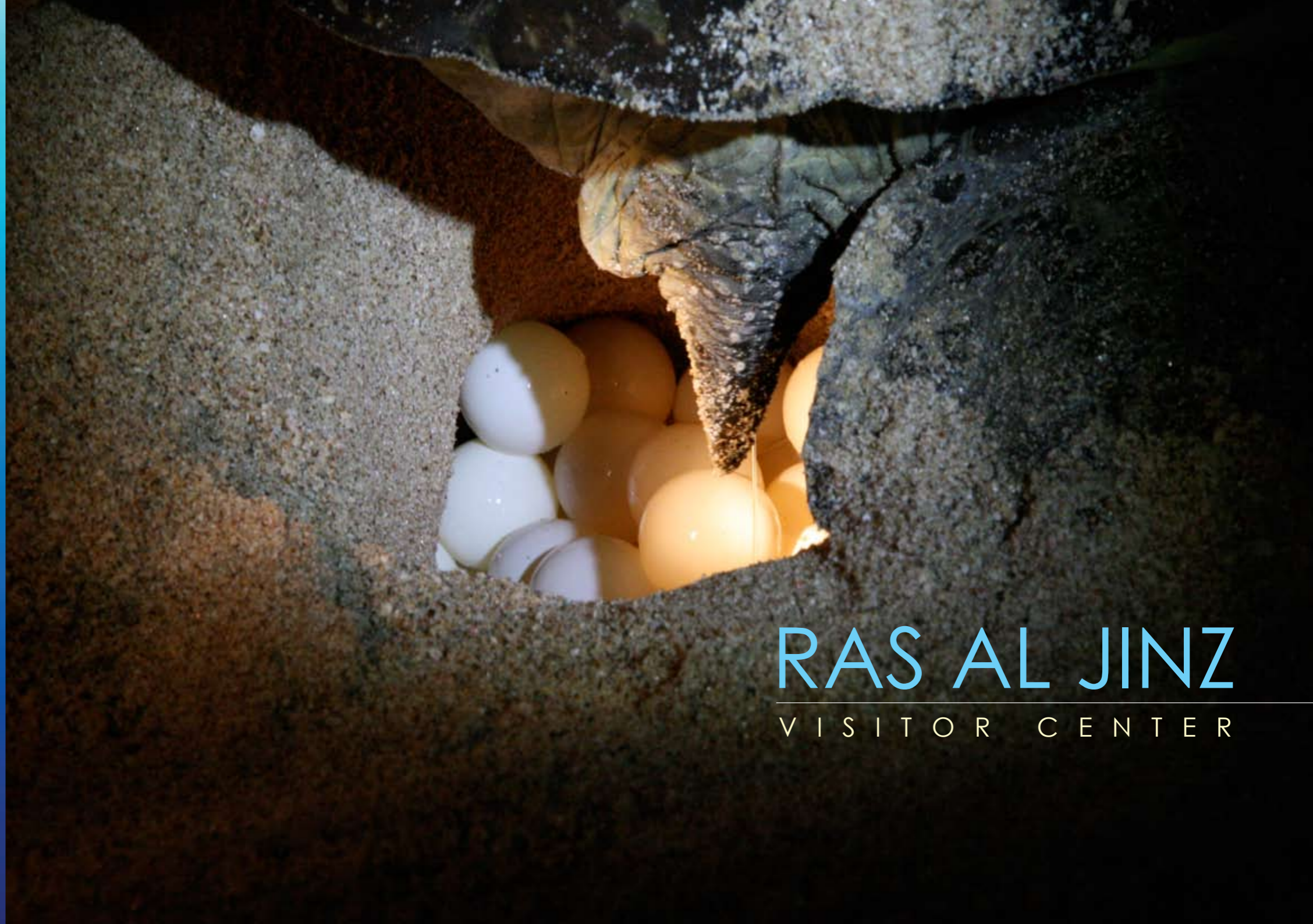




RAS AL JINZ

V I S I T O R C E N T E R



RAS AL JINZ
VISITOR CENTER

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www.rasaljinz-turtlereserve.com



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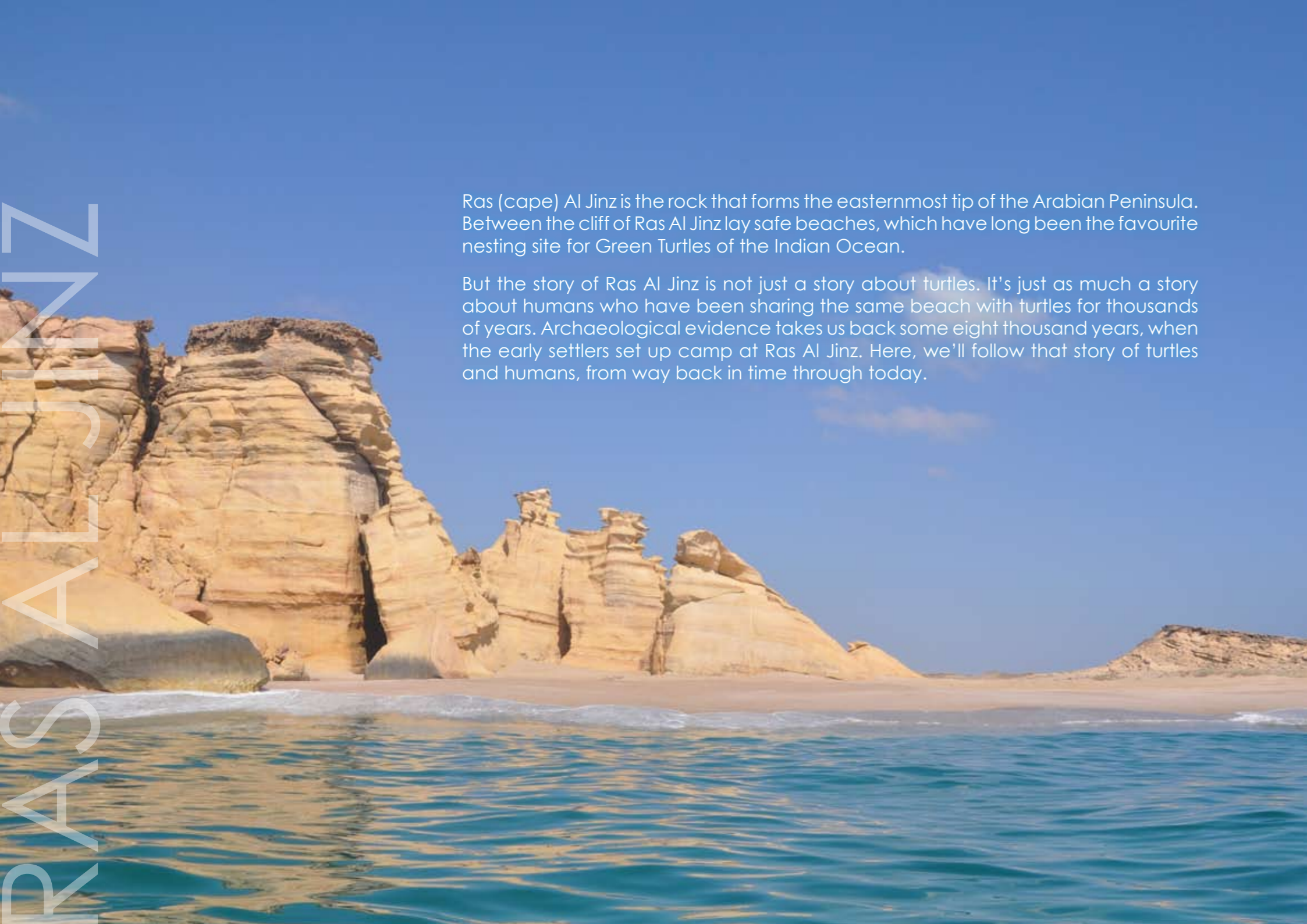


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Ras (cape) Al Jinz is the rock that forms the easternmost tip of the Arabian Peninsula. Between the cliff of Ras Al Jinz lay safe beaches, which have long been the favourite nesting site for Green Turtles of the Indian Ocean.

But the story of Ras Al Jinz is not just a story about turtles. It's just as much a story about humans who have been sharing the same beach with turtles for thousands of years. Archaeological evidence takes us back some eight thousand years, when the early settlers set up camp at Ras Al Jinz. Here, we'll follow that story of turtles and humans, from way back in time through today.

SEA TURTLES IN OMAN

Worldwide, seven different species of sea turtle are recognized. Four of them nest in Oman: the Loggerhead, the Hawksbill, the Green and Olive Ridley Turtles. The Leatherback Turtle is sometimes seen as a visitor offshore, but it does not lay eggs here. Here, at Ras Al Jinz, the Green Turtles abound. Some researchers even consider Ras Al Jinz the biggest nesting site in the Indian Ocean.

The four different species of sea turtles all have a different nesting season. Olive Ridleys lay their eggs in February. Hawksbill turtles start nesting a little bit later, in April. The Loggerheads follow later on, in June, to be followed by Green turtles in July-August. Biologists like to refer to this as an example of 'niche partitioning', where different species of animals nest or look for food of different kinds, at different times, in different areas, so as to not get in each other's way.

	 Loggerhead Turtle	 Hawksbill Turtle	 Olive Ridley Turtle	 Green Turtle
February				
March				
April				
May				
June				
July				
August				

Sea Turtle nesting seasons in Oman



Green Turtle



Hawksbill



Olive Ridley



Loggerhead



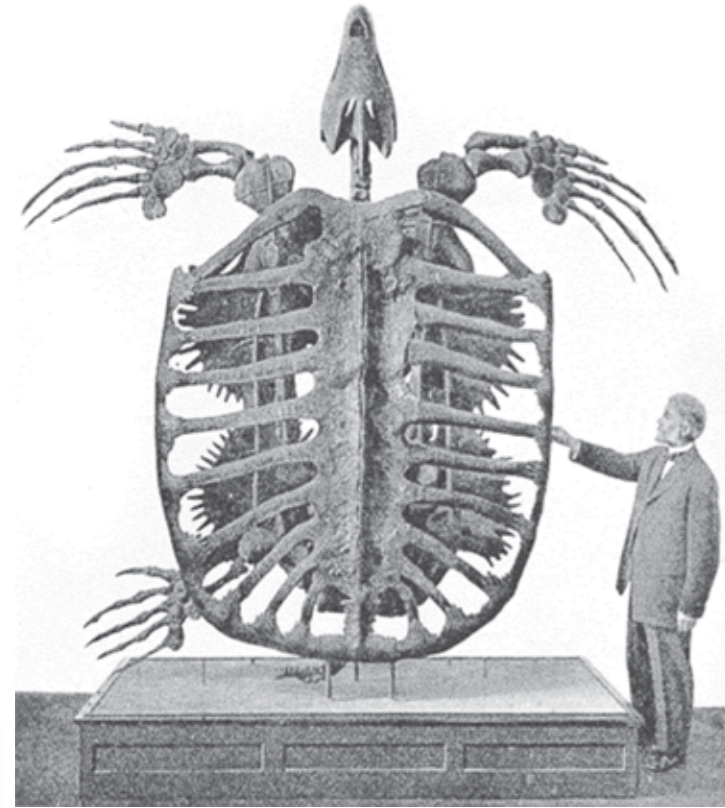
Leatherback

WHERE DO THEY COME FROM?

Fossil remains of the first turtle-like reptiles were discovered in rocks in Germany, dating back more than 200 million years. This particular animal, called Proganochelys, had a club on its tail, and thick spines on its neck, so it could not retract its head in its shell.

Those early turtles were land animals, and only about 150 million years ago, the first turtles ventured out to sea. Some of them grew tremendously big, reaching sizes of three metres or more.

With their history tracing back to land, sea turtles don't have gills like fish, so they have to surface to breathe. They also inherited the need to lay their eggs on land, which nowadays leaves them more vulnerable than ever – even though the turtles have been around much longer than the dinosaurs!



The 75 million years old Archelon ischyros.
Length: Over 4 mtr, Weight: 2 Tons aprox.



This cast on display at Ras Al Jinz Visitor center is the first cast ever made for a 45 million years old fossilised skeleton of a sea turtle found in Kazakhstan (on display at Ras Al Jinz Visitor Center).

CONSERVATION ISSUES

Sea turtles do have natural enemies, and young sea turtles are very vulnerable. But today, human activities form the greatest threat to the survival of sea turtles. The consumption of turtle meat and eggs, pollution and the destruction of turtle nesting grounds are just a few examples.

Six of the seven turtle species are listed internationally as "endangered"; and in many countries protection measures have been implemented.

In Oman strict legislation makes it illegal to even disturb turtles, let alone hunt them, or destroy their nests. At some of the most intensively used turtle nesting beaches additional protection measures are in place, with some stretches of coastline specifically designated as protected areas such as Ras Al Hadd Sea Turtle Nature Reserve and The Daymaniyat Island Nature Reserve.



Ministry Of Environment and Climate Affairs Rangers monitoring Green Turtles in Ras Al Jinz Turtle Nature Reserve



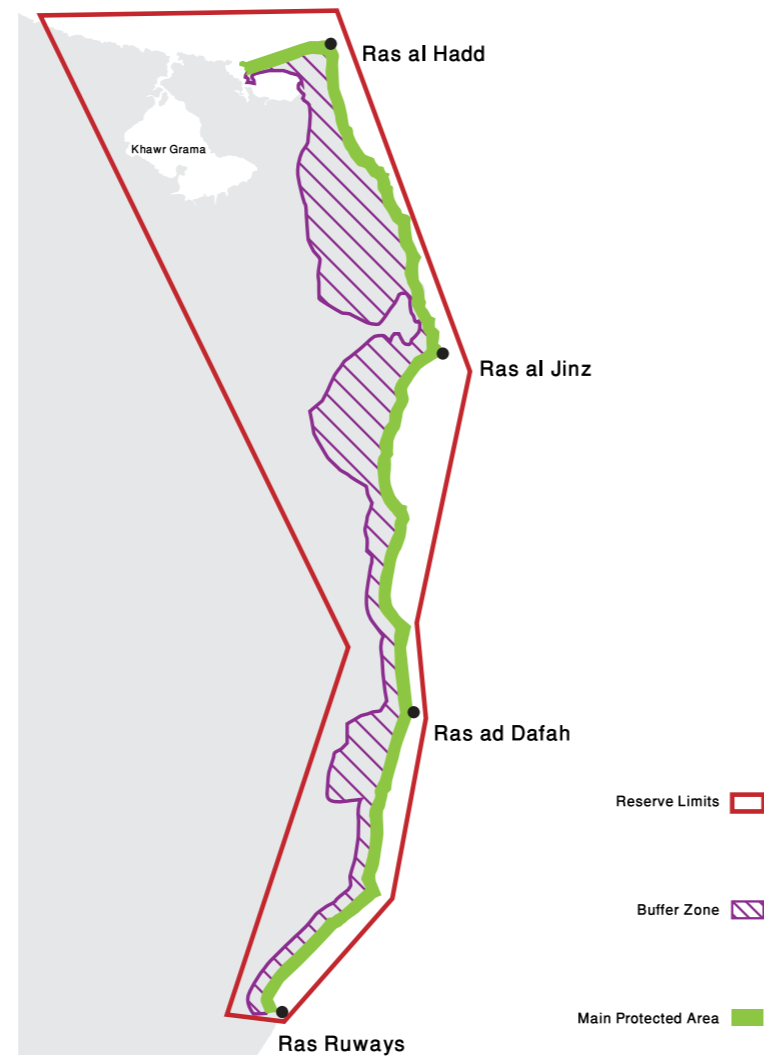
A Marine scientist monitoring sea turtle tracks in Daymaniyats Nature Reserve

RAS AL HADD TURTLE NATURE RESERVE

Ras al Hadd Turtle Nature Reserve in Eastern coastal Oman south of Sur, consists of 120 square kilometers, including 45 kilometers of coastline including Ras Al Jinz and two estuarine embayments. It was established in April 1996. This reserve includes numerous coastal beaches, coastal cliffs and headlands, coastal waters (out to 1 km from shore) and two estuaries (Akhwar). Ras al Hadd is internationally significant for its turtle nesting beaches, which attract the largest population of nesting green sea turtles in Oman. Population estimates of 13-15,000 nesting sea turtles annually use the beaches of Ras al Hadd throughout the year. Within the reserve, there are many archaeological sites of historical importance going as far as the 6th Millennium B.C.E. Small, scattered mangrove areas occur in the estuaries along with extensive intertidal flats important to shore and wading birds. Small coral reefs occur near shore. Red fox are ubiquitous and Arabian gazelle still occur in the uplands of the reserve.



Green turtle, with satellite tracking device on her back, off Ras Al Jinz Nature Reserve on her way to sea



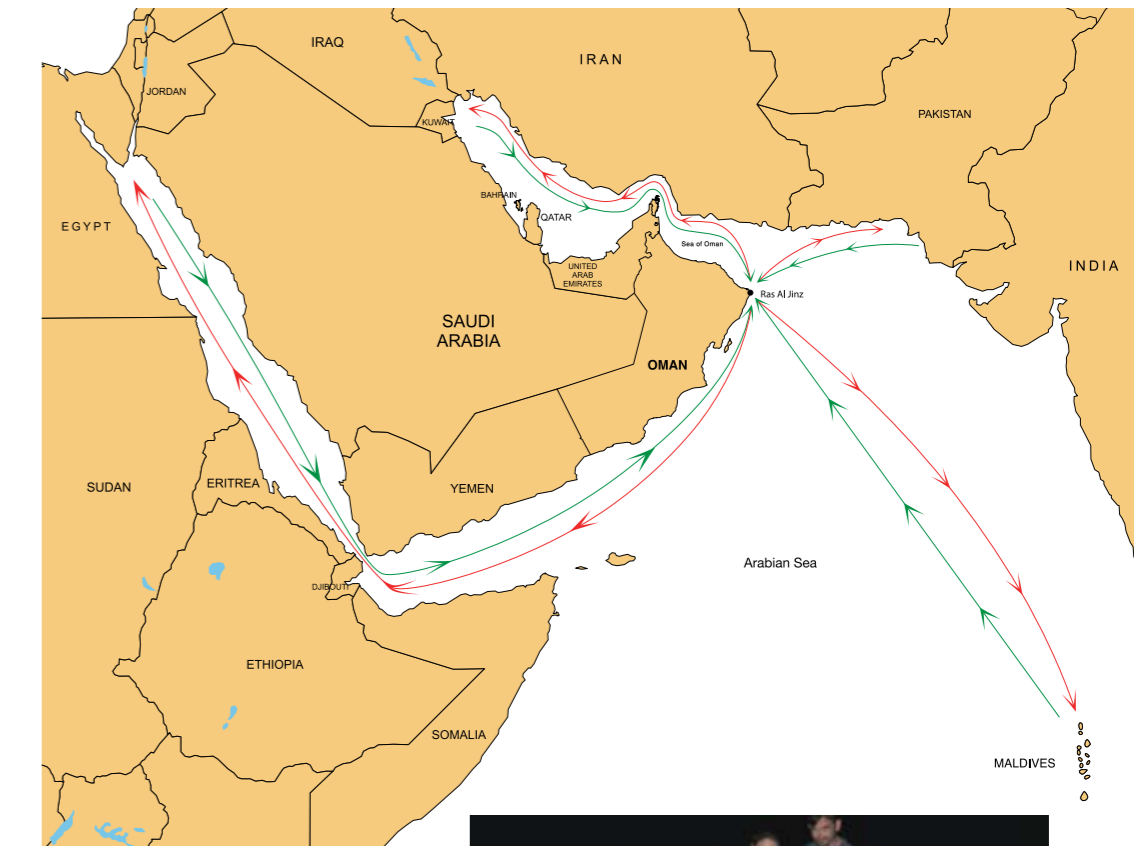
Ras Al Hadd Turtle Nature Reserve Map

SEA TURTLE MIGRATIONS

Sea turtles are the most amazing travelers. They often make long travels between feeding areas and the beaches where they nest. We can track their migrations by identifying turtles with a little tag, or even by attaching a satellite navigation device, which regularly returns the whereabouts of the turtle through a satellite connection to the researchers.

Turtles nesting at Ras Al Jinz are known to venture out to places as far as the Red Sea, up in the Gulf, and to remote shores of the Indian Ocean. Individuals tagged in Oman have been sighted in places as far as the Maldives.

In 2011 The Ministry of Environment and Climate Affairs and The Environment Society of Oman marine team deployed satellite tracking technology to extend program monitoring capabilities beyond the beach and into the ocean. This is the first year that Oman has used the highly accurate tracking technique made possible through the application of a new generation of satellite transmitter to nesting turtles, where the new technology will indicate every time a tagged turtle crawls up the beach, and so reveals how many times each turtle nests in one season. In recent years, tags have been used to transmit the location of the sea turtles for up to a year, which has helped identify the migration routes of females after nesting. Turtle foraging grounds have been identified from Yemen in the south, to Pakistan in the north, which indicates the importance of a regional and cooperative approach to the preservation of the sea turtle.



Sea Turtle Migrations routes



Tagging a loggerhead with a highly accurate satellite tracking transmitter at Masirah Island

(courtesy: Environment Society Of Oman)

SEA TURTLE IN ANCIENT OMAN MYTHOLOGY

Sea turtles are still very important in the mythologies of some fishing communities in the Indo-Pacific area. They are considered as the ancestors of sailors and sometimes even as ancient sailors. Here along the coasts of the Arabian Sea, the fish-eaters (Ichthyophagoi) who populated the coasts of Oman and other parts of the Arabian Sea in ancient time considered themselves as having fish ancestors. The tale is set on the island of Asthola off the coast of Makran in Pakistan where fish-eaters told Nearchus the Greek writer that Nereid a sea-God used to transform into fish any sailor approaching the shore until the sun intervened and the Nereid turned the fish back into humans from whom the fish-eaters descend. This myth originating in prehistory, expresses the belief of the coastal people of the Oman Sea and their depositing of sea turtles along with bodies as in the 4th millennium B.C.E. graveyard of Ras Al-Hamra in Muscat. This funerary ritual underlines a special religious link between the people of Ras Al Hamra in Ancient Oman and the sea turtle being one of the few creatures able to cross the substantial border between the land and the underwater realm, as their forefathers did in their mythical past.



A replicate of the skull of a man and the skull of a turtle found placed against each other at a grave at Ras Al Hamra archaeological site in Muscat (on display at Ras Al Jinz Visitor Center)

RAS AL JINZ ARCHAEOLOGICAL HERITAGE



"Ras Al Jinz archaeological heritage is a unique source to reconstruct in detail the history of man's early relation with the Ocean. And no matter how modest these remains may look to a visitor used to the monumentality of other civilizations, they deserve the utmost respect and care."

*Prof. Maurizio Tosi
Dept. Of Archaeology
University of Bologna*



A model reconstruction of Ras Al Jinz Fishermen Village (3rd Millennium B.C.E.)

THE HARAPPAN POTSHERD LEAD

The archaeological exploration of the Ras Al Jinz area began in 1982, following the accidental discovery of a Bronze Age potsherd from the Indus Civilisation of North-Western India.

Among Indus wares, large jars were found in Oman. Their presence at Ras Al Jinz can be considered without any doubt at all as being linked to overseas trade and a demonstration of the indisputable participation of this part of Oman in the great trade systems around the Indian Ocean during the Third Millennium B.C.E. We interpret these jars as containers for cargo-shipment used within the Indus valley system and overseas to stock in dry condition all kinds of cargo being transported over water.



Harappan potsherds

SEA SHELL & STONES WORKING

The Fourth Millennium B.C.E. Communities of Ras Al Jinz had neither pottery nor copper. Trade was still very limited. For their tools, ornaments, fish hooks and other objects they made use of locally available stones, shells and plants, which were worked with great skill. Among the finds are beads from stone and shells, an earring and stone pendants used as ornaments. Marine shells like small Conus gastropods or the mother-of-pearl oyster Pinctada margaritifera were cut and chipped to produce rings that have been found in graves across the whole of Oman, and all the way to Mesopotamia and Syria.



Sea shell necklaces



Stone & Sea shell beads



Sea shell rings



Stone beads

EARLY FISHING EQUIPMENT

The earliest fishing equipment from Ras Al Jinz dated to The Fourth Millennium B.C.E. consisted of both nets made from plants from the then near by mangroves, and fish-hooks. Net sinkers were made from notched pebbles, and several fragments of fish-hook have been found, made from valves of mother-of-pearl. Of particular interest is a fragment of fish-hook which at one end has a series of notches to which the line was attached.



Fishing Hook made from a valve of mother-of-pearl



Net sinkers made of stone



TRACING MAN'S EARLY RELATION WITH THE OCEAN

The discovery of impressed bitumen fragments and slabs dated to the mid-Third Millennium B.C.E. at Ras Al Jinz has provided information on procedures for reed and wooden boat construction, and imparted impetus to the study of early boat building and navigation in the Arabian Gulf and Western Indian Ocean. The bitumen pieces wear on one side traces of ropes, reed mats, reed bundles and wooden planks etc. while on the other side, several of them are still covered with barnacles, a type of shell known to develop on the hull of boats sailing across the Indian Ocean. These are without any doubt pieces of the caulking of these over 4000 years old vessels stored for further use.

As consequence of the bitumen find a mid-Third Millennium 12 mtr. long boat replicate was built and tested, but much work is still required to give a full account of this outstanding accomplishment of the early Omanis.



Traces of rope, reed bundles and reed mat on a bitumen slab



A scale model of a reed boat bow at Ras Al Jinz Visitor Center



Testing the Third Millennium B.C.E. Reed Boat replicate

TRADE IN 3RD MILLENNIUM B.C.E. OMAN

EXPECTED OUTBOUND GOODS FROM OMAN		EXPECTED INBOUND GOODS TO OMAN			
		FROM MESOPOTAMIA		FROM INDIA	
DESCRIPTION	PACKING	DESCRIPTION	PACKING	DESCRIPTION	PACKING
COPPER (bun ingots, bars, matte cakes)	0 & 1	BITUMEN	2	WOOD	0
DIORITE	5	TEXTILES (wool and linen)	1 & 9	TEXTILES (wool and cotton)	1, 2 & 9
DATES DATE PRODUCTS	2, 3 & 4	DRY FOODSTUFF	2 & 6	DRY FOODSTUFF (cereals, pulses, dairies, sugar)	2, 3 & 6
CURED FISH	3, 5 & 6	EDIBLE OILS	2 & 3	EDIBLES OILS (clarified butter and vegetable oils)	2, 3 & 7
MARINE SALT					
WHOLE SHELLS SHELL WORKS SHELL SCENTS	0 & 6 0, 5 & 7 6 & 8	SMALL VESSELS		TOOLS (mainly of metal and wood)	0, 1 & 8
TURTLE CARAPACES	0			BEADS, ORNAMENTS and PRECIOSITIES (form ivory, stones, and wood)	3, 6 & 8
SHARK SKINS and OCEAN LEATHERS	0 & 9			CARPENTRY WORKS	0 & 1
OCEAN OILS	7			MEDICAL PLANTS	3 & 8
HONEY	3 & 4			LIVING ANIMALS (chickens)	10
PYROLUSITE (ground for cosmetics and coloring)	3 & 8			SMALL PAINTED VESSELS	
LEAD (metal and oxides for coloring)	1, 3 & 8				
AROMATICS AND OINTMENTS	3, 4 & 6				

Key to codes for packing of cargo items:

- | | |
|--|------------------------------------|
| 0. Bulk loads, loose items or undetermined | 6. Cloth sacks |
| 1. Tied up packages | 7. Leather bags and inflated skins |
| 2. Large jars (up to 50 kg.) | 8. Small bags or packages |
| 3. Pots of different sizes | 9. Rolls and bales |
| 4. Soapstone / Limestone vessels | 10. Wooden or wickerwork crates |
| 5. Palm leaf bags, averaging 20-25kg. | |

COPPER SMELTING & METAL WORKING (3000 B.C.E. - 1200 B.C.E.)

To extract the minerals malachite and azurite, miners used stone hammers but also metal chisels to break the rock. The minerals were then crushed with stone hammers and reduced by charcoal with heat above 1100°C.

The smelting happened in small pear-shaped and knee-high furnaces built of clay. Here at Ras Al Jinz, fragments of a crucible with metal traces were found in the deposit and made evidence of the limited metal smelting that took place here around 2000 B.C.E.

Most of the metal objects found at Ras Al Jinz, were used in fishing. Discoveries include objects such as pins, rings and fish-hooks, made by cold-metal hammering. More than 300 complete or fragmentary fish-hooks have been found on the site. Larger objects are rare. Among them are a copper chisel, an axe-like object, a hoe-shaped blade, and a necklace of 24 copper beads.



A copper Hoe used as chopper or cleavage to quarter animals (also big fishes)



Copper pins



Copper fishing hooks

THE EARLIEST DATED OMANI FRANKINCENSE BURNER (2200 B.C.E.)

One of the most attractive objects found at Ras Al Jinz was a four-legged frankincense burner. It had been left there upside down probably to be recovered the next year. It looks as if a final fumigation had been done shortly before the occupants left the house as a patch of burnt residue of aromatics, including frankincense, was found at the same spot. When people returned to Ras Al Jinz, the walls of the house had collapsed. They did not excavate the debris, but rebuilt another house on the same plan. This discovery confirmed that burning frankincense was a normal practice in Oman's early Bronze Age. The archaeologists consider this vessel as Oman's earliest mabkhara (frankincense burner).



Oman's earliest dated Frankincense burner