



Review Article

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Submerged Cultural Landscapes in Australia: Nerm and Corayo

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Introduction

Submerged cultural landscapes, as a topic of applied investigation, is in its infancy in Australia. In contrast to Europe, Australian studies by archaeologists and anthropologists are in their formative stages when it comes to what is labelled as 'maritime archaeological investigations' [1]. Further, it even less understood from a First Nations perspective in Australia and especially when it comes to the nexus between archaeology and submerged landscape narratives [2]. The topic challenges both archaeological practitioners as well as government policy makers [3]. The majority of their understandings about this topic tend to focus upon the edge of the continental shelf waters, 10,000-30,000 years BP, rather than recently submerged landscapes [4]. For Australian, mainstream terrestrial archaeological surveys are used to dates ranging from 5,000-60,000-year BP, but not to dates 500-2,000 years ago. Least of all is their appreciation and acceptance of the First Nations' Peoples longitudinal histories of landscape change and formation on this niche area [5,6].

These complexities have been recently raised through an environment effects statement (EES) [7] evaluation process for a proposed floating Natural Gas Terminal in Corio Bay/Corayo [8], an appendage of Port Phillip Bay/Nerm in Victoria, Australia. This topic was substantially absent from Jem Archaeology (2021) [9] and AE-COM (2022) [10] despite the former's solid terrestrial assessment and the latter's detailed review of dredge spoil options [11].

Little understood in this EES investigation was First Nation's tangible and intangible values. The easiest content was terrestrial tangible archaeological evidence derived from past that comfortably addressed mainstream archaeological investigation and exca-

vation practices towards realising and aligning to the Cultural Heritage Management Plan (CHMP) process embodied in the *Aboriginal Heritage Act 2006 (Vic)* [12].

Two of the Purposes of this Act include: '(c) to strengthen the ongoing right to maintain the distinctive spiritual, cultural, material and economic relationship of traditional owners with the land and waters and other resources with which they have a connection under traditional laws and customs; and (d) to promote respect for Aboriginal cultural heritage, contributing to its protection as part of the common heritage of all peoples and to the sustainable development and management of land and of the environment.' Section 4(1) of the Act 2006 additionally includes the definitions of: '*Aboriginal object* means-

- a) an object in Victoria or the coastal waters of Victoria that
 - i. relates to the Aboriginal occupation of any part of Australia, whether or not the object existed prior to the occupation of that part of Australia by people of non-Aboriginal descent; and
 - ii. is of cultural heritage significance to Aboriginal people generally or of a particular community or group of Aboriginal people in Victoria; or
- b) an object, material or thing in Victoria or the coastal waters of Victoria
 - i. that is removed or excavated from an Aboriginal place; and
 - ii. is of cultural heritage significance to Aboriginal people generally or of a particular community or group of Aboriginal people in Victoria-...*coastal waters of Victoria* has the same meaning

as the expression 'coastal waters of the State' has in relation to Victoria under the Coastal Waters (State Powers) Act 1980 (Cth) [12].

Contextually Corayo was created as part of the late Holocene sea flooding of Nerm in 1,200-1,500 years BP, and was the last area of the Nerm flooding perhaps in 900-800 year BP due to a unique north-south axis sand lunette structure that still today connects Port Henry/Moolap with Point Lillias. Such today requires that the post-1880s created shipping Hopetoun Channel (that provides shipping access into Corayo from Nerm to service Geelong/Djilang) is constantly dredging year-round as the sands move and want to fill the channel. Seismic and core dating and bay floor channelling maritime hydrological evidence suggests that between approximately 1,000-2,800 years BP Nerm became a freshwater lake principally filled from the waters of the Yarra River/Birrarung Marr and then became dry, despite sea levels being stable at modern levels. The drying of Nerm was caused by sand blockage at the mouth of Nerm to Bass Strait/Warre and was aided by high rates of evaporation [Holdgate; Rhodes]. At around 1,000 years BP the blockage at the Nerm entrance was breached, perhaps due to sharp earthquake fault line movements, shattering the integrity of these sand shoals enabling the progressively egress of saline waters from Bass Strait [13].

From a First Nation's perspective, through the eyes of the Wadawurrung People, As the Advisory Committee may be aware, Wadawurrung People have a long residency and responsibility for this region of colonised Victoria. While contemporary public domain archaeological reports for the Melbourne/Naarm region have long talked about Aboriginal ancestral remains and living tangible heritage dating about the 10,000-15,000 years ago [14,15], recent archaeological investigations associated with Cultural Heritage Management Plans (CHMPs) on the Bellarine Peninsula/Ballawiyw are, for Wadawurrung People, now pushing this residency date back to some 40,000 years ago [16]. Over the course of the last 40,000 years Wadawurrung People have witnessed the eruptions and lava flows of many volcanoes in this region [17], the consequences of climate change through sea level rises and the flooding of Nerm/Port Phillip Bay [18], the cessation of the land bridge to Tasmania/Lutruwita [19], changes in the nature and characteristics of the ecological vegetation communities in this region shifting towards a drier environment, the deterioration of cultural flows as a consequence, and all through these changes the Wadawurrung People have had to chart innovative resilience and adaptation strategies and practices. Our living oral stories tell of these changes, and our resilience and adaptation strategies and practices, as 'historical' words, songs and dance tapestries, including the flooding of Nerm. Of relevance in this project appraisal, is that Corayo has existed for only a short time. This was and continues to be today a land+water landscape that Moorpunyal (Great White Egret/*Ardea alba*) continues to watch over. Thus, there are Wadawurrung and Bunurong [20] stories of Nerm, several recorded in colonial manuscripts as well as in a Select Committee proceeding [21] that a colonialist stated.

"Murray, an aborigine, assured me that the passage up the bay, through which the ships came, is the Yarra river, and that the river

once went out at the heads, but that the sea broke in, and that Hobsons Bay which was once a hunting ground, became what it is" [21].

This evidence tells of the Nerm plains as being extensive open grassy plains and woodlands reaching towards the extensive braided meandering and Biyal (River Red Gum/*Eucalyptus camaldulensis*) - lined [13] north-south watercourse of Birrarung Marr. These plains were only flooded by saline sea waters some 3,000-1,000 years ago [13], and because of the sand bridge from Moolap/Point Henry to Lillias/Point Lillias, Corayo was the last tract engulfed by saline sea waters approximately some 1,000-800 years ago. This sand bar holds post-colonial stories of people with cattle and sheep traversing north-south its sandy reaches. Prior to the flooding, Corayo comprised extensive open grassy plain with woodlands, and extensive freshwater chains of ponds fed by today's Cowie's Creek, the unnamed Johnstone Park watercourse, the unnamed Rippledside Park watercourse, Hovells Creek, of which Wadawurrung People witnessed this flooding and can still today see this unflooded landscape.

Contemporary hydro-geological investigations conclude that as Nerm water levels slowly increased, Wadawurrung occupation sites around the original Birrarung Marr watercourse were progressively abandoned in favour of sites above the new water levels, additionally offering both new prospect and refuge to the changing landscape and its resources. Unfortunately, no detailed dating of midden sites is available around the shores of Nerm or Corayo to test this concept. Additionally, for Nerm and Corayo, these contemporary hydrogeological investigations conclude that the respective floodings occurred slowly and progressively meaning that Wadawurrung living cultural heritage sites, including middens and hearths, would have been little damaged by slowly encroaching waters as distinct from the devastating erosive waters of flash-flooding. Wheeler, et al. (2011) have concluded that:

The desktop assessment found that the archaeological record of the last 2,000 years of foreshore occupation and use will be disproportionately affected by the projected environmental changes and this may result in a significant loss of heritage and knowledge, particularly regarding the last 2,000 years of Aboriginal life on the bay. The report addresses the critical question regarding how to mitigate the impact of sea level rise on archaeological and cultural values around the bay, and notes: ... It will be critical to clearly identify sites and areas of high archaeological and/or cultural heritage sensitivity that are at greatest risk as soon as possible to provide the information needed to obtain funding and plan for protection and mitigation [22].

Coincidentally in Victoria, there are currently two extensive investigations into submerged cultural landscapes presently in progress that include a strong respect of and appreciation to First Nations tangible and or intangible living cultural heritage in their methodologies and mitigation strategies/measures. One is in Gunditjmarra Country's waters in Portland Bay, entitled the 'VIC Offshore Windfarm Project', for Alinta Energy allied to offshore wind farm investigations, being led by a partnership of Extent Heritage and Wessex Archaeology. The second is being led by Extent Heritage associated with the new Marinus Link that involves a proposed 1500-megawatt capacity undersea and underground electricity

connection that traverses GunaiKurnai Country and Palawa Country waters across Warre.

So for an experienced archaeologist to respond to an EES Inquiry and Advisory Committee with the statement:

I agree that the presence of possible tangible archaeological values and possible intangible cultural values associated with Corio Bay have not been fully assessed by Technical Report O. The assessments undertaken for the Cultural Heritage Management Plan (CHMP) that has been prepared for the project did not include a direct assessment of the bay floor as this is outside my area of expertise (I am not a maritime archaeologist) and the impracticability of assessing archaeological values of the bay floor was accepted by WTOAC during the CHMP assessments and consultation [23].

...

WTOAC makes it clear that they would like a Cultural Values Assessment to be undertaken for the project. Such an assessment was outside the scope of my engagement for the project (which was limited to the assessments for and preparation of the CHMP, Technical Report O and Technical Report P addressing archaeological values) and is also outside my area of expertise as an archaeologist, as Cultural Values Assessments address intangible values [23].

Begs the professional ethical responsibility to respecting, caring for Country, and the adherence to the very aims of the Aboriginal Heritage Act 2006 (Vic).

Thus, there is an urgent need for Australian archaeological practitioners to better understand, appreciate and incorporate both respective Aboriginal tangible and intangible values and assets into their assessments and narratives so to elevate and enhance Aboriginal values, and in the case of this article, Wadawurrung values, as legitimate truths in unravelling the magic of the Australian landscape.

Acknowledgment

None.

Conflict of Interest

None.

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