.S.C. § 470(f) (2011)). The definition of “undertaking”² is broad, and includes direct federal activities on federal, state, or private lands including activities requiring a federal permit, license, or funding.³ The definition may also include sites located in U.S. territorial seas or the EEZ. When a federal agency has a project it first must determine whether it has an undertaking that could affect historic properties. If it determines that this is the type of activity that has no potential to affect historic properties, the agency has no further Section 106 obligations. For example, non-intrusive activities such as multibeam surveys do not cause an adverse effect; so no further Section 106 compliance besides internal review would be needed. If triggered, Section 106 regulations (“Protection of Historic Properties” 36 CFR § 800.3(c)) sets forth a process where the federal agency may consult with the State Historic Preservation Office (SHPO), Tribal Historic Preservation Office (THPO), ACHP, and various interested parties to 1) determine whether historic properties may be affected by a federal undertaking and if so, 2) seek ways to avoid, minimize, or mitigate adverse effects to them caused by the undertaking (in this case, the removal of oil). Sec. 106 regulations encourage coordination with other environmental laws such as the National Environmental Policy Act (NEPA), Archaeological and Historic Preservation Act (AHPA), and Archaeological Resource Protection Act (ARPA). The White House CEQ and ACHP recently released a handbook on how to integrate NHPA 106 and NEPA so that compliance with both is more cost effective and efficient⁴. While USCG doesn’t necessarily have to implement NEPA during a spill response, NEPA reviews will be necessary for proactive assessment and removal activities. The pending USCG Commandant Instruction #M16000.14, on Marine Environmental Protection will provide further guidance on NEPA issues in both emergency response and planning based scenarios.

¹ In order to be eligible for inclusion the property must meet at least one of four criteria: (a) associated with events that have made a significant contribution to the broad patterns of our history; (b) associated with the lives of persons significant in our past; (c) embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important to prehistory or history. A property must have achieved significance within the past 50 years to be considered eligible but exemptions apply if a property is of exceptional importance. To be historic a property must also have integrity, or the ability to convey significance. The NRHP lists seven kinds of integrity, including integrity of location, design, setting, materials, workmanship, feeling and association (however; the property do not need to present or exhibit all aspects of integrity to be historically significant).

² Section 301 "Undertaking" means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including — (A) those carried out by or on behalf of the agency; (B) those carried out with Federal financial assistance; (C) those requiring a Federal permit license, or approval; and (D) those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.

³ It is important to note that the determination of whether there is an “undertaking” has to do with jurisdiction of the federal agency over the project, activity, or program. Then there is also the consideration of whether the undertaking can result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effects. The jurisdiction an agency has over a project, activity, or program may be direct or indirect such as federal financial assistance. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under Section 106.

⁴ http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf

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In addition to complying with the NHPA, actions on RULET shipwrecks may also be subject to the Sunken Military Craft Act (SMCA) (Title XIV (sections 1401 to 1408) of the National Defense Authorization Act of 2005, Pub.L. 108-375, Oct. 28, 2004, 118 Stat. 2094. If a shipwreck is a United States sunken military craft the assessment and recovery efforts would require consultation with the Department of the Navy. If it is a foreign military craft, consultation with the foreign government through the U.S. Department of State prior to assessment and pollutant recovery activities. As many of the merchant vessels sunk during World War II were under the control of the War Shipping Administration or U.S. Merchant Marine, they too are subject to the SMCA and would fall under the purview of the Maritime Administration. A sunken military craft is defined in Section 1408 as any sunken warship, naval auxiliary or other vessel owned or operated by a government when it sank.

Intrusive surveys that penetrate the physical structure of the wreck and/or removal of hazardous materials would potentially have an adverse effect on a historic shipwreck or on other historic or cultural resources in the vicinity, thus triggering the Section 106 process which may be covered by the use of the '97 PA as noted later in the paper. In an emergency response, there may not be sufficient time to implement the Sec. 106 process if sites haven't been fully incorporated into Area Contingency Plans. In order to successfully complete a Section 106 review by not using the '97 PA federal agencies must, in consultation with others, follow these four steps:

- INITIATE Section 106 review and determine if it applies to a given federal undertaking;
- IDENTIFY historic properties in the project area;
- ASSESS the effect of the project on identified historic properties;
- RESOLVE adverse effects through consultation and possibly a Memorandum of Agreement

One of the first steps of the Section 106 process is to identify any historic properties that might be in the project area. (In the case of the RULET project, a historic property might be the sole target of the undertaking.) While the majority of the wrecks in the RULET data set qualify based on age alone, to date, only three shipwrecks in the RULET database have been analyzed and listed on the NRHP (*Lancing*, *Empire Gem*, and *Coimbra*). None of the other shipwrecks have been evaluated using the NRHP criteria for eligibility.

Listing the property in the NRHP or determining the property eligible for the NRHP does not prevent clean-up efforts; however it does trigger compliance with Section 106 of the NHPA. Such adverse effects could include, but not be limited to, abrading hull concretions to obtain ultrasonic thickness and neutron backscatter data, drilling and breaching the hull with hot taps to sample or remove oil, possible removal or disturbance of other features to ensure safe operations or protect nearby historic and cultural resources. Requirements vary, as no two situations will be the same. Variables such as location, fuel type, ownership, sinking event, vessel type, historic/archaeological integrity and significance, all present different sets of circumstances that affect and inform project planning and execution.

Typically, a two or three phased approach is used for a potentially polluting wreck. The decision to proceed with an assessment and pollutant recovery should start all consultation

activities including use of either the '97 PA or Section 106 if the activities have the potential to affect a historical resource. Technologies employed for surveys include divers, multibeam sonar, side scan sonar, ROVs, or AUVs. First, an initial non-invasive survey is done to map out the wreck location and orientation, determine the vessel's condition and possible debris field, and the environmental or geologic conditions. Depending on the technologies used, the action may or may not result in the determination by the FPO, a consulting SHPO or the ACHP that a historic property is affected by the activities, although final decision on a course of action rest with the FOOSC. If the preliminary surveys could not determine the amount of oil onboard further surveys will be needed. The second phase may include a more detailed assessment of the hull plating by using ultrasonic hull thickness gauging or neutron backscatter assessments. In order to confirm location, stratification, and potential amounts of recoverable oil, thru hull hot taps are necessary. Sampling of hull concretions and metal hull coupons for corrosion analysis may help determine locations of landing plate and pump locations critical to effective removal operations. The final phase includes actual salvage or removal of cargo or fuel and would also be considered invasive to the shipwreck and therefore an adverse effect due to the nature of fuel removal processes.

Past non-spill related Section 106 consultations, where there was an adverse effect finding on a historic shipwreck, resulted in agreement among the parties to mitigate the project's effects through; pre and post disturbance archaeological surveys, data analysis by an archaeologist, artifact recovery and conservation, education products, as well as survey and documentation of a similar resource type; while still proceeding with the intended federal action. In recent spill responses and per the '97 PA, efforts have focused on obtaining appropriate documentation prior to assessment and recovery efforts, and to minimizing any significant detrimental impacts.

The regulations implementing Section 106 suggest consultation with the appropriate SHPO, THPO, and /or Federal Preservation Office (FPO). Where an undertaking may affect historic properties within a particular state's waters (even where parts of the undertaking may also cause effects outside that state's waters), the federal agency should consult with that SHPO or THPO. There is currently no formal guidance from the (ACHP) on determining the appropriate SHPO for undertakings that may occur outside a State but still within the U.S.; the ACHP recommends that agencies use "common sense." For instance, if the undertaking may involve effects to a historic property with a particular historical significance to a State or is just outside State waters, then that State's SHPO would likely be an appropriate SHPO with whom to consult. In some cases, there may be consultation with more than one state. For example, the Monitor National Marine Sanctuary is some 17 nm off the outer banks of North Carolina, well outside state lands. However, NOAA periodically consults with the State of North Carolina as well as the State of Virginia as that is where the artifacts recovered from the *Monitor* are being conserved and curated. The ACHP can help federal agencies determine the appropriate SHPO/THPO/FPO, and National Park Service (NPS) and NOAA can provide assistance in determining the eligibility of a maritime historic property's in federal waters when the appropriate SHPO has not been identified (or none want to participate).

PROGRAMMATIC AGREEMENT:

The regulations for Section 106 allow an agency to fulfill its “Section 106 responsibilities for a particular program, a large or complex project, or class of undertakings . . . through development of a Programmatic Agreement (PA).”⁵ In 1997, several federal departments and agencies entered into the Programmatic Agreement on Protection of Historic Properties During Emergency Response Under the National Oil and Hazardous Substance Pollution Contingency Plan, to create a more streamlined alternative to the Section 106 review process while continuing to ensure that historic properties are properly considered during an emergency response to a hazardous substance release or spill.⁶ The ‘97 PA provides the Federal On-Scene Coordinators (FOSCs) with a simplified alternative to the standard Section 106 consultation requirements. The ‘97 PA is a standardized, nation-wide approach for the USCG to comply with Section 106 in a manner that contributes to the success of the overall response, and attempts to ensure that historic properties are not inadvertently injured or destroyed. The document also allows the creation of regional PAs that are consistent with the national agreement and the NHPA. Several Regional Response Teams have developed their own guidelines and toolkits to clarify and support the use of the ‘97 PA within their regions (Thorman, 1999).

The ‘97 PA came about as a result of the *Exxon Valdez* oil spill in 1989, where no mechanism existed at that time to address impacts to historical and cultural resources. The first use of the ‘97 PA was in November 1997 during the oil spill from the M/V *Kuroshima* near Dutch Harbor, Alaska. Subsequent uses of the agreement include the Crates Point Derailment, Columbia River Gorge NSA (2003), MV *Selandang Ayu*, (2004), MV *Cosco Busan*, (2007), SS *Montebello* (2011) and Deepwater Horizon (2010).

The ‘97 PA calls for Pre-Incident consultation and inclusion of emergency response strategies in ACP, which required the Federal On-Scene Coordinators (FOSCs) to consult with SHPO, Federal land-managing agencies, and other interested parties as part of the pre-incident planning process. The ACP should include a list of historic properties; a list of geographic areas where historic properties are unlikely to be affected in the event of spill; a list of parties to be notified; and emergency response strategies for historic resources. For the ‘97 PA, these are the relevant steps to meeting the NHPA’s historic preservation mandates:

- PRE-INCIDENT PLANNING should identify historical/cultural properties in ACPs in consultation with the relevant SHPO, THPO and federal trustees. For RULET sites, the 87 NOAA risk assessments may contain relevant information that should be incorporated into the ACPs. Properties eligible or listed on the NRHP should also be included.
- ASSESS potential effects of emergency response strategies on historic properties in consultation with SHPO, THPO and federal trustees such as NOAA or the Department of the Navy. This often includes the development of any additional requirements for a baseline structural integrity survey needed for assessment and response activities. It may

⁵ 36 C.F.R. § 800.13(e) (2004).

⁶ The signatories to the Programmatic Agreement include the Advisory Council on Historic Preservation; National Conference on State Historic Preservation Officers; U.S. Environmental Protection Agency; U.S. Department of the Interior; U.S. Department of Transportation, Coast Guard; National Park Service; U.S. Department of Commerce, National Oceanic and Atmospheric Administration; U.S. Department of Energy; U.S. Department of Defense; and U.S. Department of Agriculture.

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be necessary for the FOSC to designate a Historic Properties Specialist to develop/oversee implementation of best practices during response activities.

- DEVELOP and implement appropriate actions to minimize a response's negative effects.
- DOCUMENTATION of the decision is required if the FOSC determines that the Section 106 requirements cannot be satisfied concurrently with public health and safety issues.

The '97 PA front loads information on historical resources into ACPs prior to a spill release to allow for a quicker and more effective response. One of the most important items in the agreement is the identification and activation of a Historic Properties and Cultural Resource Specialist to provide expertise to the FOSC during the response. This individual must meet the Secretary of Interior's Historic Preservation Professional Qualification Standards as well as possessing knowledge about the area in question and familiarity with Federal and State historic preservation laws and regulations. The Specialist will work with the appropriate parties (SHPO, THPO, etc.) to assess whether response strategies have the potential to affect historical resources, establish strategies for field personnel, and help identify actions to protect historic resources. The '97 PA has allowed signatories to comply with 106 requirements of the NHPA during spill responses through a uniform approach that promotes the protection of historical resources while striving to use the best response methods to lessen effects on this nation's significant non-renewable maritime heritage resources.

RESULTS:

After the release of the final RULET report in May 2013, NOAA's Office of National Marine Sanctuaries (ONMS) followed the report's recommendations and proceeded with an analysis of three shipwrecks sites to better assess their historical and archaeological significance and determine if they were eligible for the NRHP. The three sites chosen were the tanker *Coimbra* off New York (Coast Guard District 1) and the tankers *Empire Gem* and *Lancing* off North Carolina (Coast Guard District 5). All three sites sit outside states waters in the EEZ. These sites were chosen for further research because of their medium or high ranking in the report's Worst Case Discharge (WCD) and Most Probable Discharge (MPD) assessments. All three shipwrecks had already undergone archaeological analysis to help determine the level of site integrity and historic significance. The *Lancing* scored a high for WCD and medium for MPD, the *Empire Gem* scored a medium for WCD and a medium for MPD, and the *Coimbra* scored a high for WCD and a medium for MPD (NOAA 2013a). All three wrecks were vessels sunk by German U-boats during the Battle of the Atlantic in World War II.

Vessel Name	Vessel Type	Sinking Date	Location	Cargo Type	Cargo Amount
<i>Lancing</i>	Tanker	4/7/42	12 miles off Cape Hatteras, NC	Fuel Oil	60,000 barrels
<i>Empire Gem</i>	Tanker	1/24/42	12 miles off Cape Hatteras, NC	Kerosene	76,000 barrels
<i>Coimbra</i>	Tanker	1/15/42	28 miles off Long Island, NY	Lubricating Oil	81,000 barrels

Table 1. RULET sites chosen for further analysis (NOAA 2013 a).

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ONMS maritime archaeologists proceeded with historical research and review of archaeological data for a number of vessels in the area encompassed by the Battle of the Atlantic including the 3 wrecks referenced above, thus, compiling information that NOAA and NPS believe necessary to complete either the '97 PA or the Section 106 process if assessment and recovery efforts were undertaken for these wrecks. Efforts focused on gathering documentation and drafting text required to determine if a shipwreck met the National Register Criteria. ONMS staff used the collected information to formally submit National Register of Historic Places nominations to the NPS for the *Lancing*, *Empire Gem*, and *Coimbra* to significantly lessen the work required for future Section 106 or '97 PA consultation. In the fall of 2013, all three sites were subsequently listed on the National Register of Historic Places, formally recognizing their historical and archaeological significance based on national standards.

The practical advantage of this approach is that, should one of these wrecks be declared a substantial threat and pollution recovery considered the consultation process would be shortened facilitating the response. The part of the Section 106 consultation process that would be streamlined centers around determining if a shipwreck is historic, as well as an analysis of a site's historical significance and archaeological integrity. Both the RULET assessments and the nominations aid the '97 PA's implementing steps. Information compiled in either, such as precise locational data, orientation, setting, and an archaeological assessment would be essential for project planning and in water pollutant recovery efforts. The NRHP nomination package allows the federal agency, THPOs, SHPOs and ACHP to more efficiently review potential impacts from assessment and recovery activities and determine if any remediation efforts are needed.

CASE STUDY: LANCING Shipwreck:

The shipwreck *Lancing* is presented here as a case study and as a representative of the three sites nominated and listed on the NRHP by NOAA in 2013. The U-552 sank 470-foot long Norwegian tanker *Lancing* on 7 April 1942 as it steamed from Curacao to New York with a cargo of 60,000 barrels (over 8,000 tons) of fuel oil. It lies upside down in 160 feet of water off Cape Hatteras, North Carolina close to the boundary of NOAA's Monitor National Marine Sanctuary. The U-552's torpedo hit the *Lancing*'s starboard side near amidships and exploded, blowing a large hole in its side, and flooding the engine room causing it to sink an hour and a half later (NOAA 2013b).



Figure 2. Historic photograph of the tanker *Lancing* from 1942 (Coast Guard 1942).

Lancing was built in Scotland in 1897 for the Knight Steamship Company who operated a fleet of steamships that carried cargo all around the world. Between 1897 and 1913, it made transoceanic voyages connecting the United States, Japan, India, and Australia and carrying cargos of coal, nickel ore, sugar, grain, kerosene, and barley. In 1913, the European and Brazilian Shipping Co. bought the *Lancing* and used it to ship goods to Brazil to assist with the country's modernization projects. Then in 1915 the Russian Volunteer Fleet Association acquired the *Lancing* to help American efforts to supply Russian troops during World War I and American troops stationed in Siberia after the war. In 1925, Hvae fanger A/S Globus (Globus Whaling Company) of Norway bought the *Lancing* and retrofitted it to become the first factory whale ship outfitted with a stern slipway, one of the most important developments in the history of the whaling industry. This design ushered in a new period of pelagic whaling that was not dependent on shore side facilities for processing. For the next fifteen years the *Lancing* moved whale oil between Antarctica and Norway. In the opening years of World War II, the Norwegian government took control of the ship to maintain the flow of whale oil, a vital lubricant for many military machines. After the global conflict halted Antarctic whaling operations, the tanker was repurposed to carry petroleum products. It then mainly sailed between New York and Curacao with stops in Venezuela until its loss on 7 April 1942 (Marx and Delgado 2013).

The *Lancing* qualified for the NRHP under National Register Criterion A, association with events that have made a significant contribution to the broad patterns of our history, through its overall connection with World War II and the German U-boat operations off the United States' East Coast and Gulf of Mexico. The tanker sank in the battlefield off Cape Hatteras, one of the main operating zones of enemy U-boats. Its physical remains now sit on the seafloor as evidence of the conflict that brought war directly to the American home front. Additionally, the shipwreck is also significant because of its association with the merchant shipping traffic during World War II, the Allied military response to German U-boats off the American coast, and the Axis military actions directed at the United States. In addition to its eligibility under Criterion A, *Lancing's* archaeological remains were found also to be eligible under National Register Criterion D for the important archeological information it can provide. This significant archeological resource is a representative example of the impact of Germany's U-boat campaign, and can provide information on merchant vessel design, use, and adaptation for war time operations. Lastly, the shipwreck's archeological remains can contribute to the understanding about shipboard life and the war time wrecking event as the sinking details are minimal in surviving archival documents (Marx and Delgado 2013).

In 2011, NOAA's ONMS conducted the first archaeological examination of the *Lancing*. Archaeologists utilized multibeam sonar to map the site, characterizing its orientation and site integrity. Surveys determined the wreck is in good condition lying upside down with little damage to the hull's exposed portions besides the torpedo impact zone near amidships that split the ship in half. Divers report that the area exposed by the broken hull does not open to any of the *Lancing's* cargo or fuel tanks, but that sheen on the water above the site indicates the presence of leaking cargo or fuel contents.

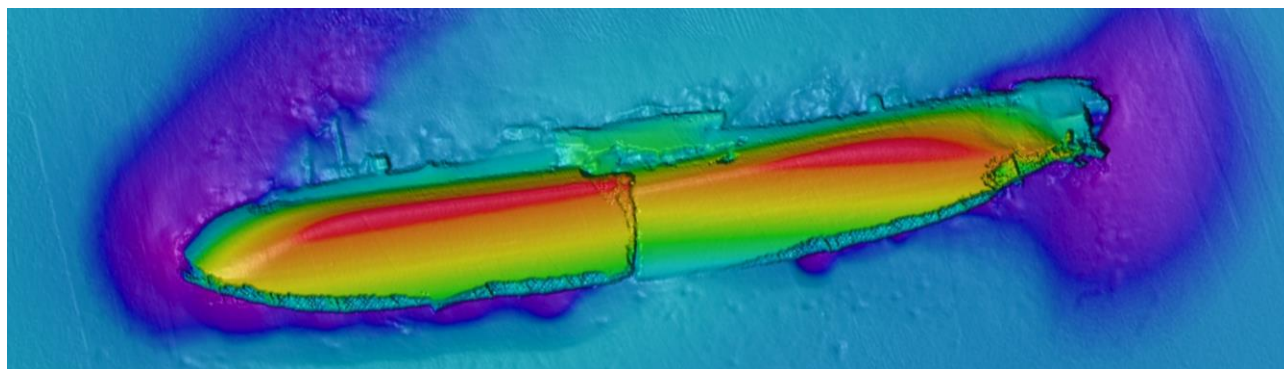


Figure 2. Multibeam sonar image of the *Lancing* shipwreck (NOAA 2011).

The RULET report concluded that it is likely that both the cargo of 60,000 barrels of fuel oil and 12,000 barrels of heavy bunker fuel are still present in its tanks and further assessment is needed to determine the wreck condition, amount of oil onboard, and feasibility of oil removal action (NOAA 2013b). As the *Lancing* is a historic resource any undertaking to address its pollution threat would most likely need to go through the Section 106 process or use the '97 PA. The NRHP nomination prepared by the ONMS provides much of the necessary historical/archaeological background required for project planners to design assessment and recovery actions by facilitating the initial characterization. This can lessen the work required under the '97 PA or the Section 106 process facilitating USCG's focus on potential affects from operational aspects of the assessment and recovery activities

CONCLUSIONS:

The RULET report documented 36 of the 87 shipwrecks around the United States that pose a pollution threat to the nation's coastline. Of those sites, 17 with confirmed locations were recommended for further assessment for the potential removal of fuel oil and/or oil cargo. Thirteen of the 17 were vessels lost off the United States during World War II due to German U-boats and based on a launching date more than 50 years ago should be evaluated to determine if they are eligible for listing on the NRHP as historic properties under the NHPA. Three of the four shipwrecks needing further study are not associated with German U-boat depredations. All of these sixteen potentially historic sites could meet the Criteria for nominations to the National Register and should be evaluated for listing. As federal trustees, NOAA and DOI suggest that the '97 PA for the NHPA's Section 106 be implemented for any undertakings that include invasive assessments or pollutant removals from a RULET shipwreck determined to be eligible for the NRHP. Information developed in this process helps to inform response planning.

To facilitate any future actions on three of the RULET sites, NOAA's ONMS nominated three of the high pollution risk shipwrecks to the NRHP. The NPS listed all three on the NRHP in 2013. NRHP listings streamline the Section 106 process and alleviate some of the documentation work prior to assessment and pollutant recovery. For the remaining RULET sites that have not undergone further historical and/or archaeological analysis, the information contained in the NOAA "Screening Level Risk Assessment Packages" for each of the 87 wrecks provides information to facilitate their inclusion in Area Contingency Plans and would provide the initial documentation necessary for consultation under the Programmatic Agreement. The

wrecks sunk during World War II, with their fuels and cargos of petroleum products, are a majority of the high risk sites in the RULET report, but proper environmental planning and historic preservation considerations will result in a reduction of pollution threat combined with recognition of our maritime past.

DISCLAIMER:

The views expressed in this article are those of the authors and do not necessarily reflect the views of the NOAA, the ACHP, the NPS, the USCG, or any other agency of the U.S. government.

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