

# **PRELIMINARY REPORT ON 2014 FIELDWORK IN SOUTHWEST SAUDI ARABIA BY THE DISPERSE PROJECT: (2) UNDERWATER RESEARCH IN THE FARASAN ISLANDS**

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## **1. Introduction**

### **1.1 Background**

This report describes underwater fieldwork carried out over a period of 2 weeks in the Farasan Islands between 2nd and 15th March, 2014. This work was planned as the culmination of a sequence of underwater investigations that began in 2006 with experimental deep diving in the inshore waters of the Farasan Islands (Bailey et al., 2007a,b; Bailey et al., 2014a) and continued with shallow-water diving in 2008 and 2009 (Alsharekh et al., 2014; Bailey et al., 2014b). A deep-water survey with a specially equipped ocean-going research vessel (R/V AEGAEO) with acoustics, coring and the use of an ROV was also carried out in 2013 over outlying areas of the continental shelf around the Farasan Islands (Sakellariou et al., 2013).

The underlying rationale for the underwater research lies in the existence of an extensive area of shallow continental shelf in the southern Red Sea, and the fact that much of this area was exposed as dry land for long periods during the Pleistocene and early Holocene as prime territory for human occupation. This submerged landscape was finally drowned by sea level rise at the end of the last glaciation, a process of inundation that was completed by about 6000 years ago. It follows that if we wish to know about earlier human activity in the landscape, and especially if we wish to know about the deeper history of coastal settlement and exploitation of marine resources, investigation of this submerged landscape is essential, and new research along these lines is now being pursued in many parts of the world (Bailey, Sakellariou et al., 2012; Evans et al., 2014). This research demonstrates that archaeological material and features of the original terrestrial landscape can often survive the process of inundation, sometimes with unusually good conditions for the preservation of organic materials compared to their terrestrial counterparts. Equally, this research demonstrates that there is still a great deal that we do not know about the taphonomy of underwater material – the conditions that determine its preservation and the chances of its discovery.

Throughout the sequence of investigations carried out in Saudi Arabia, the underwater work has been carried out alongside terrestrial survey on land, both on the mainland, where the survey has concentrated on the search for Palaeolithic sites, and on the Farasan Islands, where attention has focussed on the extensive shell mounds that date back to about 6000 years ago. The assumption underlying this combined approach is that the study of sites on land can give indications of the type of material we might expect to find under water, its geomorphological associations and hence where to look for similar finds under water, and the likelihood of its survival during and after inundation by sea-level rise.

A key focus of research on the Farasan Islands is the shell mounds, which are a dominating archaeological feature of the present-day coastal landscape, and which mark the presence of earlier coastal societies. Our previous investigations demonstrate that these were sites used by people who not only collected large quantities of marine molluscs as food but also carried out fishing and hunting of gazelle on land. The key question is whether similar sites might have existed when sea level was lower than the present. These sites are typically associated with shorelines that have an undercut notch created by marine erosion at the land-sea interface, and we have established that similar features can be identified under water, marking the position of palaeo-shoreline formed when sea level was lower than the present. These are an obvious target for underwater exploration

## **1.2 Objectives**

The aim of the 2014 investigations was to complete the exploration of two areas that we have previously identified as suitable targets for underwater excavation, on Qumah Island to the south of the main island of Farasan, and on the Sulayn archipelago to the north of the modern port (Figure 1). Our objectives were to complete excavations at these locations, to continue to develop methodologies for the investigation of seabed sites, and to collect a larger sample of bulk shell and sediment samples for laboratory analysis and the search for indicators of human activity. We also carried out some additional survey on land to fill in gaps in the survey of on-land shell mounds and coastal sites. The work was undertaken by a combined team of marine archaeologists from the University of York, the Maritime Archaeological Trust and the Saudi Commission for Tourism and Antiquities (Figure 2). Below we describe the different elements of the fieldwork in chronological order, with a concluding summary.

## **2 Underwater Work**

### **2.1 Preliminary setting up**

The British dive team arrived in Farasan Town in the evening of the 2<sup>nd</sup> November 2014, and met with Colonel Faisal Al Johany of the Farasan Border Guard to establish the necessary protocols for local work and the availability of technical support including support boats and facilities for refilling diving tanks with compressed air. The Colonel offered the maritime team all the help he could to facilitate the smooth running of the project, including a ridged inflatable boat for safety cover in the project and the offer to fill the diving cylinders at the end of each day's work. Lieutenant Abdullah Rifa'i was assigned the task of looking after the dive team and assisting with logistical arrangements. On the following day, the team met the Governor of the Farasan Islands, Hussain D. Aldajani, who offered his support for the education

programme on underwater archaeology, which had been prepared in case the opportunity arose to teach in a local school, and he offered to assist the project team where he could as guests on the Farasan Islands. In addition, Abdul Aziz Al Sha'bi the Farasan Municipal Engineer offered the use of the Municipality boat for diving on the 9<sup>th</sup> and 13<sup>th</sup> March. Because of dive logistics, variable availability of boats, and interventions of bad weather, work alternated between the two main dive areas

## **2.2 Sulayn Archipelago I**

Diving began on 4<sup>th</sup> March at the Sulayn Archipelago. Abdu Aqeeli led the dive team in two boats to the dive site. The dive team consisted of Garry Momber, Brandon Mason, Christin Mason, Jan Gillespie and Lauren Tidbury. The aim of the diving operation was to relocate the area where charcoal was found in 2009 and recover more samples to aid our investigations to see if we could discover evidence of human activity. The dive team located the area, set out an underwater grid and opened small evaluation trenches (Figure 3).

On 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> March, the same dive team, with the addition of Matthew Meredith-Williams and Niklas Hausmann continued the diving operation to extend the underwater excavation and collect samples (Figure 4). The Border Guard boat joined us each day with the filled tanks and to provide support as needed.

Diving was aborted on Friday the 8<sup>th</sup> due to a mechanical fault with the dive boat. On Saturday, diving resumed at Sulayn with the addition of Geoff Bailey, who entered the water with dive equipment for an inspection of the fieldwork. Three trenches had been excavated to open up sections in the area of interest and 34 samples had been collected. Sandy overburden was cleared from an area measuring 6 m<sup>2</sup> in preparation for further sample recovery.

## **2.3 Qumah Bay I**

On Sunday 10<sup>th</sup> March Waleed Mozayan, Abdullah Al Haiti, Faris Hamzi and Juma Al Sadiq from the Saudi Commission for Tourism and Antiquities joined the British group to form the Saudi-British Dive Team for excavation in Qumah Bay (Figures 5, 6 and 7).

An airlift, which was built in Farasan by the dive team on Friday, was used to remove cover from the seabed to expose the submerged land-surface in an area that had the potential to hold archaeological material (Figure 8). The covering sediment was removed to show the underlying seabed geology, comprising a relict coral platform. Three samples of mixed shells were recovered for assessment.

By the end of the first week, the dive team had conducted 5 days diving. Twelve divers and nine supporting team members had been involved in the diving operations, resulting in 59 dives in 28 diving operations, and recovery of 37 samples for sieving and assessment.

## **2.4 Sulayn Archipelago II**

The second week of diving began with underwater survey and sampling at Sulayn archipelago on Tuesday. The diving on Monday was aborted due to bad weather. The grid was expanded to cover an area of 70 m<sup>2</sup> with four 10 m baselines and 1.5-m corridors in between. The grid was used as the reference framework around which

sampling was conducted, and, where warranted, areas were excavated to the underlying bedrock.

Over the next two days the joint Saudi-British dive team worked together to collect samples and expand the excavation within the survey area (Figure 8). Three diving boats supported the excavation. One was provided by Abdu Aqeeli, one by Mafari Aqeeli and the third was a Farasan Border Guard safety vessel (Figure 9).

## **2.5 Qumah II**

On Thursday, fieldwork was carried out at Qumah for the second time. The entrance of a small underwater cave was targeted for sampling. A base line was set up running for 7m from the cave, down slope to the east. The air lift was deployed to help remove the sediment overburden. Divers from the British and Saudi team worked together enabling the Saudi archaeological divers Faris Hamzi, Abdullah Al Haiti and Jumah Al Sadiq to gain supervised experience with the air lift (Figure 11). A total of 15 samples was recovered, some of which contained a large amount of shells from edible shellfish while one contained a dark coloured irregular-shaped lithic (Figure ??).

## **2.6 Sulayn III**

The last day of diving was back in the Sulayn Archipelago. The trenches were extended and further samples were collected. Areas that showed potential were excavated to the underlying bedrock (Figures 13 and 14). In two places, along the northern baseline, patches of seabed were stained dark grey with flecks of black material embedded in the old coral surface. It is possible that these patches are marks left by burning. Samples of the seabed were recovered for analysis and additional samples of the surrounding sediment were collected (Figures).

A further day's diving to investigate the palaeo-channel that runs below the main channel from Farasan Port was planned. However, it was aborted due to bad weather conditions. The aim of the dive was to inspect the edges of the channel that had been dredged to see if there were any exposures of the buried land-surface. This is an area of investigation that would benefit from shallow water geophysical survey if the equipment and time were made available.

## **3 Terrestrial Report**

The terrestrial, on-land 2014 field season has focused on filling in gaps in the dataset, and tying up loose ends from last year's field season.

The first task was to revisit known sites to show the dive team examples of sites they might come across underwater (Figure). Following the familiarisation exercise, the fieldwork began with Total Station Theodolite survey to measure in the limits of the excavations carried out last year at 18 sites (Figure). This was accomplished in a morning's work from two stations, one for Janaba East located on JE0086 and one located on JW1807 for all sites in Janaba West.

A number of gaps in the survey were also addressed, particularly an area in the centre of Janaba Bay, overlapping research areas in Janaba East and West – approximately located between the desalination plant and a stand of trees in Janaba West. These sites had not been visited, and many are not visible on satellite images. It was therefore

necessary to investigate this section of coastline and record any sites present. We located 24 new sites in this previously un-surveyed area. Site characteristics recorded included dimensions and surface composition.

Sites located along the east side of Saqid Island were another group that had not been observed in the field. This area was visited to ground-truth the satellite observations and confirm the presence of sites (Figure 17). The position and existence of 50 sites was confirmed. The opportunity was taken to record the characteristics of a number of these sites, and some samples were also taken for further analysis (Figure 18).

#### **4 Results and Preliminary Conclusions**

Two dive sites were investigated during the underwater fieldwork, involving 94 individual dives to inspect, survey and sample the seabed. The methodology developed at Sulayn focussed on sampling spatially and horizontally within the sediment matrix across a well-defined area. Excavations to the underlying bedrock were conducted in selected areas to show variations in colouration and taphonomy, but primarily to find evidence of human activity such as charcoal, food shells or artefacts. The samples showed a top layer of sandy sediment, a lower layer of shells, another lower layer of coral and a hard basal, coral terrace. Organic inclusions were recorded at various locations around the sand and shell interface. An airlift was used to remove overburden and collect samples from gullies within the coral basement rocks.

In the deeper water, to the east of the surveyed area, the sediment cover of sand and shell was thinnest while the coral horizon that was found below the shell but above the basement/bedrock was thickest. Further upslope – about 5m – towards the west, the covering sediment was thicker but the concentration of coral immediately above the bedrock was thinner. On the northernmost baseline, dark grey stains or patches were recorded at 5m and 6m. These ‘stains’ extended below heads of coral that must have grown after the ‘stains’ were formed. It is possible that these ‘stains’ were formed when the sea level was dry land and are the result of localised fires/hearths. Samples of the seabed surface were collected for analysis. The areas of stained coral were localised and were not found in the other trenches that were opened to expose the bedrock.

At Qumah, a similar method was developed to collect samples from an excavated trench. The trench was excavated with mattocks and the airlift. The sand cover was thin on the slope in front of the cave and the underlying bedrock was exposed beneath 20–30cm of sand cover, 1.5–7m from the cave entrance. However, immediately in front of the cave, the sediment was thicker. Here, the samples collected from 30–50cm below the surface contained a mixture of shells and an incongruous lithic. Both will be subject to further analysis.

On land, 50 new shell mounds were located in the north of Saqid while additional survey was carried out around Janaba Bay (west side of Janaba East). This revealed another 24 new middens.

At the conclusion of the fieldwork, the dive team had conducted 9 days diving, 2 days spent in surveying shell middens on land and three days sorting the samples. Twelve divers from the British and Saudi teams worked and trained together and learnt from

each other. Eleven supporting team members were involved in the diving operations, including three members of the Farasan Border Guard and two boat crew from the Municipality, involving six different boats. In total there were 94 dives in 64 diving operations and 102 samples were recovered for sieving and assessment.

Bulk samples recovered from underwater excavation were laid out to dry and subjected to preliminary sorting and analysis. Subsamples were bagged for export to the UK for detailed analysis in the laboratories at the University of York.

## 5 Acknowledgements

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## 6 References

- Bailey, G.N., AlSharekh, A., Flemming N., Lambeck, K., Momber, G., Sinclair, A., Vita-Finzi, C. 2007a. Coastal prehistory in the southern Red Sea Basin: underwater archaeology and the Farasan Islands. *Proceedings of the Seminar for Arabian Studies* 37: 1–16.
- Bailey, G.N., Flemming N., King, G.C.P., Lambeck, K., Momber, G., Moran, L., Al-Sharekh, A., Vita-Finzi, C. 2007b. Coastlines, submerged landscapes and human evolution: the Red Sea Basin and the Farasan Islands. *Journal of Island and Coastal Archaeology* 2 (2): 127–60.
- Bailey, G. N., Sakellariou, D., and members of the SPLASHCOS network, 2012. Submerged prehistoric archaeology & landscapes of the continental shelf. *Antiquity*, 86 (334): <http://antiquity.ac.uk/projgall/sakellariou334/>.
- Bailey, G.N., Alsharekh, A., Flemming, N.C., Momber, G., Moran, L.J., Sinclair, A., King, G.C.P., Vita-Finzi, C., Al Ma'Mary, A., Al Shaikh, N.Y., Al Ghamdi, S. 2014a. Report on the 2004 and 2006 surveys of the joint Saudi-UK Southern Red Sea Project. In A.M. Alsharekh, G.N. Bailey (eds) *Coastal Prehistory in Southwest Arabia and the Farasan Islands: 2004–2009 Field Investigations*, pp. 15–74. Riyadh: Saudi Commission for Tourism and Antiquities.

Alsharekh, A., Bailey, G.N., Momber, G., Moran, L.J., Sinclair, A., Williams, M.G.W., Al Shaikh N., Al Ma'Mary, A., Alghamdi, S., Al Zahrani, A., Aqeeli, A., Laurie, E.M., Beech, M. 2014. Report on the 2008 fieldwork of the joint Saudi-UK Southern Red Sea Project. In A.M. Alsharekh, G.N. Bailey (eds) *Coastal Prehistory in Southwest Arabia and the Farasan Islands: 2004–2009 Field Investigations*, pp. 77–158. Riyadh: Saudi Commission for Tourism and Antiquities.

Bailey, G.N., Alsharekh, A., Momber, G., Moran, L.J., Gillespie, J., Satchell, J.S., Williams, M.G.W., Reeler, C., Al Shaikh, N., Robson, H., Kamil, A. 2014b. Report on the 2009 fieldwork of the joint Saudi-UK Southern Red Sea Project. In A.M. Alsharekh, G.N. Bailey (eds) *Coastal Prehistory in Southwest Arabia and the Farasan Islands: 2004–2009 Field Investigations*, pp. 161–215. Riyadh: Saudi Commission for Tourism and Antiquities.

D. Sakellariou, G.N. Bailey, G. Momber, M. Meredith-Williams, A. Alsharekh, G. Rousakis, I. Panagiotopoulos, I. Morfis, S. Stavrakakis, I. Pampidis, P. Renieris, P. Georgiou, S. Kalogirou, P. Mantopoulos, V. Stasinou, S.M. Al Nomani, M. Devès. 2013. Preliminary Report on Underwater Survey in the Farasan Islands by the R/V Aegaeo, May–June 2013.

Evans, A., Flatman, J., Flemming, N. C. (eds). 2014. *Prehistoric Archaeology on the Continental Shelf: A Global Review*. New York: Springer.

## **Appendix I. List of participants**

### **Saudi – British Diving Archaeologists**

Garry Momber – University of York and Maritime Archaeology Trust

Jan Gillespie – Maritime Archaeology Trust

Brandon Mason – Maritime Archaeology Trust

Christin Mason – Maritime Archaeology Trust

Lauren Tidbury – Maritime Archaeology Trust

Waleed Mozayen – Saudi Commission for Tourism and Antiquities

Faris Hamzi – Saudi Commission for Tourism and Antiquities

Juma Al Sadiq – Saudi Commission for Tourism and Antiquities

Abdullah Al Haiti – Saudi Commission for Tourism and Antiquities

### **Terrestrial Team and Volunteer Diving Archaeologists**

Geoff Bailey – University of York

Muzna Bailey – University of York

Matthew Meredith-Williams – University of York

Niklas Hausmann – University of York

Abdu Aqeeli – Saudi Commission for Tourism and Antiquities

Mohammed Mofta – Saudi Commission for Tourism and Antiquities

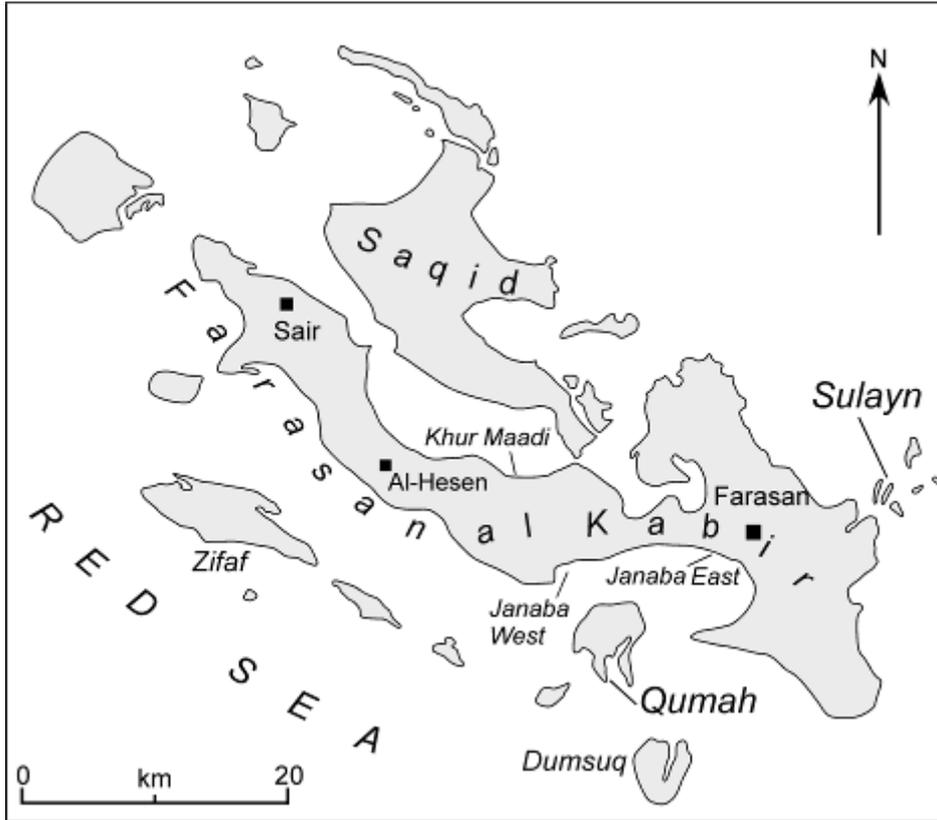


Figure 1. Map of the Farasan Islands showing the location of target areas for underwater investigation at Sulayn and Qumah.



Figure 2. Members of the Dive Team heading for the Sulayn dive site.



Figure 3. Christin Mason clearing a trench for sampling.



Figure 4. Brandon and Christin Mason recording a section through the shell deposit at Sulayn. Lauren Tidbury behind camera. The full-face masks enable divers to communicate with each other and talk to the dive supervisor on the boat.



Figure 5. Saudi–British Dive Team prior to their first collaborative dive. Top row. Waleed Mozayen, Garry Momber; Middle row. Brandon Mason, Janet Gillespie, Christin Mason, Lauren Tidbury, Geoff Bailey; Bottom row. Faris Hamzi, Abdullah Al Haiti, Jumah Al Sadiq



Figure 6. Members of the Saudi–British team being briefed by Chief Maritime Archaeologist Garry Momber before leaving port.



Figure 7. Members of the diving team preparing to dive from the Municipal Engineer's boat.



Figure 8. Brandon Mason working with Jumah Al Sadiq and Garry Momber (behind camera), to excavate seabed sediments.



Figure 9. Faris Hamzi and Jumah Al Sadiq collect samples from the excavation trench at Sulayn.



Figure 10. Local boats and the Border Guard safety vessel (back left).

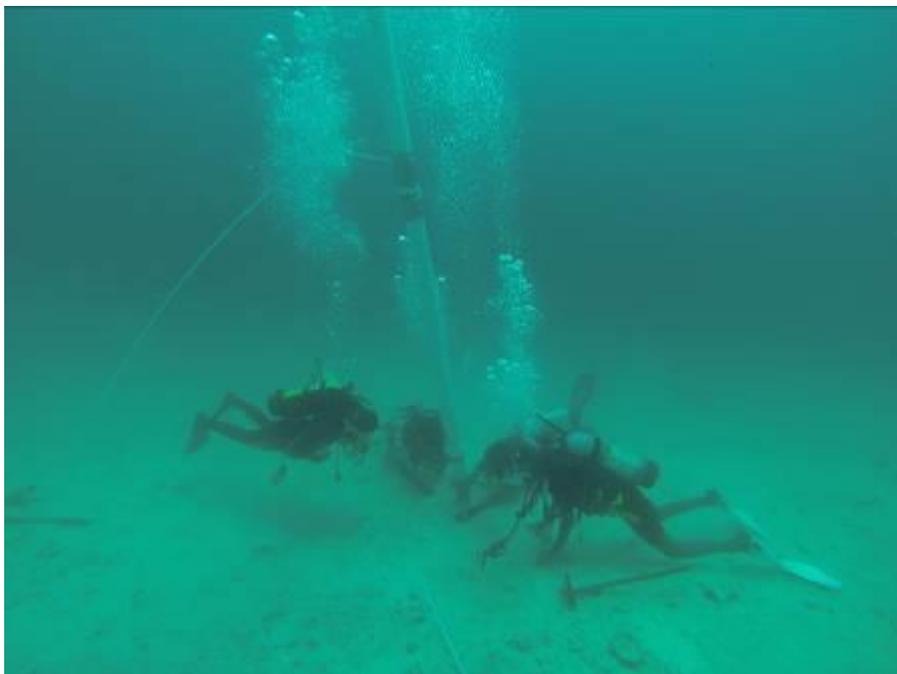


Figure 11. Faris Hamzi, Abdullah Al Haiti and Jumah Al Sadiq excavate with an airlift in 18m of water at Qumah under the supervision of Christin Mason.



Figure 12. Jan Gillespie and Lauren Tidbury recover samples from the seabed in Qumah Bay.

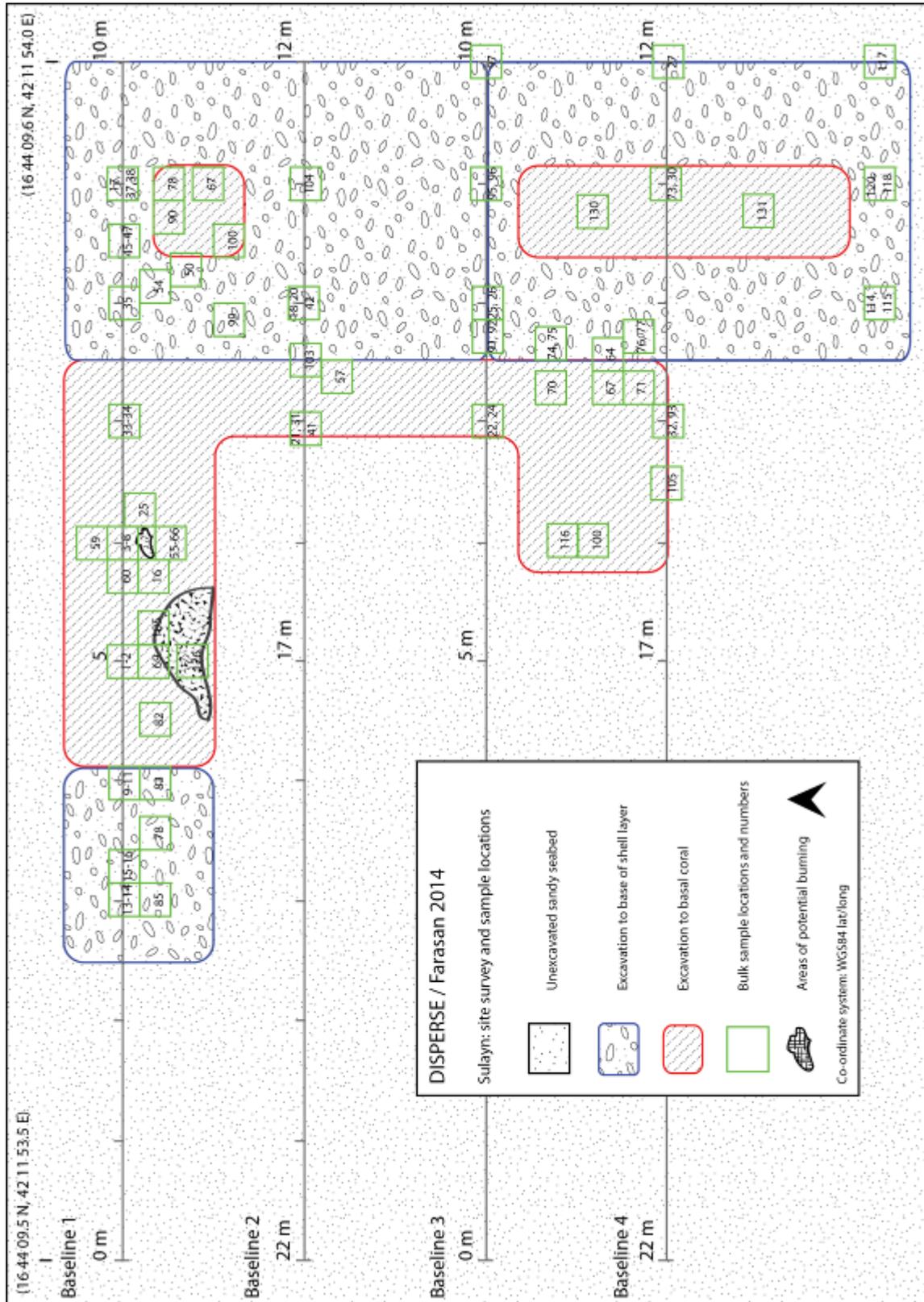


Figure 13. Plan of the survey and sampling area at Sulayn. The trenches were widened and deepened in areas which had more interesting and complex stratigraphy (Brandon Mason and Garry Momber).



Figure 14. An area of dark staining exposed on the coral bedrock, 5m along the Baseline



Figure 15. Processing samples in the Governor's compound, Farasan.



Figure 16. The sorted finds included an assemblage of edible shells from Qumah, which were found alongside lithic piece.



Figure 17. Geoff Bailey, Mathew Meredith-Williams and Niklas Hausmann point out salient features of shell middens to members of the archaeological dive team.



Figure 18. Some of the North Saqid sites during ground truthing and recording.