

The Potential of Maritime Archaeology (Shipwreck Sites) for Sustainable Marine Tourism Management and Strengthening Historical Narrations in Tidore, North Moluccas, Indonesia

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ABSTRACT

The potential of shipwreck site resources in “Spice Routes,” Ternate-Tidore, reflects several historical pieces of evidence relating to archaeological remains from the Portuguese and Spanish eras in the surrounding sea and coastal areas. In the 1990s, a plethora of archaeological remains were salvaged. An integrated archaeological study is an initial step to optimize the use of underwater archaeological resources in the area of interest. The survey consisted of local coordination, expert consultation, literature study, field surveys and underwater observations, mini excavations using water dredging, artefact samplings site measuring and documentation, artefact desalination, and C₁₄ carbon dating analysis for wooden materials found within the site. Moreover, the water quality survey for marine tourism interests and Trinidad ship reconstruction is significant in supporting 500 years of circumnavigation of the earth by Ferdinand Magellan and Juan Sebastian Elcano and supporting publication and dissemination. Based on the present study, it is observed that Soasio and Tongowai sites have the potential to be developed as the centre of integrated marine ecotourism with maritime archaeology-based sites. This consideration is due to plenty of historical artefacts and tourism feasibility assessments. Therefore, local and regional regulations relating to regional spatial planning are crucial before implementing the ecotourism project in this area.

Keywords: Maritime archaeology, shipwreck sites, sustainable marine tourism, Tidore

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INTRODUCTION

Tourism is an essential aspect for a country, which can increase state and local government revenue (Runtunuwu 2020, 1). Tidore Island is becoming the preferred ecotourism destinations in North Maluku Province. Exotic natural panoramas combined with cultural-historical sites create an enchanting paradise in eastern Indonesia (Wijayanti et al. 2022, 1). Tidore Island is worthy of further development due to its strategic position and many mesmerizing coastal areas as a potency for supporting marine tourism. However, in developing the tourism potency of this region, many aspects should be considered since there many existing problems (Kader 2017, 20), such as the local facility and the low awareness of the underwater cultural heritage UCH importance (Fahri & Alhadar 2022, 2; Runtunuwu 2020, 2).

The existence of two underwater archaeological sites, Soasio and Tongowai Sites, highlight the potential for underwater archaeology in the Tidore Islands. Aside from high biodiversity within the sites, these two primary sites have a historical value related to the shipping and international trade in the 15-17 centuries AD (Rahmawan et al. 2021, 173). Therefore, the further development should be supported by a tourism development strategy. Local tourism management and third party's authorities should contribute to conserve the remains by establishing policies and protections (Masberg and Morales 1999, 290). Therefore, this research article on "The Potential of Maritime Archaeology (Shipwreck Sites) for Sustainable Marine Tourism Management and Strengthening Historical Narrations in Tidore, North Moluccas, Indonesia" is significant to support the development of underwater historical tourism in the Tidore Islands.

CASE STUDY

Based on information from the local community and local government in Ternate and Tidore, around the 1990s, there was a lot of goods looting in several archaeological sites in Tidore waters. The lack of knowledge of the local government and the community about the existence of UCH makes the remains more vulnerable and less protected (Rahmawan et al. 2021, 170). Therefore, identification of underwater archaeological potential in Tidore waters is essential as a basis for further conservation, development, and decision-making in terms of protecting the underwater archaeological remains. In addition, this study is expected to promote the potential of the site for marine tourism and other preservation strategies in dealing with the vulnerability of the site and its aquatic environment.

RESOURCES

As mentioned earlier, the primary location of this study is in the Soasio and Tongowai sites, Tidore Island, North Maluku Province (Figure 1). Many historical objects have been managed as an attraction for supporting the tourism aspect, such as the Tidore Sultanate Palace, Torre Fort, Tahula Fort, Sonyine Malige Museum, Sultan Nuku Tomb, Sultan Mosque and Sultan Pier (Sosmiarti and Fahlefi 2019, 282). However, the Tidore Islands underwater history is less promoted and even rarely visited due to the lack of local awareness regarding the importance of UCH. Therefore, in this study we will exhibit the underwater archaeological resources in Tidore and further development planning to promote and manage the remains.

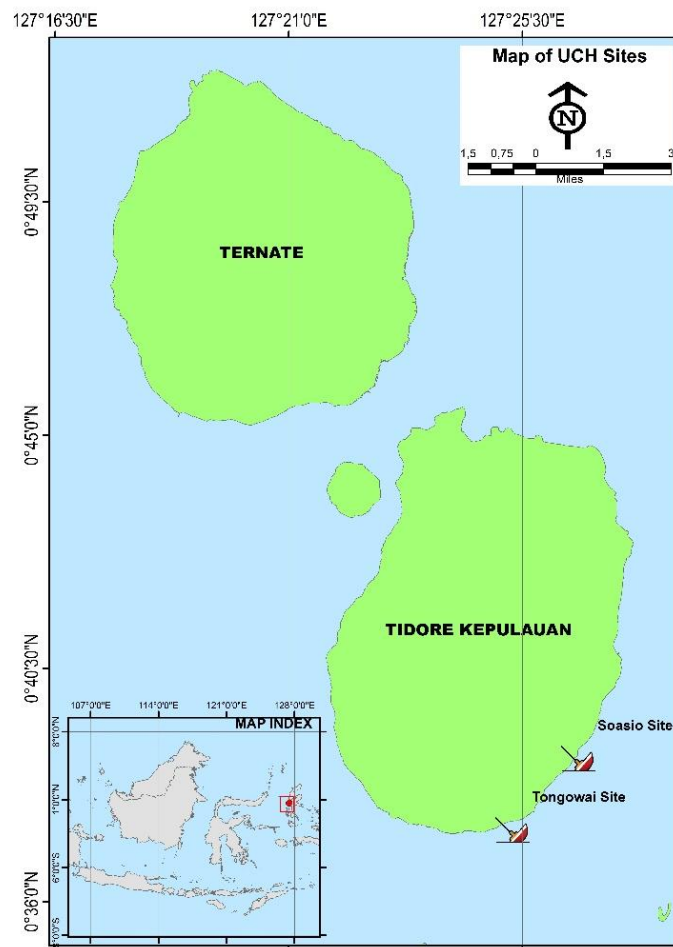


Figure 1. The distribution of underwater archaeology sites in Tidore Islands.
Source: Field survey, Research Institute for Coastal Resources and Vulnerability, 2021.

FRAMEWORK

The primary data of this study were obtained from a research report by the Research Institute for Coastal Resources and Vulnerability (RICRV) in 2019 and 2021. The research activities included: mapping bathymetry, hydro-oceanography, geology, and diving to observe archaeological sites' photos and videos, and the quality of the ecosystem and aquatic environment (Irani et al. 2022, 3). In addition, local interviews with the government, village officials, and communities around the site were also carried out.

Masberg and Morales (1999, 290) suggest that five factors are included in ecotourism development: (1) an integrated approach; (2) planning and a slow start; (3) Education and Training; (4) maximizing local benefits and (5) evaluation and feedback. Outcomes are for a successful and viable ecotourism development; these five factors ensure the objectives are achieved.

Artefact data analysis identified UCH from the Soasio Site and the Tongowai Site (Figure 1). We aimed to determine artefacts type, age, and the place of origin of production. In addition, observations of the position of the sites and GPS tracking data of important historical sites along the coast near the Soasio and Tongowai sites were also carried out, which were analysed to know the spatial distribution in relation to the two sites.

RESULTS

Historical Tourism and Underwater Archaeological Sites in Tidore Islands

The oceanography of the Soasio site is characterized by relatively weak currents so divers can dive anytime. Aside from the underwater archaeological remains, clear seawater with various types of coral reefs and fish are attractions. The Soasio seabed has a slope of about 130 degrees. The distribution of artefacts in ship wood, ballast stone, and ceramics is 15-20 m deep (Rahmawan et al. 2021, 175).



Figure 2: The distribution map of historical sites in Tidore Islands.

Another site is situated in Tongowai Village where the cannon was found at a depth of 37-42 m (Figure 2). According to local interviews, the cannon had previously been lifted along with other artefacts by a salvage company in 1998. This was done by Japanese investors, as proved by the existence of two drums and ropes tied to the cannon, which were used to lift the cannon. The artefacts discovered in 1998 are stored in a Central Halmahera Guesthouse in Itagapura. The lifting of the artefacts at the Tongowai Site occurred when Tidore Islands was under the Halmahera Tengah Regency.

The Significance of Underwater Archaeology in Tidore Islands

Underwater Archaeology in Soasio

The presence of shipwrecks at the Soasio site was known based on findings of four meters of wood in an inclined position at the depth of 12 meters. The remains are mostly covered by coral reefs and sediment deposits (Figure 3a). According to the historical records and local interviews, only Spain and

Portugal colonized Tidore Island. Therefore, initial suspicions were that the ship was a Spanish or Portuguese ship anchored in the port of Tidore. However, the results of the C_{14} analysis show the oldest wood sample is from 1054 AD, and the youngest is from 1379 AD.

The ceramics found at the Soasio site are categorized as porcelain and stoneware. Ceramics made from porcelain have a white glaze and blue-white colour under the glaze. One intact plate is known as Swatow blue and white porcelain, which was produced during the Wanli period (1575 – 1659 AD) of the Ming Dynasty (1368-1644 AD), and a bowl fragment is known as blue-white porcelain from the time of Emperor Tianqi (1621 – 1627 AD) of the Ming Dynasty (Figure 3b).

The findings of earthenware jars based on their size consist of large and small jars. There are seven large jars and two small jars. The jars are glazed brown, and three of them have four ears. The jars are all incomplete (Figure 3c). In the water area of the Soasio Site, there are interesting remains in the form of rock formations deliberately arranged from ancient times that look like wave breakers or beach protectors (Figure 3d).



Figure 3: Documentation of UCH in Tidore Islands; shipwreck indication (a); ceramic findings (b); jars and earthenware findings (c); bird's eye view of Soasio site (d)

The ecosystem around the Soasio site is covered by coral reefs, of about 60% (good condition) at a depth of 4-15 m, with the basic contour being a reef slope. The coral reef genera found included: *Acropora sp*, *Merulina sp*, *Giniastrea sp*, *Montipora sp*, *Porites sp*, *Pectinia sp*, *Symphyllia sp*, *Favia sp*, *Astreopora sp*, *Montastrea sp*, and *Diploastrea sp* (Figure 4a). Meanwhile, the types of fish found were indicator fish or associated fish and target/economic fish such as grouper, snapper, and pelagic

fish (Figure 4b). The seafloor substrate consists of rubble/dead coral rubble, sand deposits and sediment resulting from landslides around the coast (Figure 4c). Based on the results of the calculation of the tourism suitability index, the Soasio site is included in the quite suitable category with a value of 73.02%. The suitability index value is based on the water brightness parameter, coral community cover, life forms, types of reef fish, archaeological site depth, current velocity, and reef depth.



Figure 4: Biodiversity in the surrounding Soasio site; coral covers (a); fish ecosystem (b), sediment substrate (c).

UCH in Tongowai Site

The Tongowai site at a depth of 37-42 m is where the cannon was discovered. The artefacts found at the Soasio site are more scattered than at the Tongowai site. According to locals documented in Rahmawan et al. (2021, 175), the observed cannon was an artefact left over from salvage conducted in 1998 (Figure 5a). Another cannon, earthenware, and ceramics were removed in 1998 by a Japanese company and are in the government house of Halmahera Tengah Regency (Figure 5b). The condition of the pottery was not conserved, so a white surface was observed due to salting (Figure 5c).

The brightness or visibility on the seabed of the Tongowai Site reaches 25 m. The bottom contour of the Tongowai waters is made up of reef flat and reef slope, with the bottom substrate consisting of dead coral fractures and sand deposits. Coral reefs are found at depths from 1 - 25 m with concentrations of dense coral cover at depths of 2 - 10 m. Percentage Cover (PC) of live coral reaches

50 % (Good Condition...Figure 5d). The coral genera that can be found include: *Acropora.sp*, *Montipora sp.*, *Seriatopora sp.*, *Oxipora sp.*, *Porites sp.*, *Stylopora sp.*, *Pectinia sp.*, *Psammocora sp.*, *Galaxea sp.*, *Fungia sp.*, *Pocillopora sp.*, *Favia sp.* and *Hidnopora sp.*, and there are sponges, soft corals, and sea fans/Gorgonians. Based on the results of the tourism suitability index calculation, the Tongowai site's location is categorized into entirely appropriate for tourism with a value of 77.8%.

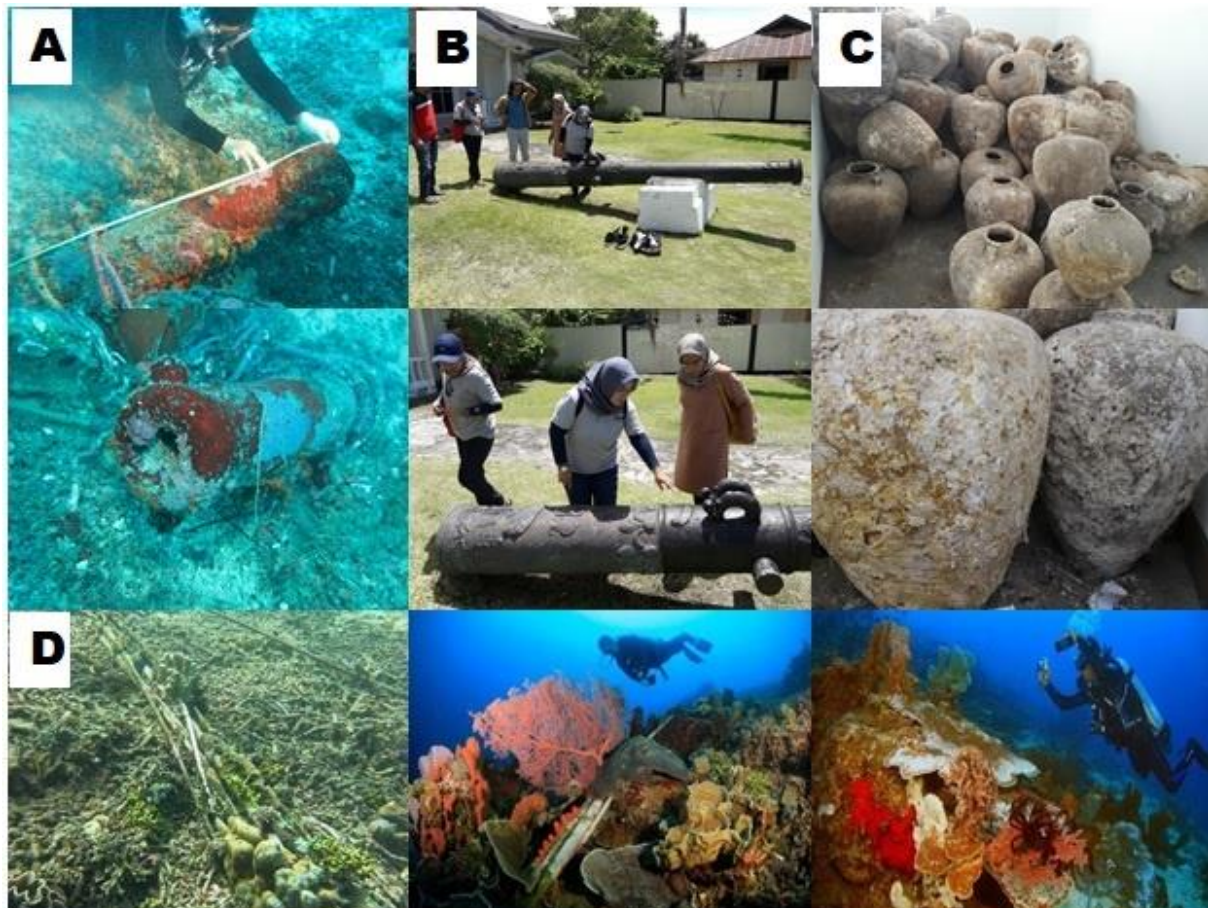


Figure 5: Documentation of UCH in Tidore Islands; underwater cannon finding (a); excavated cannon from Tongowai site (b); A pile of earthenware (c); coral covers and ecosystem in Tongowai site (d).

Maritime and Underwater Heritage Trail Developments

The places where the shipwreck and the underwater remains do exist in the Tidore Islands have potential for marine tourism, especially for underwater diving objects. Based on the process of identification and analysis of the data, a strategy for further protection and development of sustainable UCH in the Tidore Islands can be initiated. The formulation of the management strategy for developing underwater archaeology potential in the Tidore Islands is shown in Table 1.

Table 1: The formulation of the underwater heritage trail development strategy.

No	Identified Criteria	Strategic Plan
1	Mutual commitment	Aligning the vision and mission makes the Soasio and Tongowai sites sustainable tourist destinations
2	People empowerment	- Involve community members in decision making. - Ensure that local communities receive benefits. - Ensure environmental sustainability.
3	Village attractiveness	- Develop a tourist image (brand image) Gurabunga in line with the existing tourism image in the area. - Raising the history of various old buildings in the Tidore Island area, especially Tongowai and Soasio site - Environmental conservation. - Preservation of traditional customs and culture - Development of tourism product packaging in the form of enrichment of tourist attractions, development of tourism packages, and integrated tourism promotion. - Provision of supporting facilities for local product development. - Develop tour packages in Soasio and Tongowai village.
4	Human resource development	- Education and training on village tourism and tourism awareness. - Tourism-based entrepreneurship courses/training for residents of productive age and school dropouts in order to develop local crafts, souvenirs, etc. - Intensive guidance to local guides on tourist assistance (especially climbing guides). - Provide knowledge to the public about UCH.
5	Villagers' motivation	- Formation of tourism awareness group. - Increase the creativity of the existing community. - Provide capital strengthening for the provision of support for tourism development, both for business capital for souvenirs and capital for supporting equipment for artistic attractions. - Equipping tourist companions, especially diving companions, and providing adequate diving support equipment. - Encouraging local regulations that facilitate licensing of business operations in the tourism sector in Soasio and Tongowai villages.
6	Facility and infrastructure	- Planning and development of facilities & infrastructure adapted to the concepts and strategic plans of tourist destinations (coordination with Indigenous elders and the Tidore city government). - Building support facilities for unique traditional tourism activities. - Prioritizing the development of road infrastructure to facilitate access for tourists to Tongowai and Soasio Sites and adjacent villages. - Re-enable the security post along with the security forces or officers, to avoid criminal acts while in the tourist area. - The addition of a homestay in an adequate resident's house. - Public toilet construction. - Make a spatial/land use plan in the context of developing an environmentally friendly tourist village. - Install mooring/marketing buoys on the two sites (Figure 8a).
7	Promotion	- Promoting Soasio and Tongowai to various mass media, namely print media, electronic media and also online media. - Make booklets and leaflets containing information on Soasio and Tongowai Village and guidebooks about UCH tourism. - Conduct counselling and socialization for tourism actors. - Holding various events related to Tidore UCH. - Participate in national tourism festival events or exhibitions. - Installation of information boards (heritage trail) that tell the history of the sinking of the Trinidad ships and the history of the presence of the Spanish and Portuguese in Ternate-Tidore (Figure 8b).

The right strategy for developing tourist destinations in Tidore UCH is through Community-Based Tourism, which reflects the diversity of culture, traditions, natural beauty, crafts and cuisine. Aim to become the local identity with a concentration of tourist destinations that does not compete for tourists.

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