Chapter 12
No Visibility, No Artifacts, No Problem? Challenges Associated with Presenting Buried Sites and Inaccessible Shipwrecks to the Public

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Abstract Archaeologists have made great strides in educating and engaging the public about submerged cultural resources. Common tools for public outreach now include heritage trails, site maps, and interpretive signage to aid in site visitation. Many of these tools, however, were developed and have been applied in areas where scuba diving is an entrenched industry facilitated by good visibility. What happens to sites that are not easily accessible, or are buried and not readily apparent at the seafloor? In federal waters of the northwestern Gulf of Mexico, many archaeological sites, including shipwrecks and prehistoric sites, are buried below the seabed. Where shipwrecks are above the seafloor many are located in low- to zero-visibility areas, and/or contain dangerous entanglement hazards. Archaeologists and resource managers working in this area, and similar environments, must overcome many challenges in order to present these submerged cultural resources to the general public. Alternate methods for public outreach, such as websites and geophysical interpretation, exist but carry their own unique challenges.

Introduction

Public outreach and education have reached a high level of awareness within the professional archaeological community. Many professional organizations, including but certainly not limited to the Society for Historical Archaeology, Society for American Archaeology, and Archaeological Institute of America, consider it part of their mandate and recognize its importance through the maintenance of special

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website pages, publications, and standing committees. While archaeologists are interested in answering questions about past human behavior, it has become an accepted strategy to promote sites and their additions to the story of human history to the public as an effective site preservation tool. Methods now commonly used in outreach and education efforts focus on site visitation and site promotion, with many strategies catering to those who cannot physically access the site. Interpretive measures may include the creation of underwater parks or preserves, interpretive signage, websites, or popular publications, but are best suited for sites that have something to see. As illustrated by examples in the northwestern Gulf of Mexico's (GOM) federal waters, archaeologists still face challenges in public outreach when attempting to promote shipwrecks and submerged prehistoric sites that cannot be visited or are not readily apparent to the naked eye.

Archaeology in the Northwestern Gulf of Mexico

The northwestern Gulf of Mexico includes the areas offshore of Louisiana and Texas where submerged archaeological resources range from prehistoric landscapes last exposed as dry land during the last glacial maximum to shipwrecks associated with the events of World War II (Pearson et al. 1986; Stright 1986; Enright et al. 2006; Gearhart et al. 2011; Evans et al. 2013). Although active archaeological research has been ongoing in the federal waters of the northwestern Gulf of Mexico for over 35 years, these resources are not as widely known when compared with their counterparts in state waters (such as Texas's *La Belle*). While management strategies and responsibilities may account for some of the differences in the treatment of submerged archaeological resources under different jurisdictions, the physical settings of the resources themselves significantly impact outreach strategies.

The northern Gulf of Mexico basin extends approximately 825 nautical miles from the eastern coast of Texas to the western coast of Florida. Despite the openness of the basin, the region is divided geologically into two distinct zones: the eastern karst platform and the western alluvial plain (Curray 1960). The difference in regional geology effectively splits the northern Gulf of Mexico into two separate areas. The northeastern Gulf, including the areas offshore of Mississippi, Alabama, and Florida, is characterized by white sandy beaches and blue water. The northwestern Gulf, including the areas offshore of Louisiana and Texas, is known more for its offshore oil and gas industries and fishing than for beach tourism. It is the offshore industry, however, that drives the majority of seafloor survey in federal waters, and therefore contributes the most to the discovery of submerged archaeological resources. Hundreds of historic and modern wrecks are verified, and thousands more "reported" in the northwestern Gulf, but archaeologists have a difficult time promoting these resources to the public.

Targeting Sites for Public Outreach

When used effectively, site visitation is a powerful tool in public outreach, allowing the visitor to connect with the site in a very visceral manner. It is recognized, however, that not everyone can physically visit archaeological sites, nor are all archaeological sites good candidates for public outreach (Advisory Council on Historic Preservation [ACHP] 2008). Before developing sites for public visitation, archaeologists must carefully evaluate them for their contribution to the public interest as well as for their long-term sustainability. Principles and guidelines for the selection of sites for public interpretation have been developed by different organizations and serve as examples of criteria to be considered. For the purposes of developing underwater sites for public visitation, examples of criteria were reviewed from the Florida Bureau of Archaeological Research and the Cayman Islands National Museum, and supplemented with recommendations from the Advisory Council on Historic Preservation. In order for a site to be considered appropriate for visitation it must be evaluated for the following: identity, safety and accessibility, sustainability, and legal status.

Identity

A site that is promoted to the public should have a reasonably identifiable history. Public outreach should attempt to convey the context of the site, what it is, where it came from, and how it came to be wrecked. By telling a comprehensive narrative, the public learns not only what the site is, but what it means to the history of the area. This is no different than any terrestrial site that is interpreted for the public, and in fact is similar to eligibility criteria for listing to the National Register of Historic Places, which requires a comprehensive understanding of the site's identity and context (National Park Service [NPS] 1992, 1997).

Safety and Accessibility

When the public is actively encouraged to visit a site there must be consideration for the safety of all visitors. Safety is therefore paramount when considering whether or not to develop interpretative materials for a site, particularly the inclusion of detailed information regarding a site's location. Safety concerns include the environment in which the site is located, and specific to underwater sites includes variables such as depth, the presence of strong currents, entanglement hazards, or hazardous sea life. In terrestrial settings, signage and visual markings can clearly delineate zones that are unsafe for access; offshore, these boundaries are less obvious but no less important. The presence of shipping fairways and anchorages provides clearly defined

routes for vessels, which have priority of use in these zones; unauthorized vessels anchored in fairways may pose a hazard to themselves or to other vessels. Site accessibility refers to the ability to safely and legally visit an area. For example, accessibility requires evaluating whether a site is located on private property or is in an area open to the public.

Sustainability

Sites selected for visitation should be those that are stable enough to be subjected to long-term use. For underwater archaeological sites this means that any visible structure should be able to withstand accidental impacts, such as divers holding onto or crawling over the site. Consideration also must include the presence of any visible artifacts, especially small, portable objects that could be easily removed or damaged. Sustainability refers not just to the site, but also to the surrounding environment, particularly organisms living on or within the site, which must be healthy enough to sustain visitation.

Legal Status

Any site developed for public visitation should have clear legal protection in place against artifact collection, unauthorized excavation, or other damage.

When Visitation Is Not an Option

Numerous shipwrecks have been developed for public visitation, and often serve as economic benefits for local dive operators and tourism professionals. Why, then, have shipwrecks in federal waters of the northwestern Gulf of Mexico not been developed into underwater preserves? The answer is because wrecks in this area do not meet the necessary criteria for public visitation.

The Issue of Identity

With the exception of a handful of sites investigated as part of larger research studies (Enright et al. 2006; Ford et al. 2008; Evans et al. 2013), the majority of archaeological resources identified in federal waters of the northwestern Gulf of Mexico are located during Section 106-mandated surveys conducted on behalf of the oil and gas industry. In the United States, offshore oil and gas industry activities are regulated by the U.S. Department of the Interior's Bureau of Ocean Energy Management

Fig. 12.1 Shipwreck site components are covered by surficial sediment and intrusive netting (Photo by Greg Cook, 2010)

(BOEM) and Bureau of Safety and Environmental Enforcement (BSEE). Passage of the National Historic Preservation Act (NHPA) in 1966 introduced requirements for federal undertakings (defined as projects located on federal land, using federal funding, or requiring a permit from a federal agency) to consider their impacts on known and undiscovered cultural resources within the area of potential effect (NPS 2006a). In the GOM, the outer continental shelf (OCS) is federal land, and oil and gas operations require permits from the managing agency for drilling and pipeline installation. As a response to their NHPA 1966 responsibilities, BOEM/BSEE and their preceding agencies have issued archaeological lease stipulations since 1973. Survey guidelines and reporting requirements dictate the manner in which surveys are conducted. When potential shipwrecks are identified during a survey, the targets are reported to the agency and are avoided by an agreed-upon distance; the operator is not required to conduct further investigation unless avoidance is not an option or the site is impacted (Evans et al. 2013: 198–202). This means that although wrecks have been located, the vast majority remain unidentified.

Safety and Accessibility Concerns

Photography and videography are used with great success on many archaeological sites but cannot be used with regularity in the northwestern Gulf of Mexico, due to frequent low- to zero-visibility conditions. Seafloor sediments consist primarily of silts and clays, with a lower percentage of sand than is found in the northeastern Gulf. Sediment accretion is highest in the central Gulf, closest to the Mississippi River delta and, to a lesser degree, to the outfalls of the Atchafalaya and Vermilion Rivers. Silty sediment can cover exposed portions of wreck sites, but also stirs up easily, decreasing visibility (Fig. 12.1). Figure 12.1 also illustrates a common hazard found on wreck sites throughout the northwestern Gulf, the presence of intrusive netting and fishing line. The northwestern Gulf is home to intensively trawled

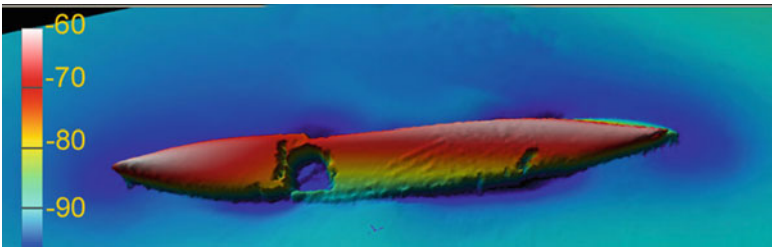

Fig. 12.2 Multibeam image of the steamship *RW Gallagher*, an inverted tanker with multiple hull breaches; *color scale at left* indicates depth in feet below sea level (Evans et al. 2013: 38)

shrimping grounds (Evans et al. 2009). Despite attempts to record the locations of known hangs and obstructions, shrimp trawlers and other commercial fishing vessels often catch their nets on unidentified shipwrecks. Combined with low- to zero-visibility conditions, these nets create entanglement hazards for divers.

Some of the larger wrecks within the northwestern GOM are tankers and commercial vessels targeted by German U-boats during an active campaign to disrupt shipping between 1942 and 1943 (Rohwer 1983; Wiggins 1995). Many of these vessels have been identified and clearly have a strong narrative, but present significant safety concerns that would prohibit their development for heritage tourism. In some cases, large torpedo holes allow direct access to the interior of inverted hulls, which in low-visibility environments could be extremely dangerous to sport divers (Fig. 12.2).

The continental shelf in this region is wide and shallow, measuring approximately 130 miles wide at the Texas–Louisiana border with an average seafloor gradient of approximately 1.3 m (4.3 ft) per statute mile (Curray 1960: 223; Bernard and LeBlanc 1965: 137). Although a large number of wrecks on the OCS are within sport diving depth limits, prevailing conditions on many sites are insufficient to safely encourage public visitation.

Lack of Legal Protection

In the northwestern Gulf of Mexico, the biggest hurdle to public outreach is the lack of legal protection for archaeological resources. Sites located in state waters are afforded legal protection through state laws such as Florida Statutes Chapter 267, as well as the Abandoned Shipwreck Act (1987). Conversely, shipwrecks located in federal waters on the outer continental shelf are explicitly excluded from most legal protection. As used in the Archaeological Resources Protection Act (ARPA) of 1979, Section 3(3)(B), the term "public lands" does not apply to the outer continental shelf, thereby excluding resources on the OCS from ARPA protection (NPS 2006b). Tenuous protection is provided to some shipwrecks through application of the NHPA which prevents unnecessary site impacts during federally permitted

activities, such as oil and gas drilling. This protection is described as tenuous because once the permitted action (including any ancillary activities) is concluded, the site is no longer protected. The only clear protection for sites on the OCS is afforded to military vessels through application of the Sunken Military Craft Act (2005), which does not exclude sites based on their location (NPS 2006c). The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 does not exclude the OCS from the defined "federal lands," but to date no sites have been identified that would instigate this type of protection; therefore the validity of its application is untested (NPS 2006d).

A Note Concerning Submerged Prehistoric Sites

Submerged prehistoric archaeological sites are closely associated with those portions of continental shelves that were exposed as dry land during the last glacial maximum (Masters and Flemming 1983; Benjamin et al. 2011; Evans et al. 2014). In the northwestern GOM this coincides with occupation by Paleoindian and Early Archaic populations, groups that did not have an extensive material culture (Ricklis 2004; Rees 2010). Sites that could exist include hearths, lithic scatters, kill sites, and other similar features which are not always obvious within an overall landscape. In the northwestern GOM these types of sites are invisible to divers, being buried below the modern seafloor (Pearson et al. 1986; Stright 1986; Evans and Keith 2011). Discussions of the preservation and identification of submerged prehistoric archaeological resources require a significant discussion of local geology and sea-level change.

Beyond Visitation

The intent behind outreach and interpretation is to instill awareness and appreciation for archaeological resources within the general public. Visitation is a direct way to connect people to sites, but is not the most effective method of outreach since not everyone can visit sites, and not all sites should be visited. Archaeologists have increasingly turned to the Internet to connect with the public, developing site-specific or project-based websites. Websites have the benefit of being cost-effective and available to anyone with internet access. The limitation of websites, however, is that they depend upon an already interested audience to seek them out.

Buried and inaccessible sites present challenges to outreach because limited visibility conditions on-site preclude the acquisition of high-quality photographs. In some cases text-based description may provide sufficient information but, increasingly, images created from geophysical data are used in place of photos (Fig. 12.2). Geophysical images may require additional, or at least initial, explanation but are a viable alternative for illustrating sites for which photography is ineffective. Unlike

artistic renderings, images based on geophysical data have an added advantage of being accurate representations of a site's characteristics, since they are based on measurements and data.

A significant mechanism for solving problems related to public outreach and education is to revise the definition of "public." Groups such as the Nautical Archaeology Society and Florida Public Archaeology Network routinely offer heritage awareness courses for recreational divers and dive professionals, but increasingly these types of workshops are targeted to more diverse audiences. Since 2010, the Advisory Council on Underwater Archaeology has offered a Submerged Cultural Resources Awareness workshop for terrestrial archaeologists and land managers. Proactive archaeologists are developing other courses targeting tangential professionals, such as remotely operated vehicle pilots and commercial divers (Eslinger and Landry 2009). By rethinking the definition of "public," archaeologists can convey their message in a proactive manner to those most likely to encounter the resource, and before adverse impacts occur.

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