

The Relevance of Archaeology to Coastal Zone Management

by Peter Hellyer

Introduction

With the increasing focus by Government agencies in the United Arab Emirates, as well as para-statal companies, such as those in the Abu Dhabi National Oil Company, ADNOC, Group on the necessity to study and conserve the country's coastal zone (including islands, the inter-tidal zone and shallow inshore waters), the concept of an integrated plan for coastal zone management is being developed. This was the subject of a workshop organised in November 1997 by the Environmental Research and Wildlife Development Agency, ERWDA, of Abu Dhabi, in association with the regional office of the United Nations Development Programme, UNDP. The paper that follows is a slightly revised version of a short submission prepared as a contribution to that workshop.

The purpose of this paper is to contend that the coastal zone, or rather the land areas contained therein, including islands, are of very substantial importance for an understanding of the cultural heritage of the people of the United Arab Emirates. Any planning for coastal zone management should take this factor into account.

Further, through investigations of the evidence of human cultural heritage, as identified through archaeological surveys and excavation, it is also possible to obtain data which is of direct or potential significance in terms of both present and past environments and wildlife.

Archaeology and Coastal Zone Management

Archaeology in the United Arab Emirates began as recently as 1959, when a team of Danish archaeologists were invited to investigate reports of ancient burial mounds at Umm Al Nar, adjacent to Abu Dhabi. The site, it should be noted, was on an island which falls within the coastal zone of the Emirate of Abu Dhabi.

From excavations at this site, which continued intermittently until the early 1980s, substantial information was recovered about the Bronze Age inhabitants of the United Arab Emirates during a period from around 2,500 BC (4,500 Before Present, BP), until 2,200 BC (4,200 BP). This information included not only that deriving from human skeletal remains, pottery and other artefacts as well as from domestic and funerary architecture, but also items of environmental significance.

The consensus among archaeologists is that the camel bones excavated at the site represent the earliest evidence yet found of the domestication of the camel, which has in the subsequent millennia been a crucial factor in permitting man to survive in the deserts of the Arabian peninsula.

Other bones have provided evidence of species of marine mammals not yet scientifically recorded live in the waters of the United Arab Emirates, such as members of the orqual family, probably either the Sei Whale,

* هذه الورقة تؤكد بأن المناطق الساحلية لدولة الإمارات ذات أهمية قصوى لفهم التراث الموجود في المنطقة وأن المحافظة على المناطق الأثرية جزء من المحافظة على البيئة.

Balaenoptera borealis, or the Bryde's Whale, *B. edeni*.

An analysis of bird bones from the tombs has provided other useful information. One of the species identified is the Giant Heron, *Ardea bennuides*, is extinct, which was described from and is only known from the Umm Al Nar excavations. Two other species identified from the excavations are also of importance, the Darter, *Anhinga melanogaster*, and Bruce's Green Pigeon, *Treron bicincta*. The former is now found no nearer than the marshes of the Tigris/Euphrates Delta and the latter no nearer than the woodlands of Dhofar in the Sultanate of Oman. Their presence at Umm Al Nar is suggestive of a different habitat existing in this part of the UAE's coastal zone in the past (1).

Other archaeological excavations on the coast and islands of the United Arab Emirates, including Abu Dhabi, have produced further environmentally-related information. Thus from a 6,000 year old settlement on Dalma, fish bones have been recovered from the grouper family, probably that of the Brown-spotted Grouper, *Epinephelus tauvina*, Hamour, which suggest the fish were of a length of a metre or more. Hamour of such a size are rare, if not unknown, today. Does the archaeological information suggest that human exploitation of the hamour over thousands of years has led to a decline in the maximum size reached by the species? (2).

Similarly, a collection of marine molluscs from a recently discovered Late Islamic Bedu camping site inland of Abu Dhabi, but close to the edge of the *sabkha* and, therefore, on the fringe of the coastal zone, includes shells of the Pearl Oyster *Pinctada radiata*, which are noticeably large. Some fragments suggest that the intact shells may have been between 80 mm and 120 mm in diameter, significantly larger than the maximum size of 65 mm of live or recently dead specimens to be found on the shoreline or in coastal waters today. Does this suggest that the maximum size of Pearl Oysters has declined, and, if so, has this been as a result of human exploitation? (3).

A substantial amount of other data relevant to a full understanding of the coastal and inshore marine environment may also become available from a study of archaeological sites. One group of sites likely to yield such information is the middens to be found along the country's coastline.

Thus excavation of a shell midden in Umm Al Qaiwain in 1993 uncovered a cemetery of 42 burials that have been dated to the 'Ubaid period, probably 6,000 - 7,000 years BP. Artefacts from the graves included part of a shell bracelet, and a single pearl, suggesting that the human inhabitants of the Emirates at this period had already commenced harvesting pearls, while associated pottery has been shown by thin section analysis to have been imported from Iraq, one of the earliest indications yet of the involvement of the people of the Emirates in maritime trade (4).

Other examples of information from middens can also be cited. Thus many middens are largely comprised of shells of the large mangrove-dwelling gastropod *Terebralia palustris*. Some of these middens are found in areas today which are far from the present-day coastline and from surviving stands of mangroves. A detailed plotting of the location of such sites may be able to supplement geomorphological and other data relating to earlier coastlines, and may also be of assistance in studies on the former extent of mangroves *Avicennia marina* in the United Arab Emirates. This is clearly of relevance in understanding current mangrove distribution and in assessing areas for future mangrove plantation.

Moreover, the composition of shell middens varies. Adjacent to the village of Ghubbah on Merawah, for example, some middens of Late Islamic date are comprised primarily of the gastropod *Hexaplex kuesterianus* while others include both this species and *Pinctada radiata*, although at different levels (5).

A plotting of middens on the coast and islands of the Emirates, as well as sampling and dating of such middens, may be able to provide indications not only of changing patterns of human consumption but also of the previous distribution of the molluscs concerned. If co-related to information on the present distribution of these molluscs, this may, in turn, provide data on the way in which the distribution of molluscs today coincides with, or is different from, the distribution in the past.

The above relates primarily to the data on the wildlife of the coastal zone that may be gained from archaeological studies. Such data from the past may well be of significance in helping to comprehend that of today, and, consequently, in the drawing up of any plans for coastal zone management.

More generally, however, the coast and islands of the United Arab Emirates have been shown, both through excavation and through preliminary survey to contain a very large number of archaeological sites, dating back to the Late Stone Age. In the Emirate of Abu Dhabi and of particular relevance to the Environmental Research and Wildlife Development Agency, ERWDA, many of the most significant sites have been identified on the offshore islands, such as Balghelam, Dalma, Ghagha', Liffiyah, Merawah, Yasat al-Sufia, Yasat al-Ulya and so on (6). These include the oldest settlement yet identified in the Emirate of Abu Dhabi, on Dalma, and the best preserved site from the Late Stone Age yet found in the Emirate, on Merawah.

Preservation of these sites, and of others as yet unidentified, and of the cultural heritage of which they are a part, is clearly of importance within the framework of the management of the Emirate's coastal zone.

While a substantial amount of information on the evidence of human settlement within the coastal zone has already been collected, there is much more work yet to be done. Less than 30 of the Emirate's offshore islands have yet been the subject of archaeological survey, with many more yet to be visited. With the rapid pace of development on many islands, archaeological data may be lost before it is ever found. Thus a survey of the islands of Arzanah and Zirku in 1995 found only one single site remaining on Arzanah, a Late Islamic shell midden, and none on Zirku (7). Both islands, however, were certainly known as far back as 1590, when they appear in a list of islands mentioned in a book by the Court Jeweller of the Serene Republic of Venice, Gasparo Balbi (8). Any sites that may have dated from that period, or earlier, have now evidently been destroyed as a result of recent oil-related industrial development, although, fortunately, the recent introduction by the Abu Dhabi National Oil Company, ADNOC, of a much tougher environmental policy, (also covering archaeological sites), should help to ensure that such losses do not continue within the area of operations of the ADNOC Group of companies.

Any policy for coastal zone management should take into consideration the need to ensure that archaeological sites are, at least, identified before construction work takes place, and, preferably, that they are fully recorded and either protected or drawn and excavated, as appropriate.

Another conclusion that can be drawn from archaeological survey on the coast and islands of the Emirate of Abu Dhabi is that patterns of human use, whether occasional, seasonal or permanent, varied considerably. In general, the islands appear to have been used more. A conclusion has thus far been tentatively drawn that this may have been because of the fact that movement by sea was easier than crossing the often water-logged *sabkha* salt flats (9). Further research will help to elucidate this point. Furthermore, it is clear from recent work that on the coast itself, patterns of use varied, even in areas that are relatively close to each other.

Thus on the coastline of the Dabb'iyah peninsula, approachable by land only across *sabkha*, and with extensive inter-tidal flats that would have made access by boat difficult, there is little evidence of human occupation (10). In contrast, on the nearby island of Qusabi, to the west, where the intertidal flats are less extensive, and thus boat-borne access is easier, evidence of previous human settlement is more easily identified (11).

Further archaeological research, coupled, perhaps, with ethnographic studies into the now-vanishing patterns of human exploitation of the resources of the coastal and inshore marine environment of Abu Dhabi, may well be able to add significantly to understanding of the heritage of the people of Abu Dhabi and of the United Arab Emirates as a whole.

In the process of determining the appropriate methods for and purpose of the management of the coastal zone, it is important that the human factor, as exemplified by the results of archaeological research, is not overlooked. It represents an integral part of the significance of the coastal zone.

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Recent publications/Reviews

Breeding Bird Atlas of Oman

The Oman Bird Group published in January this year a 32 page softback Breeding Bird Atlas for the country. The Oman Birds Records Committee, on behalf of OBG, undertook during a rapid transition to computerised record-keeping, the inordinately time-consuming task of entering over 160,000 records of a total of 441 different species to a user-friendly database. The breeding atlas, compiled by Jens Eriksen, recorded of the OBRC from 1987-1997, marks the culmination of those well-worthwhile efforts.

Some one hundred and twenty five species are suspected or proven to have bred in Oman (compared to the UAE's 107) and for each of these a conventional gridded atlas map appears in this handy publication. Three sizes of symbol are used to denote possible, probably and confirmed breeding records in all but 11 of the 144 half degree grid squares which ornithologists have been able to visit up until the end of 1997. The publication contains only maps and no accompanying text.

Ibn Battuta credited with recording breeding bird data in Oman as early as the 12th century AD, although whether his data have been admitted to the atlas is not stated. The OBRC cooperates with international and regional studies such as the Atlas of Breeding Birds of Arabia project and with records committees in neighbouring countries, including that of the UAE, namely the Emirates Bird Records Committee. Checking closely through the atlas, however it is embarrassing to note that

data is missing for some species or for some squares about which birdwatchers in the UAE have ample data to the contrary (admittedly mostly overspilling introduced species). The introduction to the Atlas includes a request from the OBRC for readers to submit to it data on breeding birds or any other bird observations made in Oman and this can only be reiterated here.

The Atlas is an impressive piece of work by any standards and your fun in scrutinising it will not be spoiled by drawing comparisons with the UAE's avifauna, although it is irresistible to note how close, yet far, we are from recording our first Spotted Dikkop (recorded in a square share with the UAE no less). Aside from this esoteric observation, it is the many squares with confirmed and probable breeding records of houbara and golden eagle which immediately stood out to the present reviewer, musing on the former natural state of the UAE's now much altered and diminished desert.

The Atlas of the Breeding Birds of Arabia will be the major beneficiary from this enormously valuable piece of work. At the price of Atlas works out at more than 13,000 records a dirham — its a veritable bargain, so buy it — and then contribute your own records.

The *Breeding Bird Atlas of Oman* is available from the Hon. Secretary, OBRC, P.O. Box 246, Muscat 113, Sultanate of Oman. Price: RO1; 2 pounds sterling or 4US\$, Cash or RO/sterling cheque made payable to I. Harrison.