

MARRAT SEQUENCE III TO IV TRANSITION

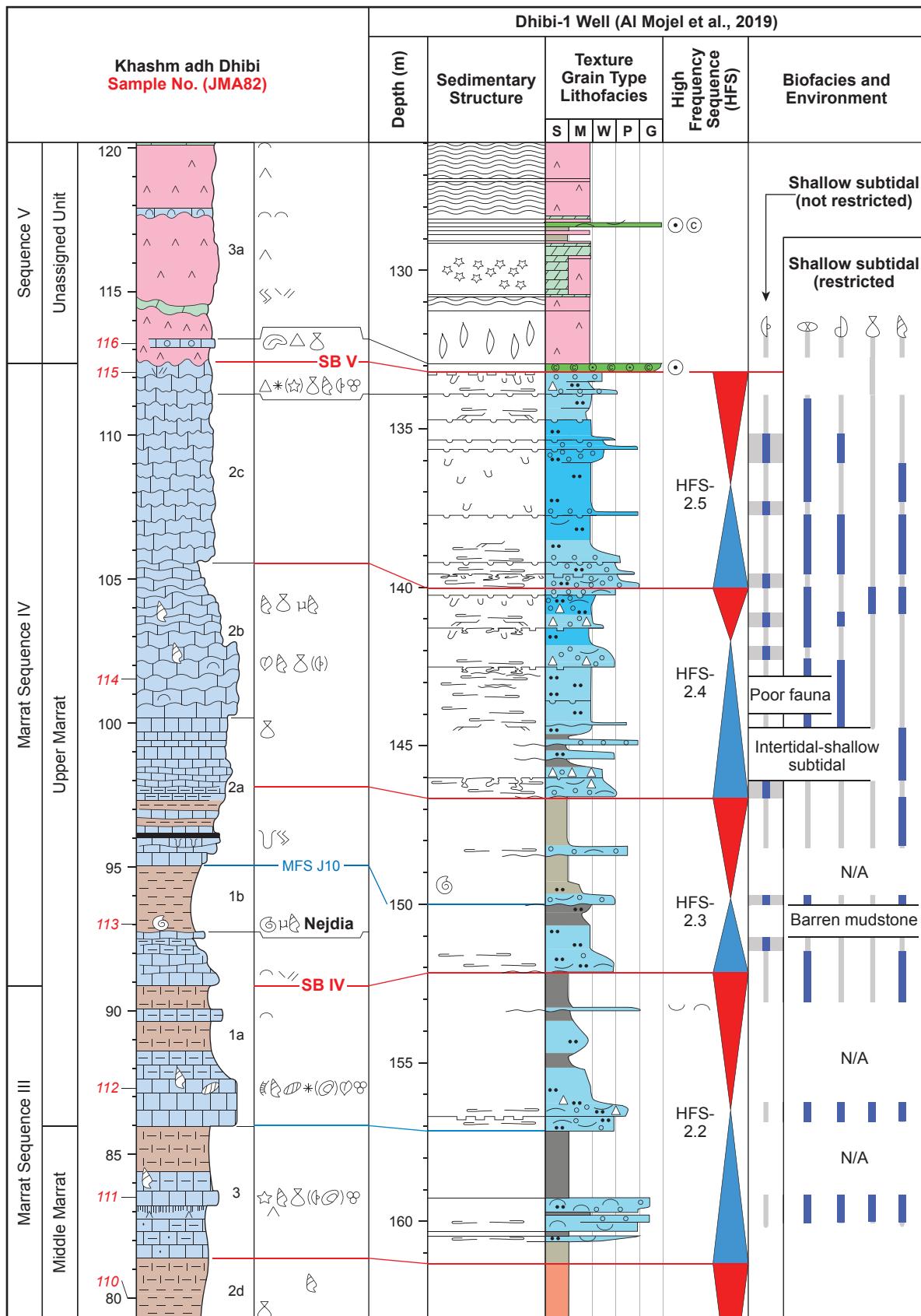


Figure 7: (a) For caption and legend see facing page.

Facies	Grain Types	Sedimentary Features
Red thin laminated shale	△ Intraclast > 2 mm	□ Skolithos
Mottled bluish green shales	○ Coated grain	▽ Vertical burrows
Grayish green calcareous shale	● Ooid	— Horizontal burrows
Argillaceous nodular bioturbated peloidal wackestone/mudstone	○ Peloid	~~ Chondrites
Bioturbated peloidal wackstone/packstone	~ Skeletal fragments	~~~~ Stromatolite
Dolomite	.. Pellet	~~~~ Firmground
Anhydrite	◊ Plant debris	~~~~ Hardground
Transgressive-Regressive (T-R) Sequence		
SB	Fossils	
HST	○ Ammonite	~~~~ Scouring surface
MFS	○ Echinoderms	— Mud draped cross-bedding
TST	○ Brachiopods	~~ Current ripple
SB	○ Bivalve	~~~~ Trough cross-bedding
	○ Gastropod	~~~~ Rootlet traces
	○ Foraminifera	○ Vertical elongate anhydrite crystal
		☆ Lath-shaped anhydrite crystals

Figure 7 (continued): (a) In the Dhibi-1 borehole, situated about 15 km east of the reference section, Al-Mojel et al. (2019) interpreted four high-frequency sequences (HFS-2.2 to HFS-2.5) in the upper part of the Marrat Formation (below the anhydrite interval of the Unassigned Unit). A bed-for-bed correlation indicates SB IV in the reference section at 91 m is a minor SB and passes to base HFS-2.3 in Dhibi-1. MFS IV corresponds to Arabian Plate MFS J10 (Sharland et al., 2001) and occurs at 95.0 m at top Nejdia horizon (*bifrons* zone). **(b)** Legend for Dhibi-1 Well (Al-Mojel et al., 2019) with some symbols redrawn to better resemble those in Figure 4.