

## ***Dalma archaeological site yields Arabia's oldest date stones***

The results of radiocarbon dating of two date *Phoenix dactylifera* stones found by the Abu Dhabi Islands Archaeological Survey, ADIAS, on Dalma has shown that they are the oldest ever found in Arabia. The results suggested that one date stone can be dated to 4670 (+/-130) BC, and the other to 5110 (+/-160) BC, that is about 6,500 - 7,000 years ago.

The dating was carried out at the University of Arizona working in collaboration with the Scottish Universities Research and Reactor Centre radiocarbon laboratory at the University of Glasgow, in Scotland.

Both date stones, together with impressions of date stones on fragments of mudbrick, were recovered during excavations on a site in the compound of the Abu Dhabi Women's Association branch on Dalma, where ADIAS has been working for several years. They were identified during the course of work organised in early 1998 with the support of Minister of Information and Culture Sheikh Abdulla bin Zayed Al Nahyan.

The two Dalma date stones represent the oldest radiometrically dated evidence yet available for the consumption of dates within the Gulf region, as well as probably some of the earliest evidence of the date palm found anywhere in the whole of the Middle East. Previously, the earliest evidence for date palm remains in the UAE was excavated from the Hill 8 site in Al Ain, dated to around 3,000 BC. The Dalma date stones are at least 1,500 years, and perhaps over 2,000 years older.

The two date stones also represent some of the earliest remains of date consumption found within the entire Middle East. Although it cannot be determined if they represent wild or cultivated dates, they certainly confirm that dates were being consumed at this early time.

Other finds from the Dalma site include at least two round house-like structures with surviving post-holes and floors, one of which is at least 7 metres in diameter. There are also small quantities of imported painted pottery from the 'Ubaid culture of southern Mesopotamia. Since Dalma was already almost certainly an island at the time, the 'Ubaid pottery must have made at least part of its journey by sea, offering us the first confirmed evidence of the maritime trading connections of the people of the Emirates.

Large quantities of what appear to be locally made gypsum plaster vessels of a type not known anywhere else in the Middle East have also been found. During an inspection visit to the Dalma site at the end of March, a large portion of one of these vessels was found which is the most complete vessel of this period ever identified in the Emirates.

The Dalma site has also yielded thousands of Late Stone Age flint flakes and a number of stone tools; other finds included ornamental beads, and huge quantities of food debris in the form of marine shells and animal and fish bones.

**Mark Beech**

## ***A new species of trigger fish recorded for the Arabian Gulf***

**Teleostei, Tetraodontiformes, Balistidae, *Canthidermis maculatus* (Bloch, 1786) – the Spotted Oceanic Triggerfish**

This note describes an unusual triggerfish purchased by the author in Ras Al Khaimah fish souq on 12 April 1998 which has been identified as the **Spotted Oceanic Triggerfish** *Canthidermis maculatus*. The record is the first for the Arabian Gulf. The fish had 3 dorsal hard spines and 23 soft dorsal rays, as well as 21 soft anal rays. Measurements were taken as follows:

**Total length (TL):** measured from the tip of the snout to the end of the upper lobe of the caudal fin = 33.5 cm.

**Standard length (SL):** measured from the tip of the snout to the end of the axial skeleton (determined by bending the tail upwards) = 28 cm.

**Head length (HL):** from the tip of the snout to the posterior edge of the gill cover (operculum) = 9 cm.

**Body depth (BD):** the deepest point from the origin of the dorsal fin vertically downwards to the pelvic fin = 11 cm.

The fresh capture weight of the fish was 735 g. Its colour was dark purplish to black with white patches on the lower ventral sides of its body. The caudal fin was slightly rounded with small notches present in moderately pronounced lobes.

Three triggerfish species commonly occur in the Arabian Gulf according to the most recently published surveys (Carpenter *et al.*, 1997; Randall, 1995). These are:

- the **starry triggerfish** *Abalistes stellatus* (Lacepède, 1798),
- the **picasso triggerfish** *Rhinecanthus assasi* (Forsskal, 1775),
- the **flagtail triggerfish** *Sufflamen chrysopterus* (Bloch and Schneider, 1801).

The specimen from Ras Al Khaimah does not however match with any of these. Its distinctive colour as well as spine/ray counts and body/fin shapes preclude it from belonging to any of these previously recorded species. Outside the Gulf, in adjacent Omani waters, a number of other triggerfishes are known to also occur (Randall, 1995). These include:

- the **largescale triggerfish** *Canthidermis macrolepis* (Boulenger, 1887),
- the **Indian Ocean durgon** *Melichthys indicus* (Randall and Klauswitz, 1973),
- the **redtooth triggerfish** *Odonus niger* (Rüppell, 1836),
- the **bridled triggerfish** *Sufflamen fraenatus* (Latreille, 1804).

These latter three species have quite separate distinct colour and body/fin shapes. The Ras Al Khaimah triggerfish looks closest to the **largescale triggerfish** *Canthidermis macrolepis*, although there are a number

of clear differences. *Canthidermis macrolepis* has quite an elongate sort of body for a triggerfish, and is grey in colour, shading to pale grey ventrally. The edges of its second dorsal, anal and caudal fins are blackish. Its caudal fin is double emarginate with produced lobes (Randall, 1995: 393; Gill and Randall, 1997).

A closer match for the specimen purchased in Ras Al Khaimah souq is another species within the same genus as the largescale triggerfish, namely, the **spotted oceanic triggerfish** *Canthidermis maculatus* (Bloch, 1786), with which the specimen can be confidently identified.

This is a triggerfish which occurs circumglobally in both tropical and temperate seas. It has been recorded previously within the Western Indian Ocean (Smith and Heemstra, 1986). The head, body and fins of adults are dark; their body has elongated white spots that may disappear with growth (Smith and Heemstra, 1986). This species is epipelagic through nearly all its life, and is often associated with drifting objects (Myers, 1991). It can occur on deep rocky slopes (Robins and Ray, 1986), and appears to school in large numbers based on catches from set nets (Masuda *et al.*, 1975). In some parts of the world it is marketed fresh (Matsuura, 1997). It commonly occurs at a length of around 30 cm (Bussing, 1995), but can occur up to a maximum length of 50 cm (Edwards, 1990).

According to FishBase98 (FishBase, 1998; Froese and Pauly, 1998), three of the localities nearest to the Arabian Gulf with records of *Canthidermis maculatus* are:

- Obock, Djibouti, in the Gulf of Aden, near the entrance to the Red Sea. Location: 11°58' N 043°20' E (a 56cm TL dry mounted specimen collected by Maindron, retained in the Musée National d'Histoire Naturelle, Paris - MNHN 18930072).

- Maldive Islands, Indian Ocean. Location: 03°40' N 073°49' E (recorded in the fish list for the Maldives by: Randall and Anderson, 1993).

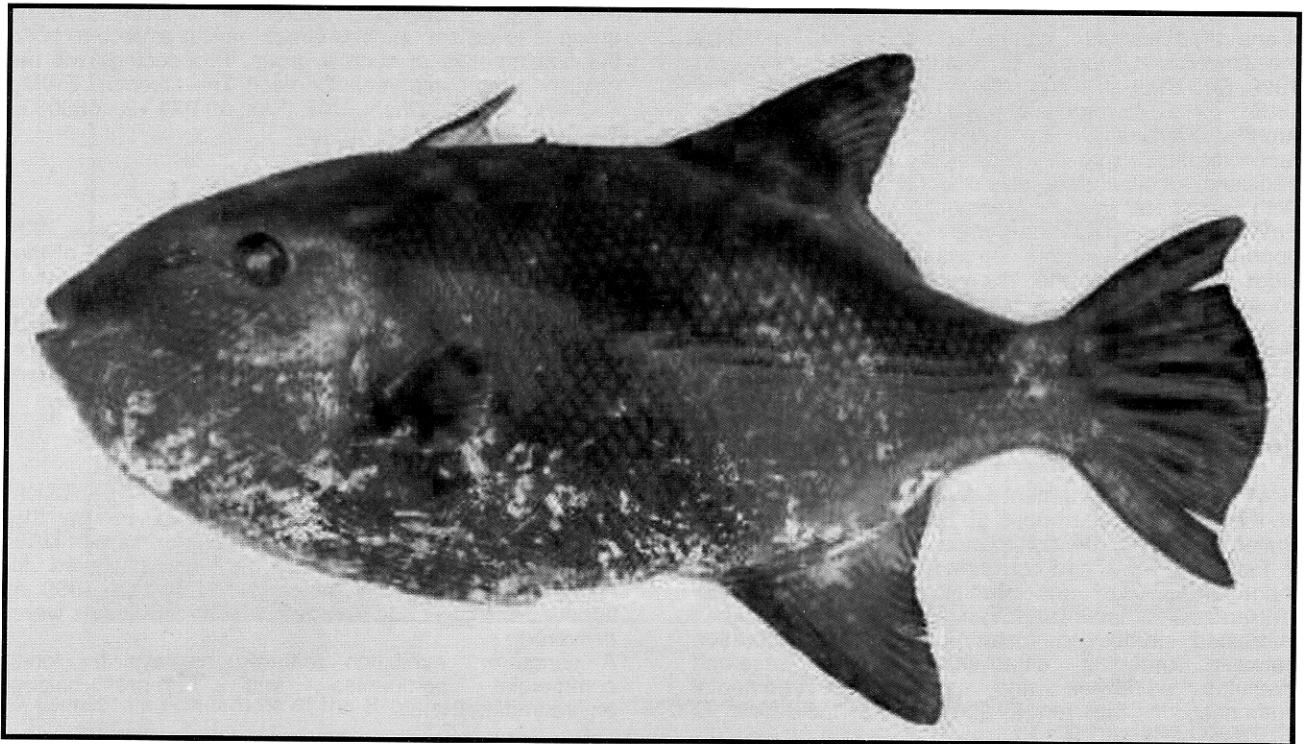
- B.esperance(c.), South Africa. Location: 34°21' S 18°25' E (a 30.8 cm TL dry mounted specimen collected by Verreaux, retained in the Musée National d'Histoire Naturelle, Paris - MNHN A8511).

The discovery of **spotted oceanic triggerfish** within the Ras Al Khaimah fish market suggests that the northern part of its range in the Western Indian Ocean may be more extensive than previously realised. Fishing boats venturing out from Ras Al Khaimah rarely stay away from port for more than two days at a time, and the fishing grounds exploited are almost completely Arabian Gulf-based. Sailing around the Musandam peninsula involves too much time and is not deemed to be economically viable. It seems likely, therefore, that the specimen may have originated from the waters adjacent to Ras Al Khaimah, although it is not possible to be certain whether it was caught in the territorial waters of the UAE or of Iran or Oman, which also share control of waters around the Straits of Hormuz. Juvenile triggerfishes are, however, often found in association with floating debris and vegetation, so they may have drifted into adjacent regions some distance from their native territory.

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Spotted Oceanic triggerfish from Ras Al Khaimah souq. Picture by Mark Beech.

other bibliographic references. Both Tony Gill (Natural History Museum, London) and Jack Randall (Bishop Museum, Hawaii) gave advice concerning the identification of the triggerfish. Tony Gill kindly provided me with a copy of his and Randall's recent paper on *Canthidermis macrolepis*.

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## CONFERENCE NOTES

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### Reclaiming the Past - Shaping the Future

A one day symposium with the above title was hosted by the American University of Sharjah on February 11th 1999. Sub-titled "A symposium on material culture in the UAE" it was organised by the AUS School of Architecture and Design, and focussed primarily on recent research into the country's archaeology and on traditional architecture and its restoration.

With participants including many of the familiar names in Emirates archaeology, the Symposium provided a useful opportunity for discussion on ways in which university students could become involved in the study of the country's heritage. AUS is now planning to launch a special course in 'heritage management.' Proceedings are scheduled to be published later this year.

### 1st Abu Dhabi International Arabian Oryx Conference

Hosted by the Environment & Wildlife Management Unit of the Private Department of H.H. Sheikh Zayed bin Sultan Al Nahyan, the conference was held in Abu Dhabi in February 1999, and concluded with the drafting of a memorandum of understanding, the 'Abu Dhabi Declaration,' essentially an agreement between interested parties to foster increased collaboration between breeding establishments and research institutes worldwide and between environmental authorities in the range states. The facilitation of

successful reintroductions to the wild was an agreed major goal of attending parties. A regional advisory group is to be set up, with Oman having offered to host the first meeting of such a group. Proceedings will be published later this year. Contact: The Director, EWM, P.O. Box 77, Abu Dhabi, UAE. Fax: 00-971 +2 - 663033. Email: [wildlife@dpanet.org.ae](mailto:wildlife@dpanet.org.ae).

### ECO-ARABIA '99

Sponsored by Shell, a two day 'Eco-Arabia '99' conference in Dubai in April examined protection of the marine and coastal environments of the Middle East. Speakers, the majority from overseas but many from within the GCC, were from governmental ministries and research institutes, private business and public sector industry. Partnership, collaboration and communication were identified as key issues of mutual benefit.

### 'Arab Envirotec-1' Conference

The First Arab International Conference and Exhibition on Environmental Biotechnology, organised by the Emirates Heritage Club and under the patronage of UAE Deputy Prime Minister Sheikh Sultan Bin Zayed Al Nahyan, was held in Abu Dhabi from 5-8 March 1999. A series of technical and non-technical presentations were delivered.

A concurrent exhibition featured displays by local commercial companies and non-profit-making environmental NGOs.