

The changing landscape and seascape of Ra's al-Hadd, Oman; an archaeological perspective

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Located on the easternmost part of Oman, Ra's al-Hadd is strongly affected by seasonal monsoons. When strong offshore south-western summer winds bring deep, cold ocean currents to the surface, seabirds, cetaceans and shoals of deeper-water fish follow the strong upwelling of nutrients closer to the shore. It is likely that the exploitation of marine resources in the Bronze Age (third millennium BC) was also dependent on the pattern of seasonal monsoons.





The British Museum conducted excavations at Ra's al-Hadd during the period from 1989 – 2015. These archaeological sites have produced evidence for major mangrove resource use at the lagoons shown above.

Avicennia marina mangrove



Mangrove wetland is a multiple-use ecosystem. Its importance is wide-ranging and directly influences the availability of resources for exploitation by people. It enhances fishery productivity of the adjacent coastal waters by acting as a nursery for fish, prawns and crabs and supplying organic and inorganic nutrients. Mangroves are also rich in biodiversity and provide niche habitats for wildlife, including refuges for birds.

Consequently, we can say with confidence that the predominance of healthy mangrove vegetation (modelled in green below) at Ra's al-Hadd directly influenced the success of occupation of this area during the Bronze Age, as testified by the rich and diverse evidence of the fish, turtles, dolphins, marine molluscs, lagoon molluscs, crustaceans, and mangrove charcoal from the archaeological contexts.



But during the Iron Age (1300 BC – 300 AD) there are signs of mangrove over-exploitation, prompting the need for people at Ra's al-Hadd to adapt to changing conditions. Thorn scrub charcoal begins to replace mangrove charcoal in the archaeobotanical record. Deep-water fish species predominated, unlike in the Bronze Age where lagoon/estuarine and reef species were very important. The extraordinary diversity of fish species identified from Bronze Age sites subsequently became unavailable on a regular basis. Only a reduced range could be fished from boats far off-shore in deeper waters. Marine molluscs, selected from the coral reefs and rocky shores at Ra's al-Hadd were smaller in size in the Iron Age, seeming to indicate a molluscan population under stress.



From the Iron Age onwards, there is increasing pressure to adapt to a changing way of life at Ra's al-Hadd. The pottery from the Iron Age archaeological contexts included a surprisingly high proportion of really good quality fine wares, suggesting a different kind of cultural use of Ra's al-Hadd – probably involving more extensive trade networks and movements of people.

Moving forward in time, an early fort ↓ (now reconstructed) was established at Ra's al-Hadd in the 17th or 18th century AD, presumably as a safeguarding response to the well-established and lucrative sea-faring trade between Oman, Pakistan and India.



From 1995 onwards, Ra's al-Hadd has continued to change in economic and environmental aspects.

IN CONCLUSION

The optimal period of most diverse resource use at Ra's al-Hadd was clearly during the third millennium BC when there was an economic and cultural way of life compatible with the natural environment. There was a balanced exploitation of the rich and varied marine and coastal resources, which were vital for human settlement in an area whose climatic variability may not have allowed permanent agriculture.

After the Bronze Age, over time, economic flexibility would have been necessary to combat a growing problem of reliance on one major commodity in an area of diminishing mangrove resources and adapt to a changing way of life at Ra's al-Hadd.



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