SUPPLEMENT 1: ADDITIONAL INFORMATION ON THE METHODOLOGY

1.1 Study area and sampling sites

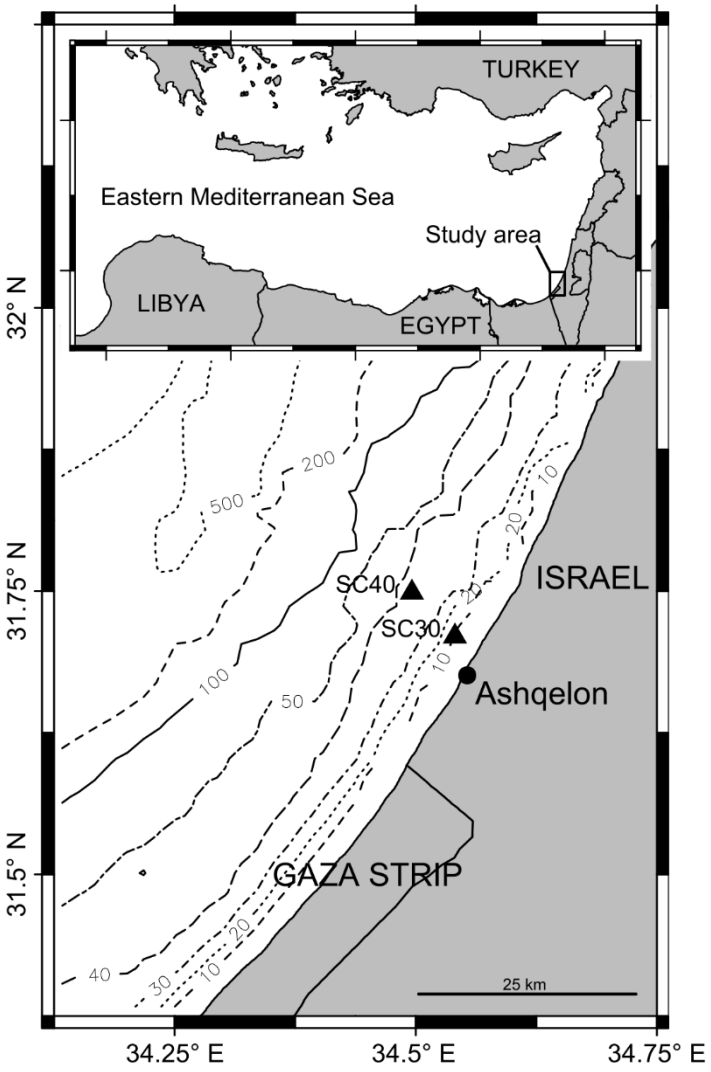

Figure S1. Map of sampling stations on the Mediterranean coast of Israel.

Table S1. List of sampling stations on the Mediterranean coast of Israel.

Core	Locality	Latitude [N]	Longitude [E]	Depth [m]	Collecting date	Length [cm]	Diameter [cm]	Analyses
SC30_1	Ashqelon	31.7101	34.5406	30.6	18 Sep 2016	123	7	Foraminifera, bivalves for age model
SC30_3	Ashqelon	31.7101	34.5406	30.6	18 Sep 2016	107	7	Particle-size analysis
SC40_3	Ashqelon	31.7485	34.4959	40.6	18 Sep 2016	145	7	Particle-size analysis
SC40_4	Ashqelon	31.7486	34.4959	41	18 Sep 2016	145	7	Foraminifera, bivalves for age model

1.2 Target species

Phylum Foraminifera d'Orbigny, 1826

Class Tubothalamea Pawlowski, Holzman & Tyszka, 2013

Order Miliolida Delage & Hérouard, 1896

Family Hauerinidae Schwager, 1876

Articulina alticostata Cushman, 1944

Figure S2 A–B

Remarks: Our specimen lacks the early triloculine portion of the test that follows the proloculus and precedes the uniserial portion, as described by Cushman (1944). Although lacking this feature, the numerous very narrow high costae, often projecting backward at the base of the uniserial chambers, the aperture terminal, slightly compressed, with a very distinct lip projecting beyond the periphery of the chamber and turning backward, are distinctive elements for the identification.

Cribromiliolinella milletti (Cushman et al. 1954)

Figure S2 C

Remarks: The single individual found is very similar to the one illustrated by Symphonia and Senthil (2019), plate 19, figure 8.

Pseudotriloculina subgranulata (Cushman, 1918)

Figure S2 D–E

Remarks: Our specimens perfectly correspond to the original description by Cushman (1918).

Quinqueloculina erinacea Mikhalevich, 1976

Figure S2 F–G

Remarks: Our specimens perfectly correspond to the original description by Mikhalevich (1976).

Quinqueloculina mosharrafai Said, 1949

Figure S2 H–I

Remarks: Our specimen corresponds to the holotype occurring in the shallow-water coral reefs of the Red Sea, and is cited by Stulpinaite et al. (2020) as *Q. mosharrafai* s.s.. It does not correspond to *Q.* cf. *mosharrafai* described in Hottinger et al. (1993).

Miliolinella fichteliana (d'Orbigny, 1839)

Figure S3 A–C

Remarks: The species has a test with a typical trilobate symmetry in front view, with the last three chambers contributing almost equally to the outline of the test, subcircular in lateral view, with the aboral portion of each chamber slightly projecting outside the general contour of the test; the periphery of the chambers is rounded, covered with numerous longitudinal, high costae which are somewhat more pronounced in the central part of the periphery and are missing in the internal margin toward the center where the test surface appears rather smooth; sutures depressed. Our specimen seems consumed in the last chamber so that it is missing the aperture, but the basal part of the tooth is still present and the broad, arcuate shape of the aperture is clearly visible, providing clear clues on the identification of the specimen. Our specimen corresponds to the holotype from Cuba described by D'Orbigny (1839) and not to the form reported from the Indian Ocean by Thissen and Langer (2017) and illustrated in their plate 8, figures 10–12.

Family Spiroloculinidae Wiesner, 1920

Spiroloculina antillarum d'Orbigny, 1839

Figure S3 D–G

Remarks: Martinotti (1920: 262, figures 16-17) distinguished two varieties within this species: one corresponding to the specimen described herein, and another characterized by chambers strongly increasing in size and width from the center to the exterior, with the later ones disposed slightly angled to the coiling plane and partially covering the earlier in the center, and having a denser coverage of costae. This description fits with the variability observed in our samples and we report both morphotypes of this species.

Spiroloculina nummiformis Said, 1949

Figure S3 H

Remarks: Our specimens perfectly correspond to the original description by Said (1949).

Family Nubeculariidae Jones, 1875

Nodophthalmidium antillarum (Cushman 1922)

Figure S3 I–M

Remarks: *N. antillarum* differs from *Articulina alticostata* where the early portion is triloculine, as the species shows a cornuspira-like earlier portion for the megalospheric form or milioline for the microspheric forms.

Family Ophthalmidiidae Wiesner, 1920

Edentostomina cultrata (Brady, 1881)

Figure S3 N

Remarks: Our specimens perfectly correspond to the original description by Brady (1881).

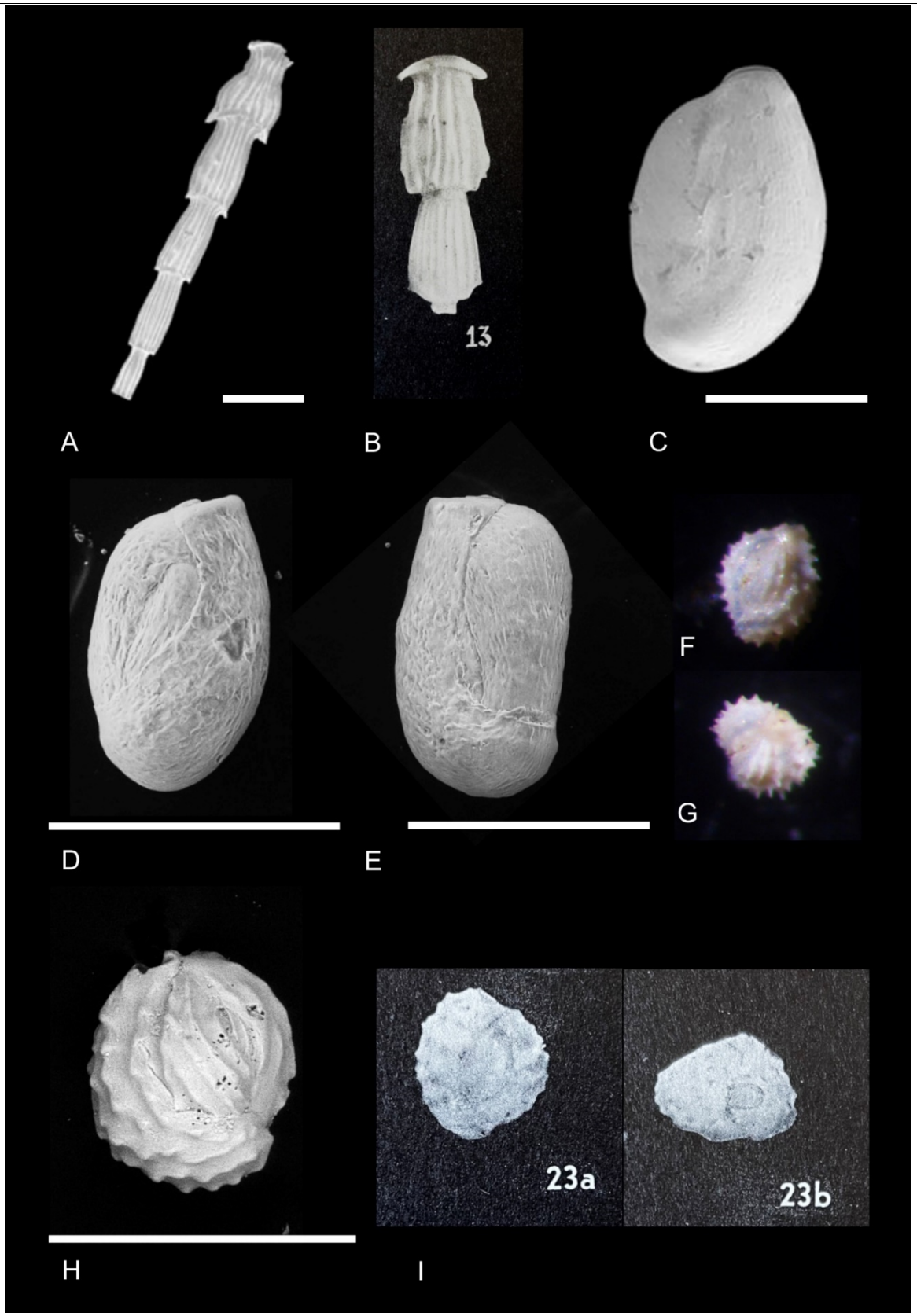

Figure S2. A. *Articulina alticostata* from core SC40_4, 35 cm sediment depth. B. *Articulina alticostata*, holotype illustration in Cushman (1944), plate 4, figure 13. C. *Cribromiliolinella milletti* from core SC40_4, 20 cm sediment depth. D–E. *Pseudotriloculina subgranulata* from core SC40_4, 20 cm sediment depth. F–G. *Quinqueloculina erinacea* from core SC40_4, 20 cm sediment depth. H. *Quinqueloculina mosharrafai*, from core SC40_4, 5 cm sediment depth. I. *Quinqueloculina mosharrafai*, holotype illustration in Said (1949), plate 1, figure 23. Scale bars: A, C, H: 500 µm; D–E: 300 µm.

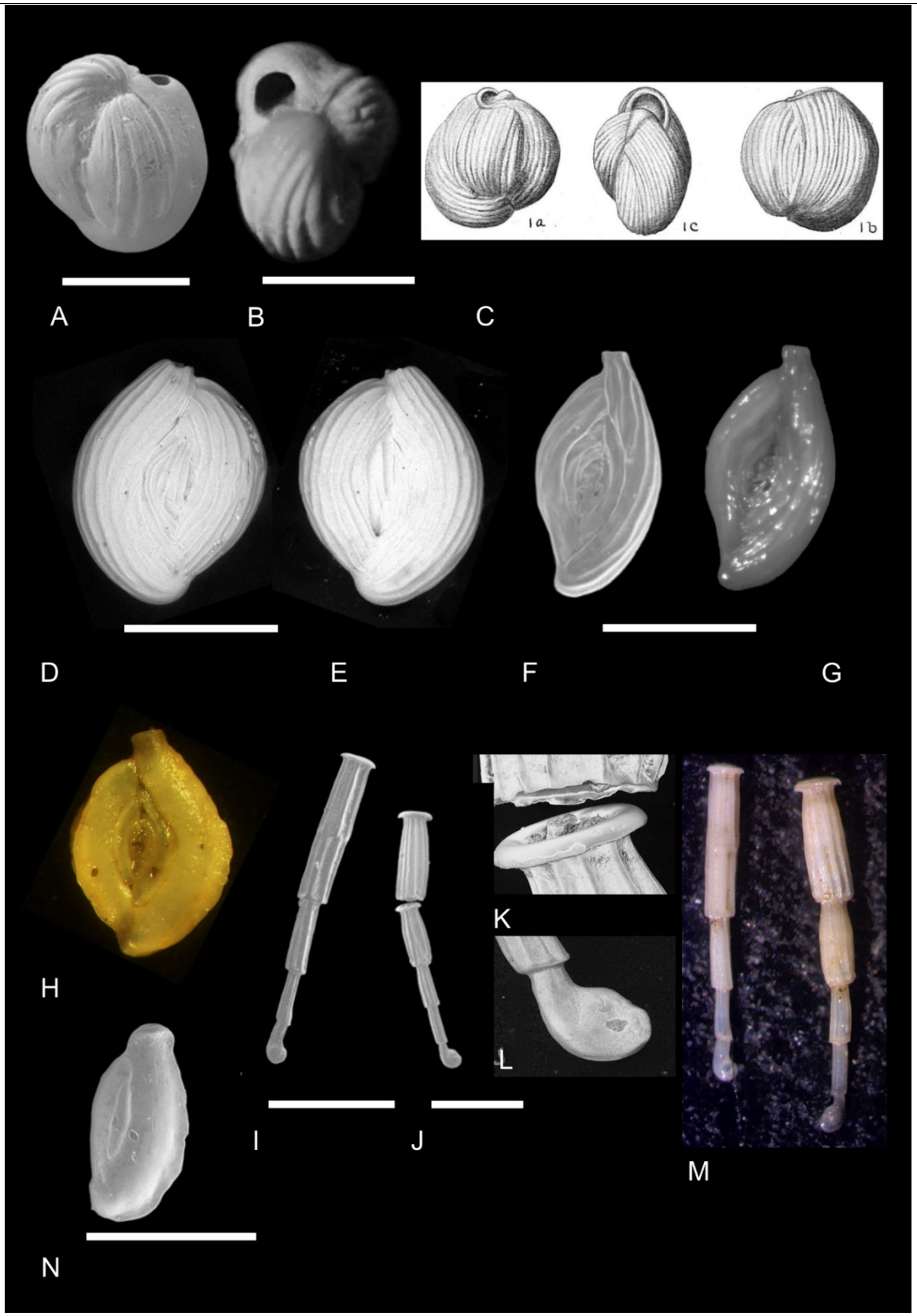

Figure S3. A–B. *Miliolinella fichteliana* from core SC30_1, 110 cm sediment depth. C. *Miliolinella fichteliana*, syntype illustrated by Cushman (1929), figure 1a–c. D–E. *Spiroloculina antillarum* from core SC30_1, 123 cm sediment depth. F–G. *Spiroloculina antillarum*, from core SC30_1, 110 cm sediment depth. H. *Spiroloculina nummiformis*, from core SC40_4, 5 cm sediment depth. I. *Nodophthalmidium antillarum*, from core SC40_4, 35 cm sediment depth. J–N. *Nodophthalmidium antillarum* from core SC40_4, 35 cm sediment depth. Scale bars: 500 µm.

1.3 Core age model

Table S2. Parameter values in the Bacon function (R package rbacon) modeling core ages with Bayesian statistics.

argument	parameter	value	
		SC30_1	SC40_4
thick	Thickness of the core sections (in cm) used for modelling	1	1
d.by	Intervals at which ages are calculated	1	1
acc.mean	Prior distribution parameters of accumulation rate (yr/cm)	50[1]	5[1]
mem.strength	Prior distribution for memory	9	5
mem.mean	Autocorrelation of sediment accumulation rate	0.7	0.7
boundary	Occurrence of sediment sections with very different accumulation rates	NA	10, 50[1]
cc	Which calibration curve to use	2[2]	2[3]
delta.R	Regional marine offset (mean)	-142	-142
delta.STD	Regional marine offset (standard deviation)	66	66

[1] Estimated by Albano et al. (2020).
[2] Core SC40_4 presents an inversion of shell ages, with median ages of the assemblages at 14 cm sediment depth (381 cal. yr BP), 24–27 cm sediment depth (290 cal. yr BP) and 36 cm sediment depth (176 cal. yr BP) being older than those in deeper layers where ages then slowly increase monotonously. We thus set two boundaries at 10 and 50 cm sediment depth to take this inversion into consideration.
[3] Value 2 in the rbacon package stands for Marine20 (Heaton et al. 2020).

Table S3. Regional pre-bomb ΔR values for our study sites. These pre-bomb ΔR values, listed in the Online Marine Reservoir Correction Database (http://calib.org/marine/), were used for the calculation of a weighted mean ΔR value of -142 ± 66 ^{14}C yr (n=8), relative to the Marine20 curve (Heaton et al. 2020).

	Location	Latitude	Longitude	Year of collection	ΔR ± 1σ (^{14}C yr)	References
1	Netamiya, Israel	34.83	32.17	AD 1937	-93 ± 40	Reimer & McCormac 2002
2	Beirut, Lebanon	35.5	33.87	AD 1929	-114 ± 40	Reimer and McCormac, 2002
3	Beirut, Lebanon	35.5	33.87	AD 1929	-204 ± 50	Reimer and McCormac, 2002
4	Israel	34.8482	32.3384	AD 1937	-93 ± 40	Boaretto et al. 2010)
5	Israel	34.8482	32.3384	AD 1937	-213 ± 50	Boaretto et al., 2010
6	Israel	34.9227	32.6432	AD 1937	-163 ± 50	Boaretto et al., 2010
7	Israel	34.9227	32.6432	AD 1937	-68 ± 50	Boaretto et al., 2010
8	Israel	35.0138	32.8431	AD 1937	-258 ± 50	Boaretto et al., 2010

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