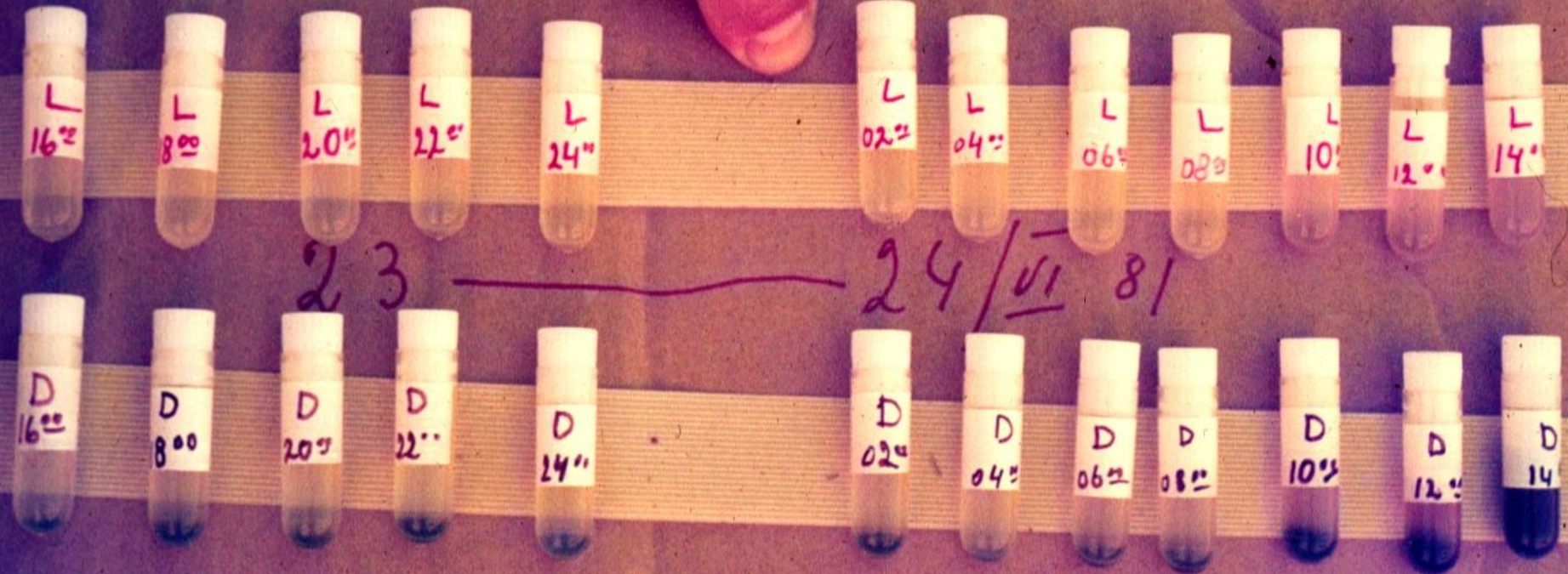


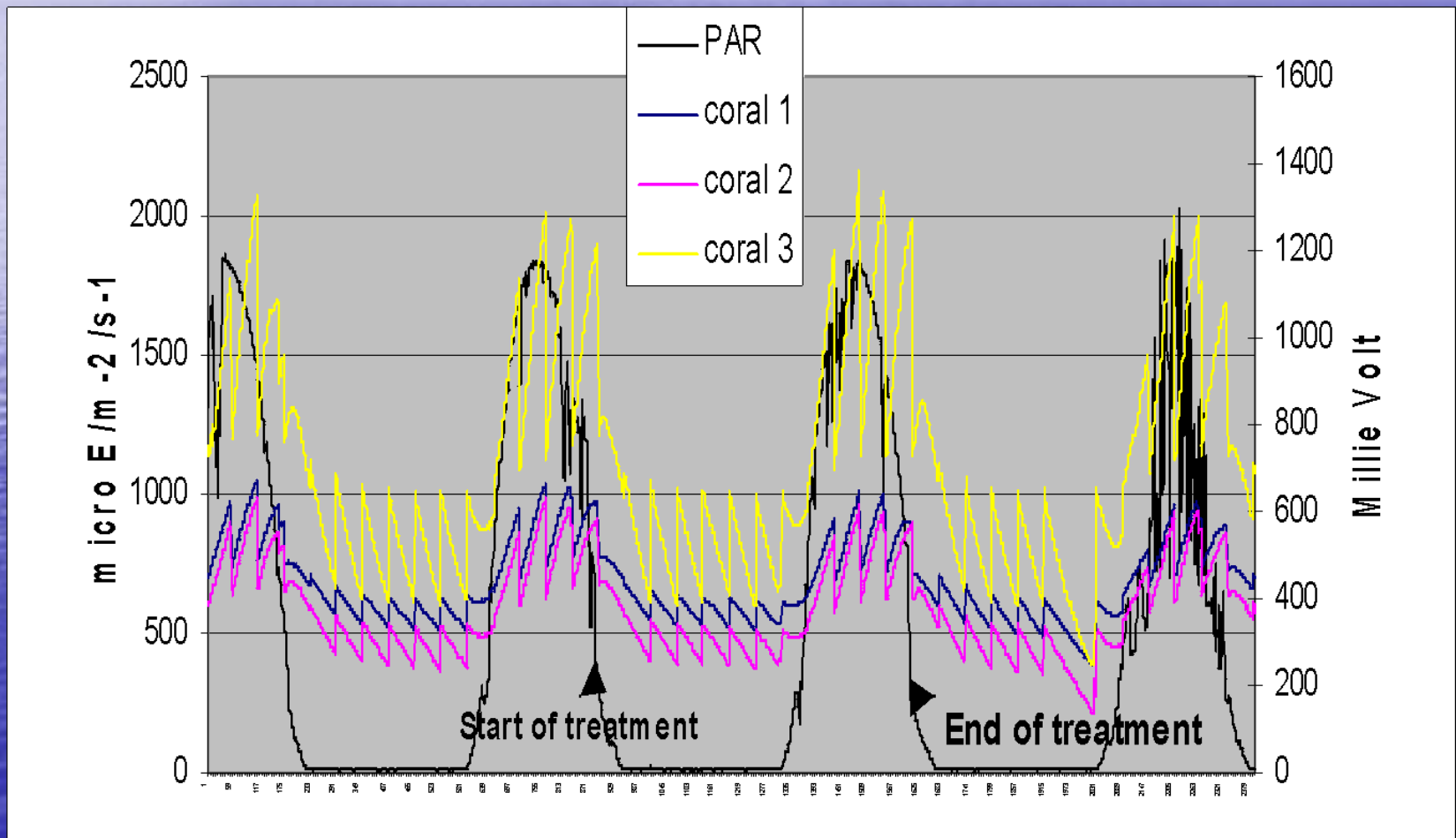
חיים ומוזות בשזנית האלמוגים

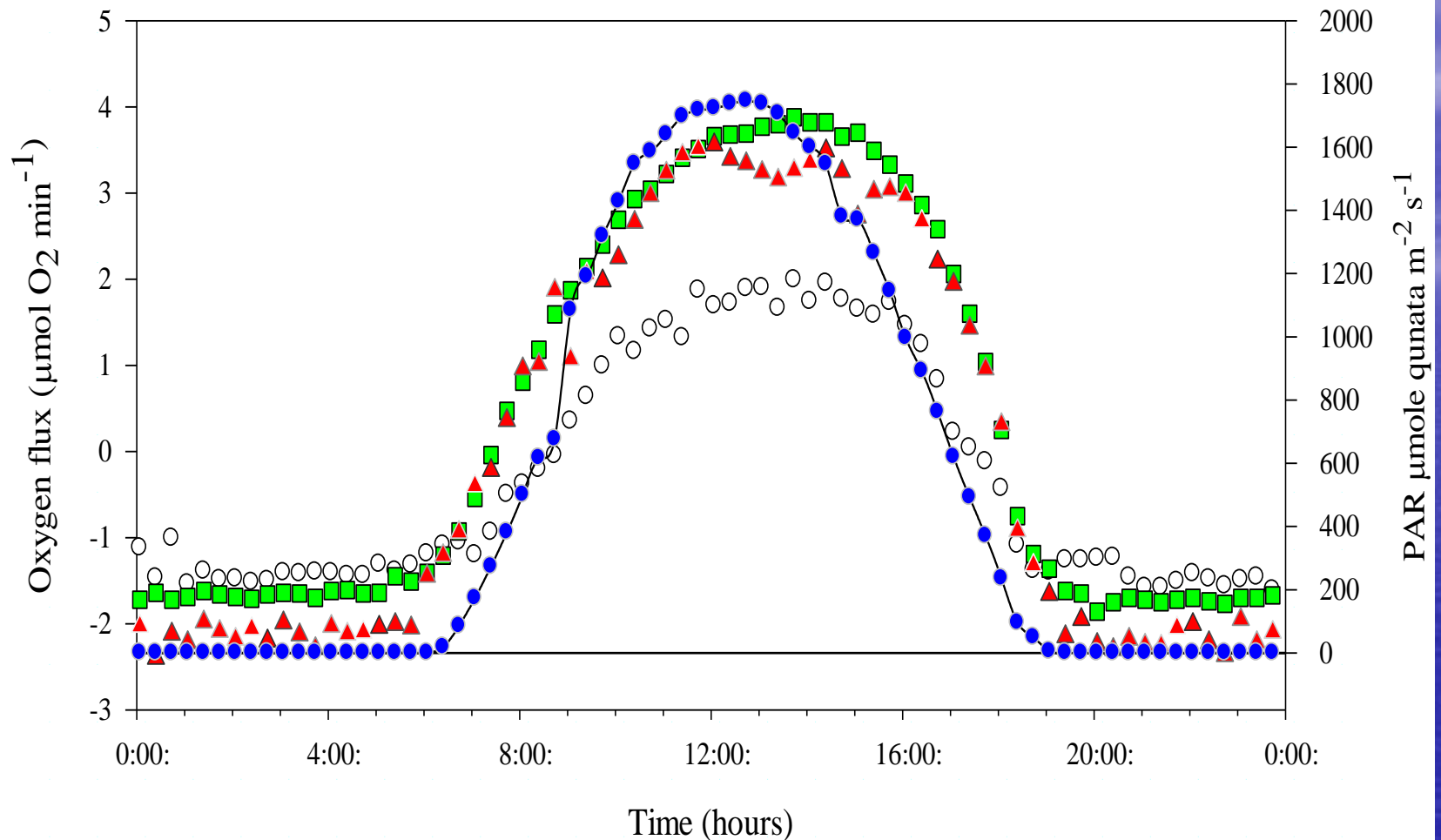
צבי דובינסקי, המוני תלמידיו ועמיתיו
הפקולטה למדעי החיים
אוניברסיטת בר אילן
כנס המורים למדעי הסביבה תשע"ג
חלק ב (27.6.13)

Zoxanthellae from high (L) -and low (D) light
Stylophora pistillata colonies sampled over 24 h



Respirometer tracing showing flush- pump action





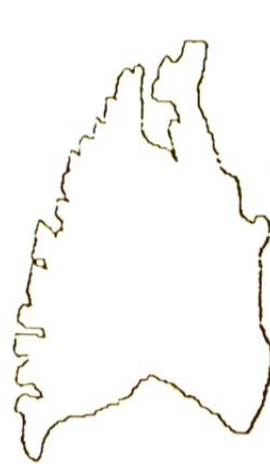
Corrected 24 h oxygen fluxes in three corals (colour) and PAR course (white diamonds)



12-31-85



6-24-86



9-07-86



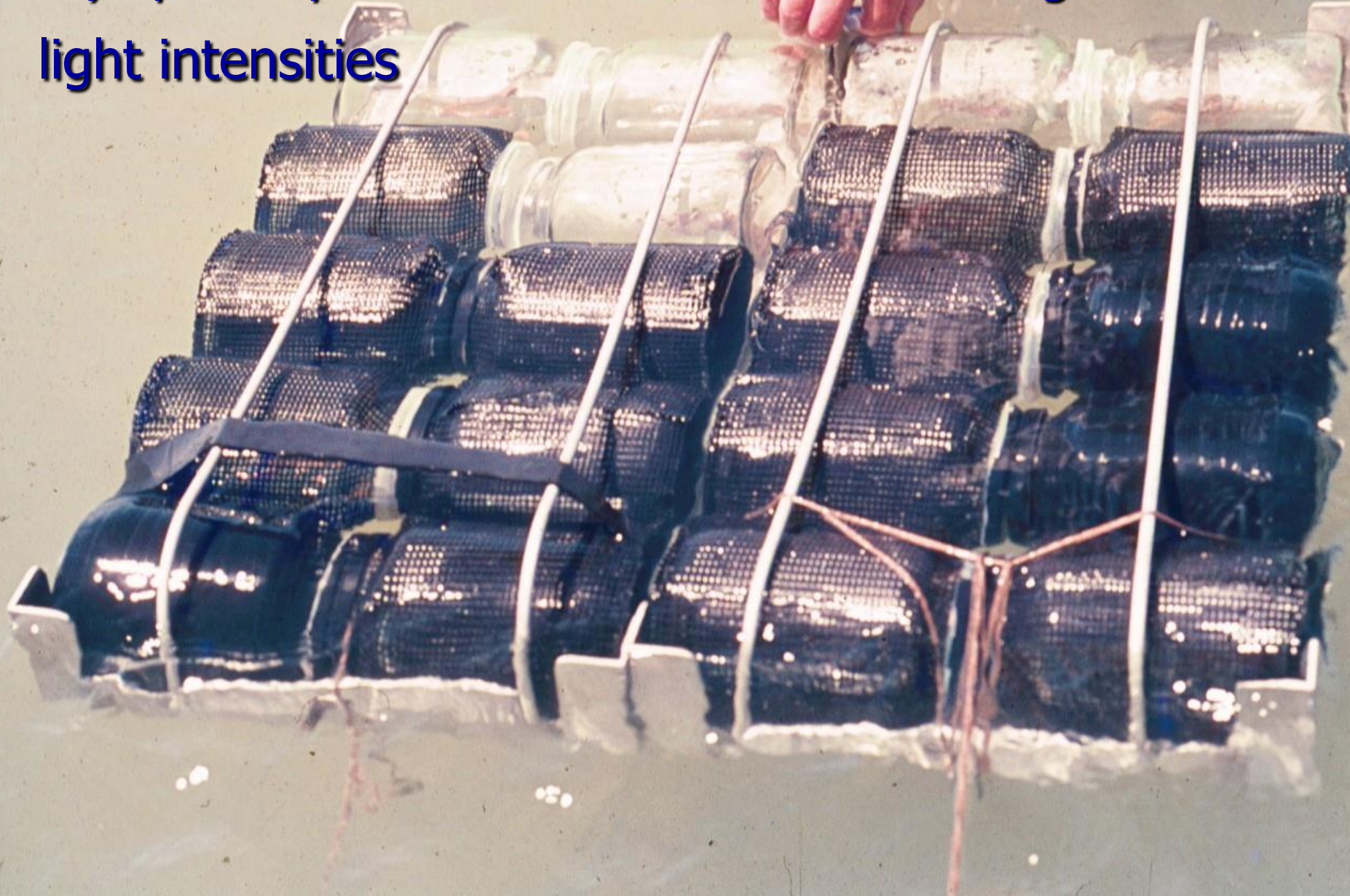
12-01-86



2-02-87

Digitised images of a *Millepora dichotoma* colony over two years

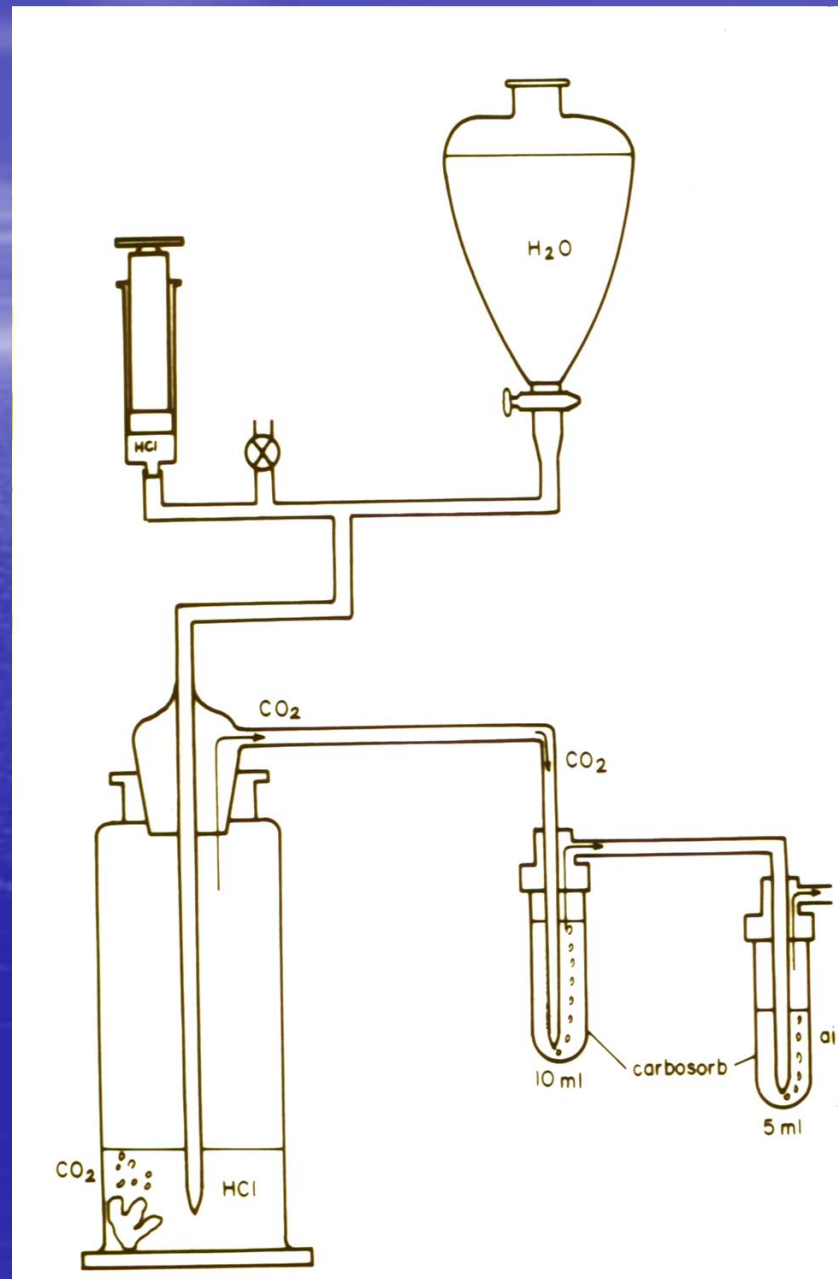
Radioactive carbon labelling of high and low light *Stylophora pistillata* branches under a range of light intensities

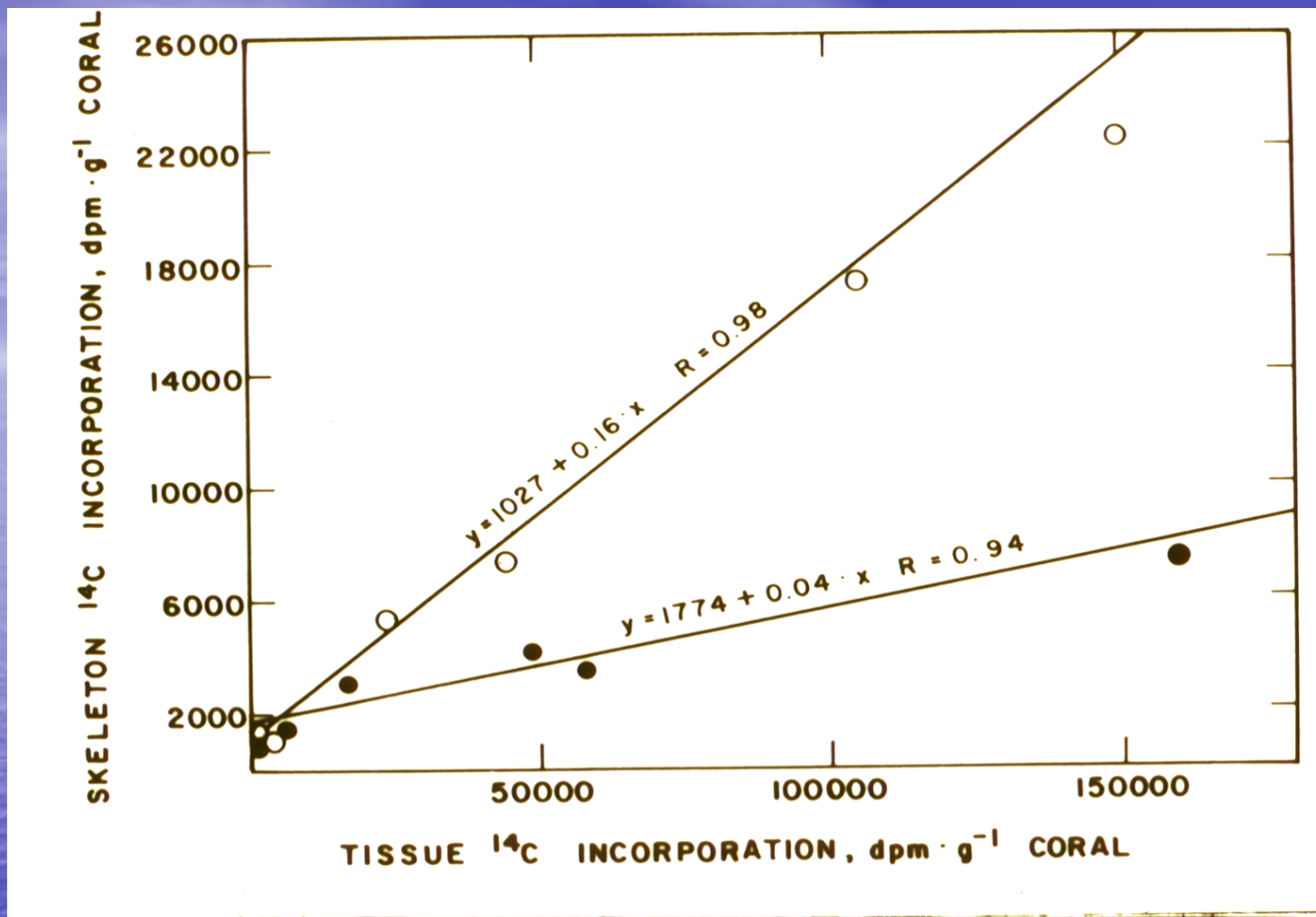




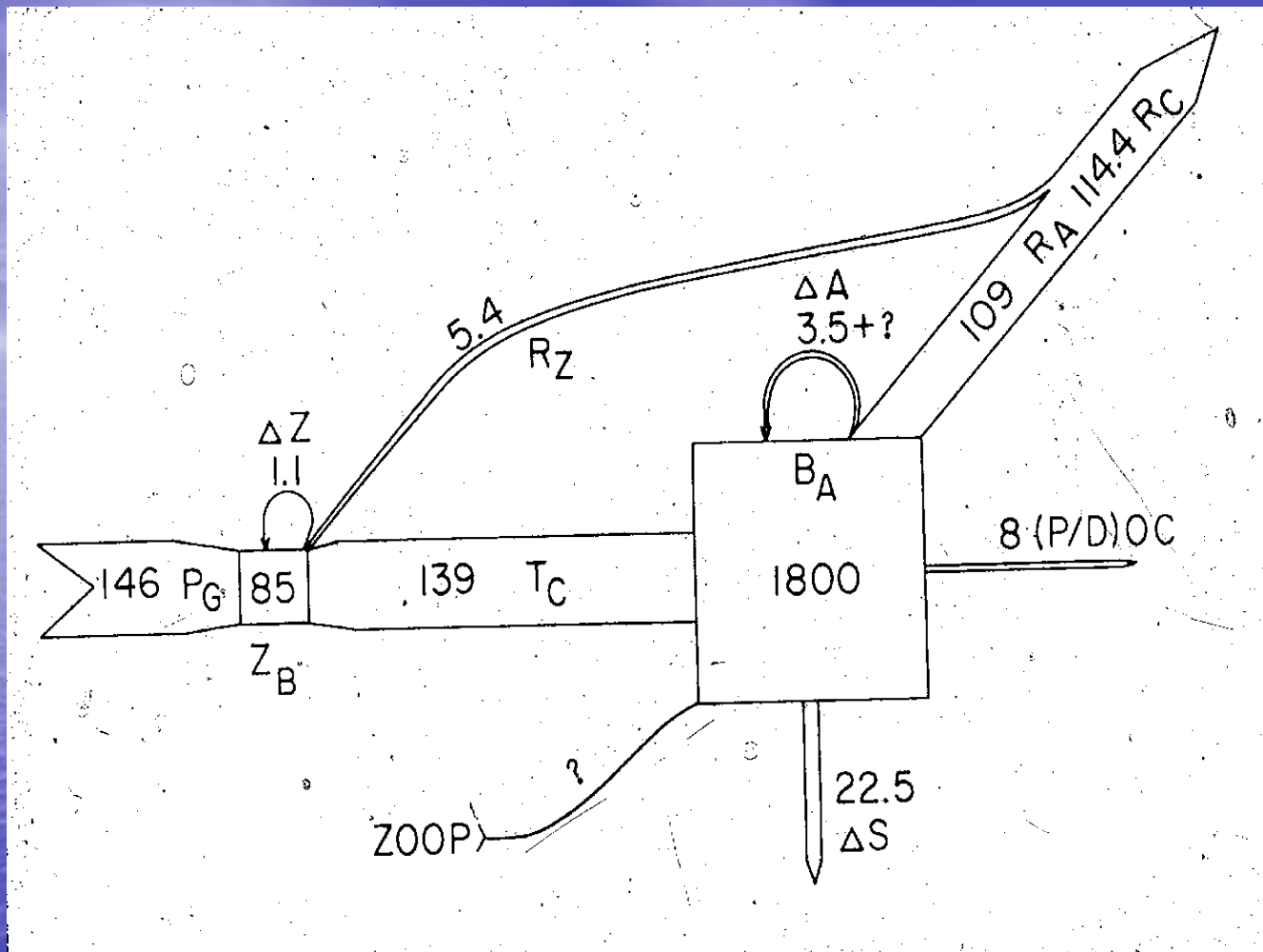
Radiocarbon incubation, Nabeq lagoon, Sinai

Set up for coral skeleton
dissolution and
trapping of
radioactive CO_2

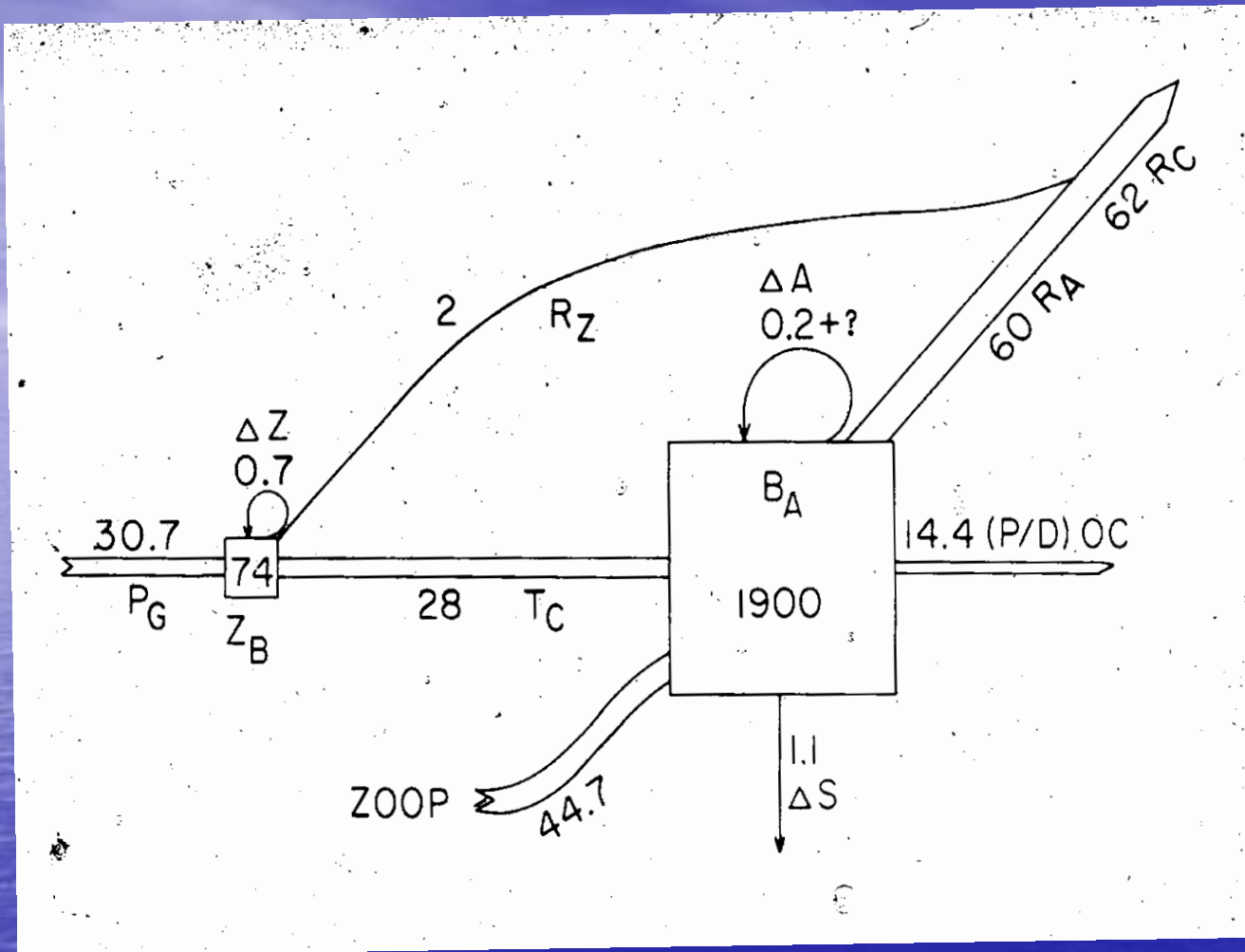




¹⁴C incorporation into skeleton and tissue, high and low light *S. pistillata*

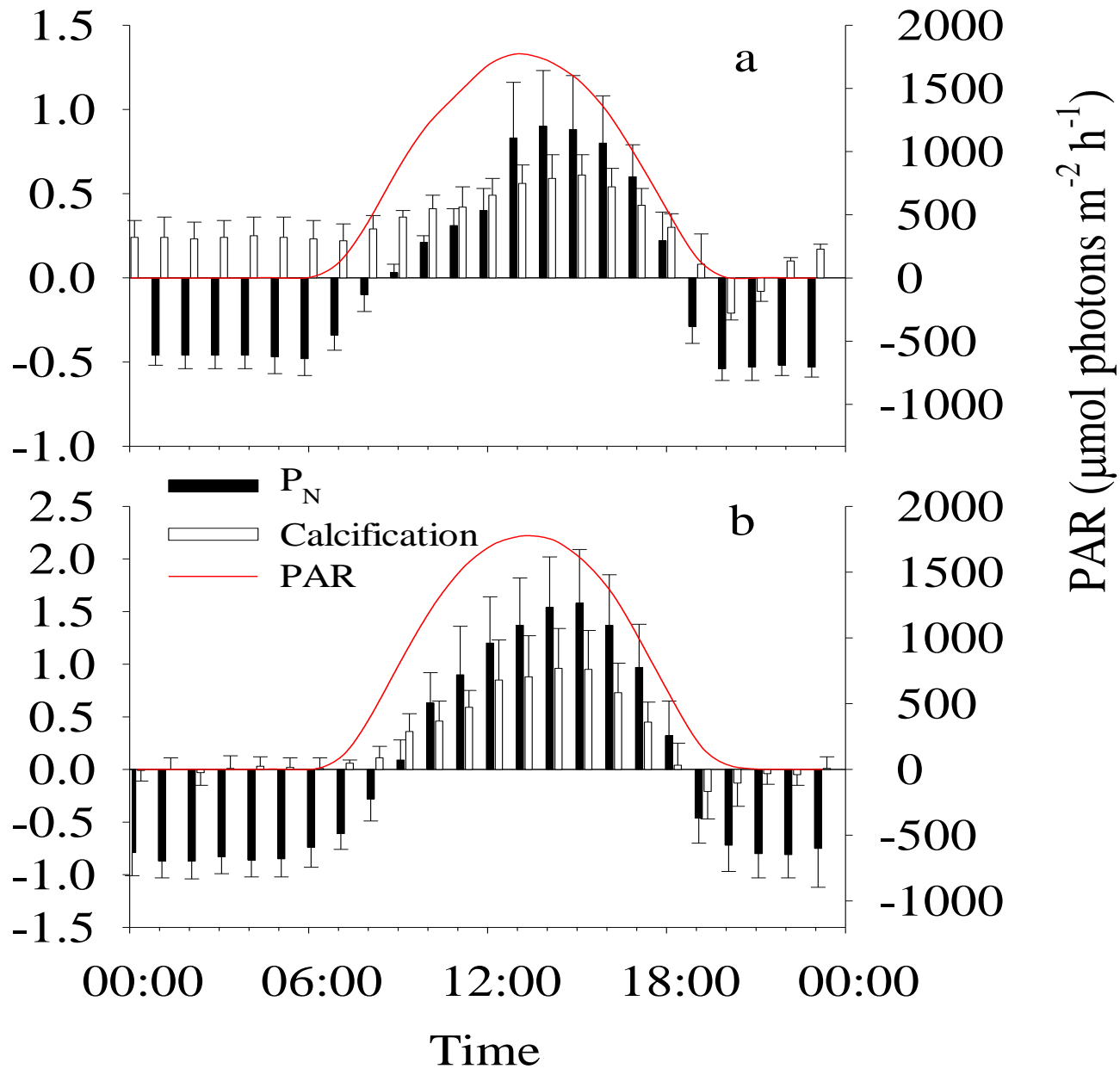


Carbon flow in high light *S. pistillata* colony, $\mu\text{g cm}^{-2}\text{d}^{-1}$

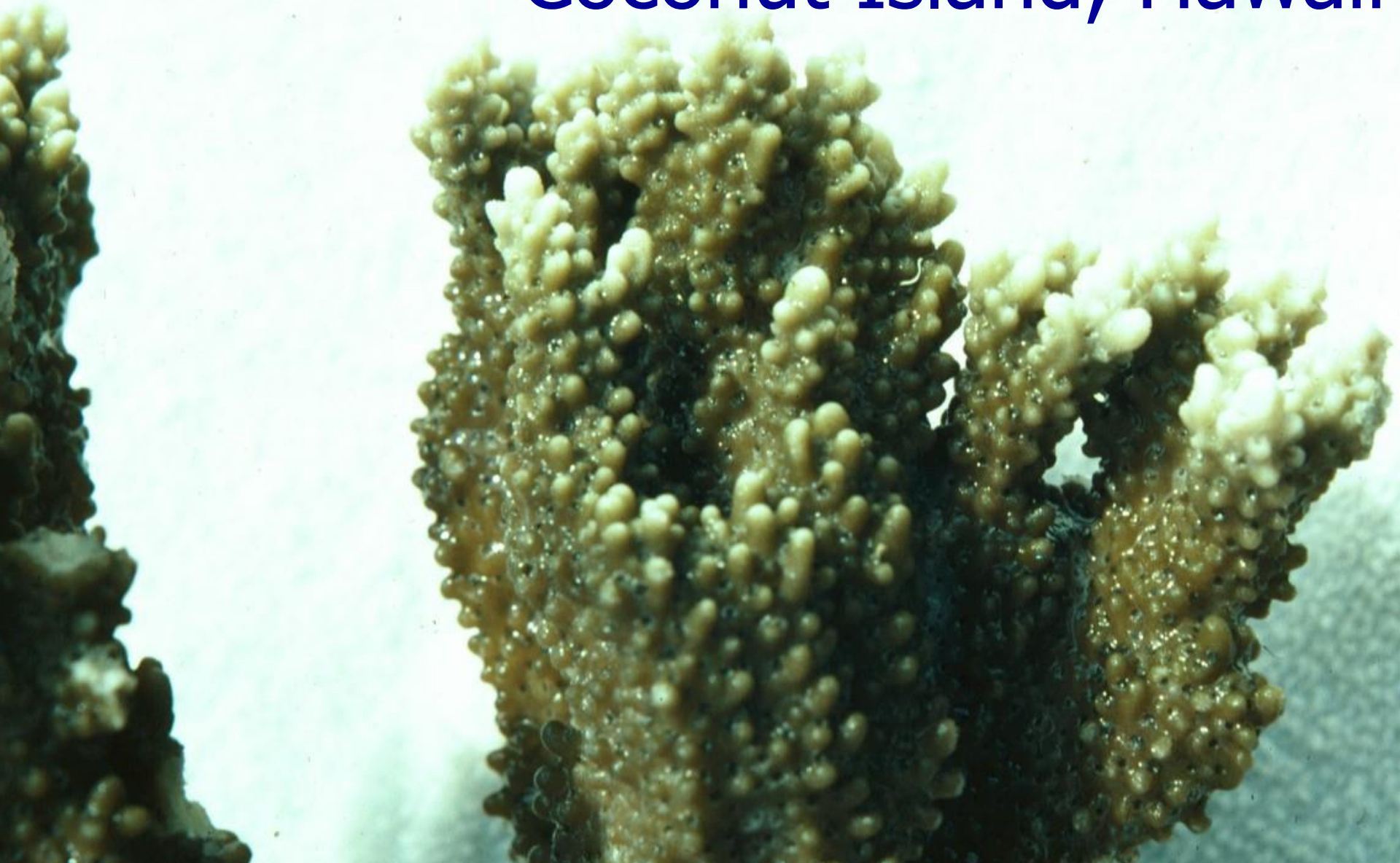


Carbon flow in low light *S. pistillata* colony, $\mu\text{g cm}^{-2}\text{d}^{-1}$

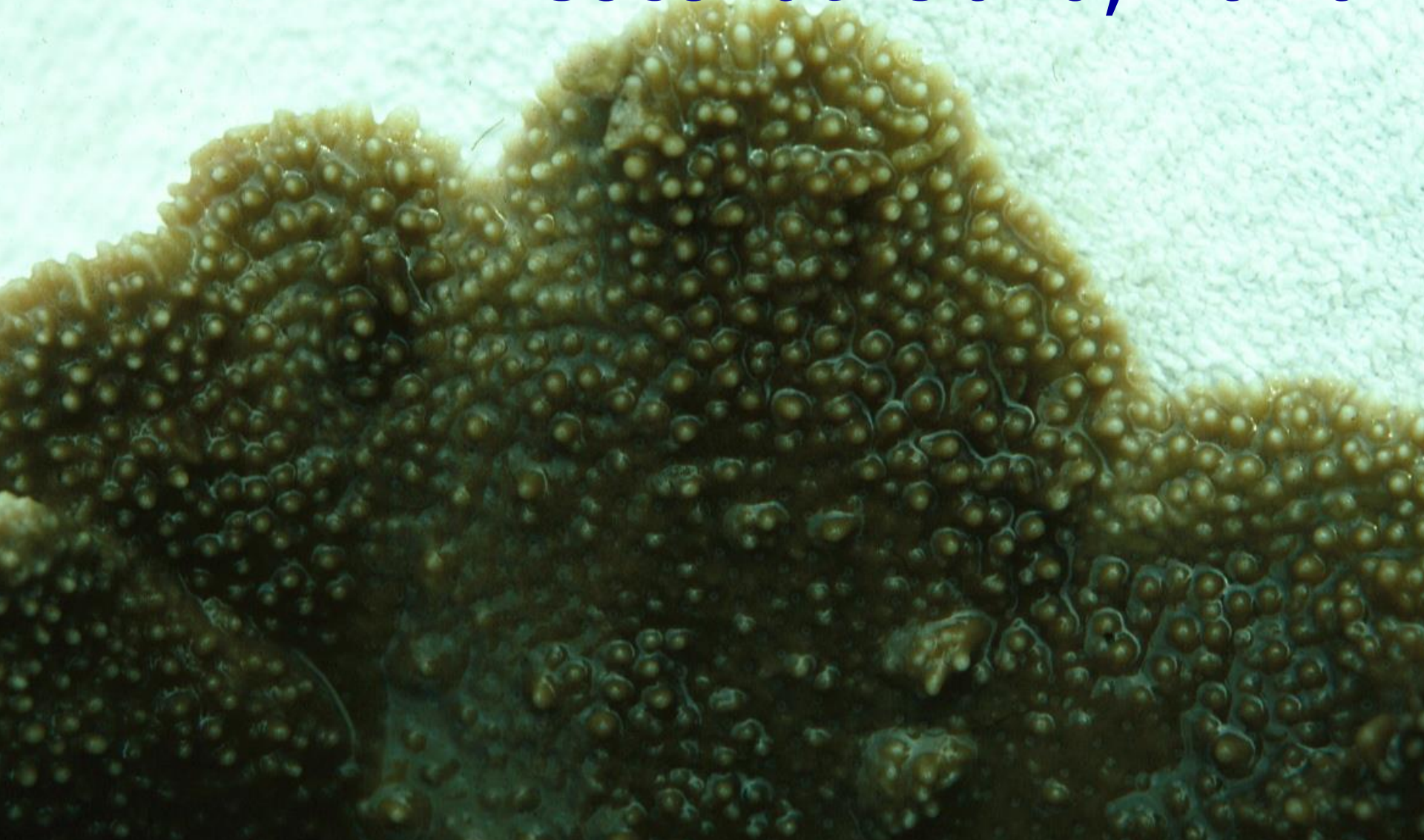
Oxygen flux ($\mu\text{mol O}_2 \text{ cm}^{-2} \text{ h}^{-1}$) or
Calcification rate ($\mu\text{mol CaCO}_3 \text{ cm}^{-2} \text{ h}^{-1}$)



Montipora verrucosa, High light,
Coconut Island, Hawaii



Montipora verrucosa, Low light,
Coconut Island, Hawaii





Lobophyllia, daytime, tentacles contracted

A close-up photograph of a colony of Lobophyllia coral. The coral is densely packed with numerous small, rounded polyps. At night, the tentacles of these polyps are fully extended, creating a complex, textured surface. The color palette is dominated by warm tones, including shades of orange, yellow, and brown, with some translucent, almost white areas where the tentacles are most prominent. The lighting highlights the intricate details of the coral's structure.

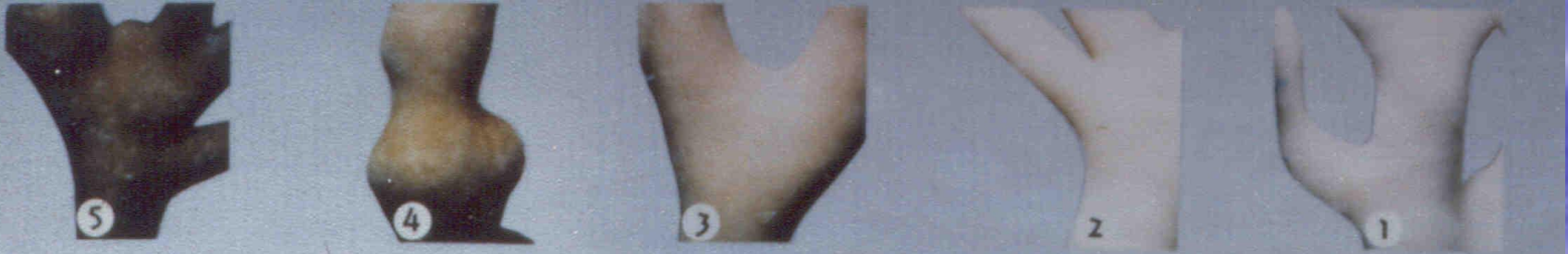
Lobophyllia at night, tentacles expanded



Favia, daytime, tentacles
contracted



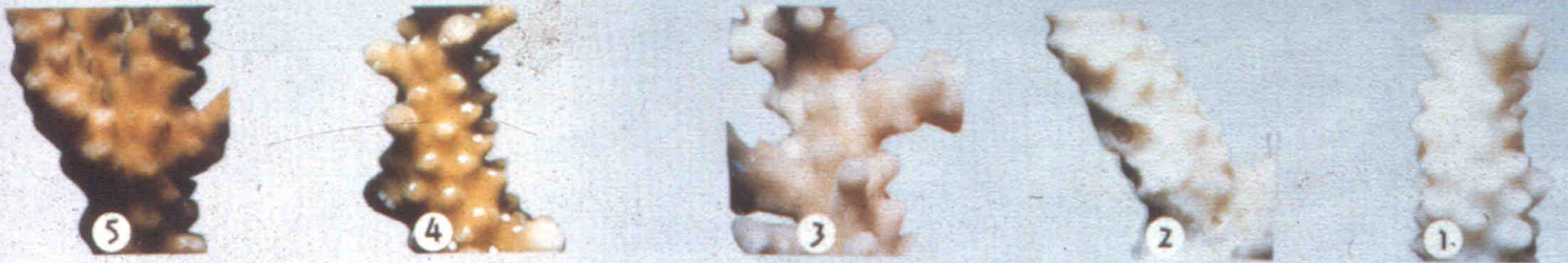
Favia at night, tentacles expanded



Millepora



Stylophora



Acropora

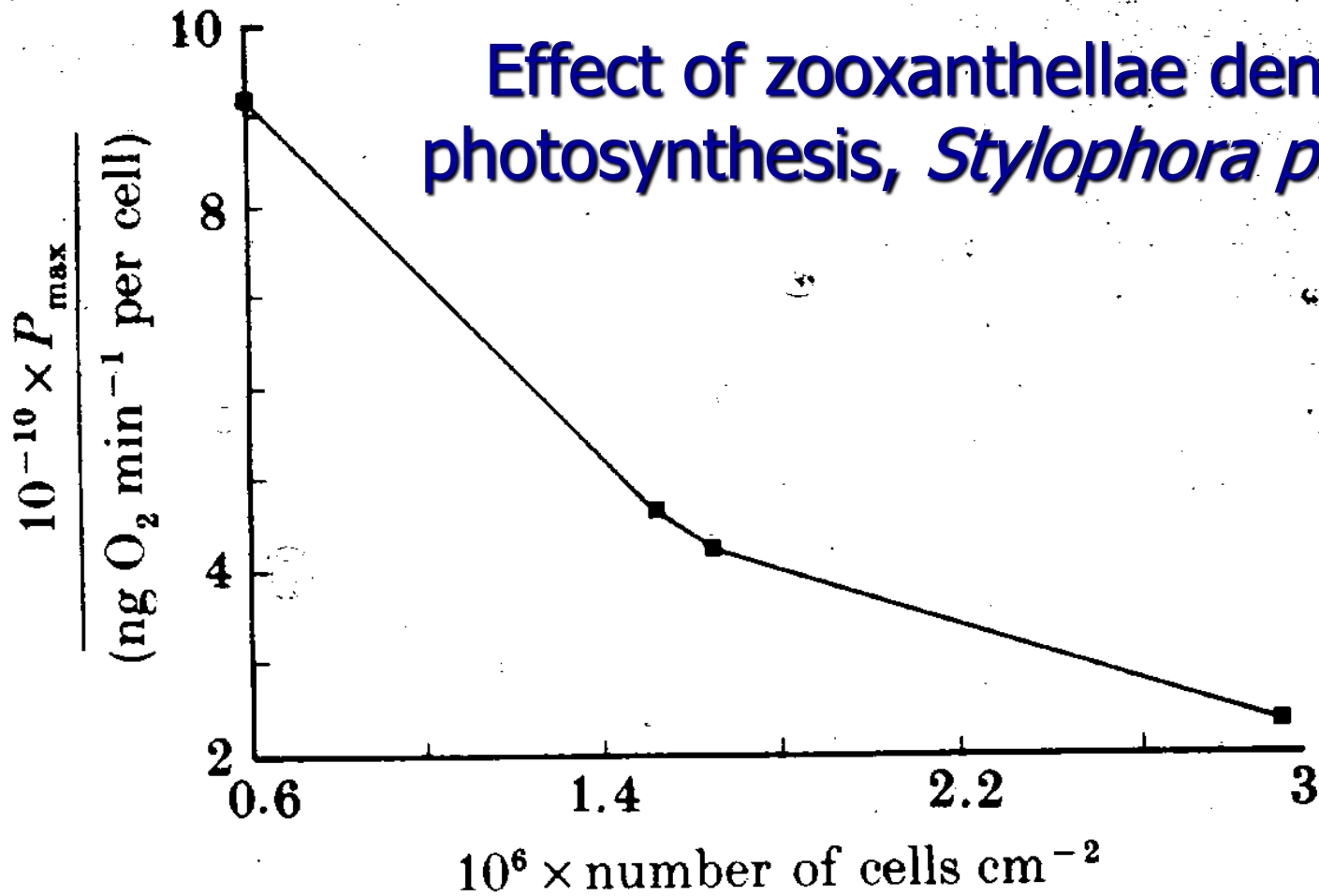
Parameter Treatment	$\mu\text{g ch } a$ cm^{-2}	10^6 cells cm^{-2}	$\text{pg ch } a$ cell
Control	1.82	0.6	3.00
N+P	12.65	2.9	4.34
N+P/C	6.95	4.83	1.45

Effects of nutrient enrichment, *Stylophora pistillata*

Parameter Treatment	$\mu\text{g ch } a$ cm^{-2}	10^6 cells cm^{-2}	$\text{pg ch } a$ cell
HL	3.6 ± 1.1	1.7 ± 0.3	2.2 ± 0.3
LL	14.2 ± 4	1.6 ± 0.1	8.3 ± 0.5
LL/HL	3.9	1.1	3.7

Effects of photoacclimation, *Stylophora pistillata*

Effect of zooxanthellae density on photosynthesis, *Stylophora pistillata*



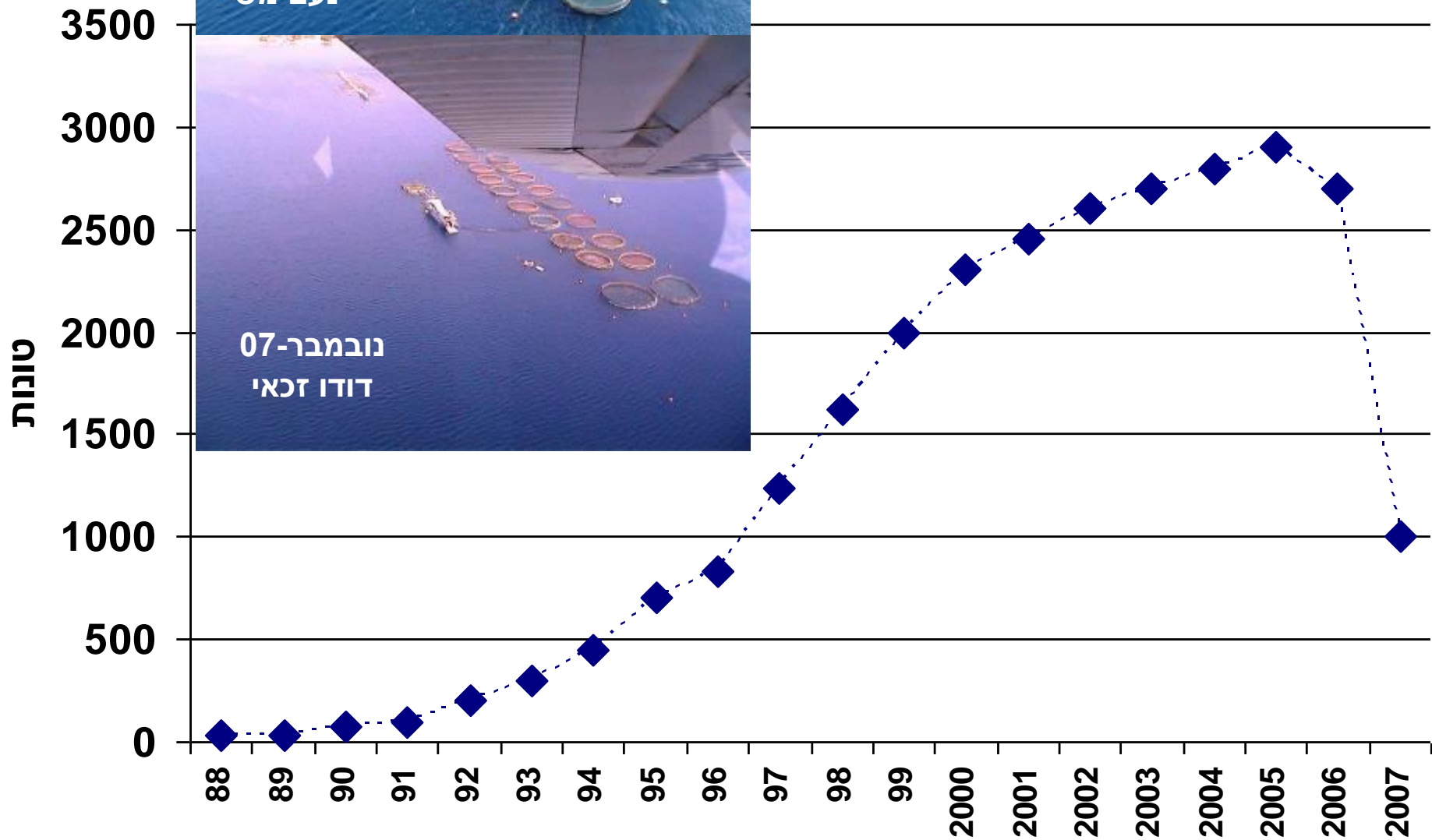
Eutrophication and algal overgrowth



כלובי

מרץ-06
נעם משי

נובמבר-07
דודו זכאי



Partial bleaching of coral colony



Sea surface temperatures in Tahiti and bleaching events

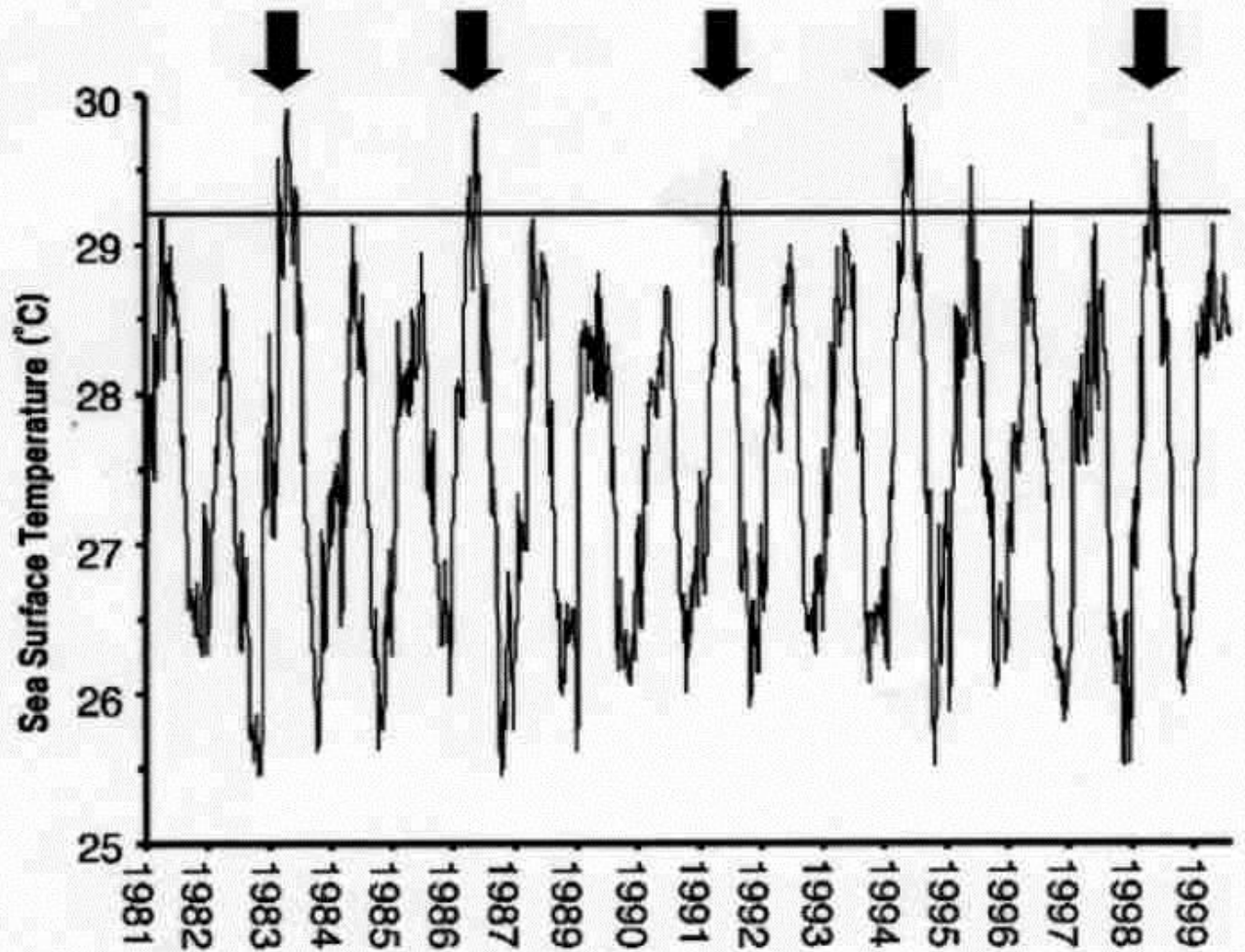


Figure 7. Weekly sea surface temperature data for Tahiti (149.5°W 17.5°S). Arrows indicate bleaching

Hoegh-Guldberg, 1999

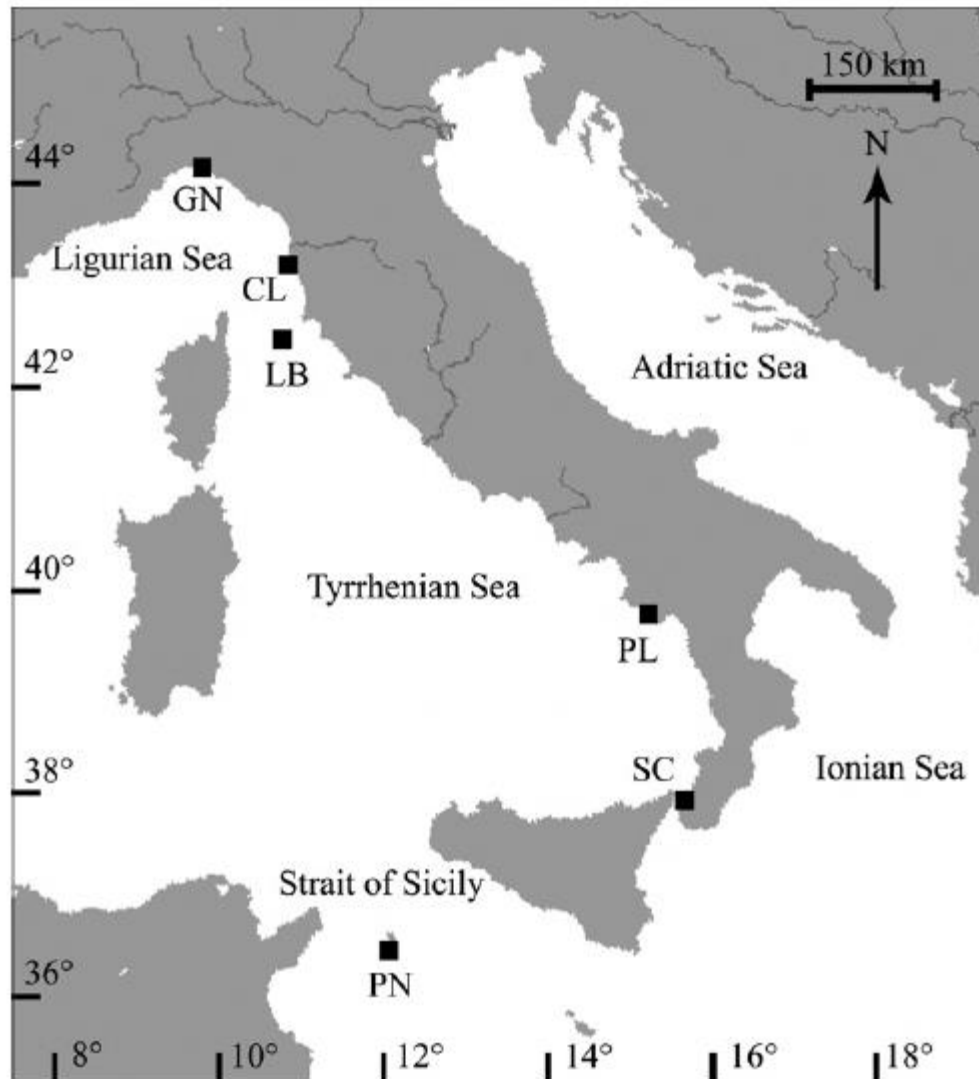


Fig. 2. Map of the Italian coastline indicating the sites where the corals were collected. Abbreviations and coordinates of the sites in decreasing order of latitude: GN, Genova, 44°20'N, 9°08'E; CL, Calafuria, 43°27'N, 10°21'E; LB, Elba Isle, 42°45'N, 10°24'E; PL, Palinuro, 40°02'N, 15°16'E; SC, Scilla, 38°01'N, 15°38'E; PN, Pantelleria Isle, 36°45'N, 11°57'E.

As a result of increases in $p\text{CO}_2$ and changing CaCO_3 saturation state, there was a 10 % decrease in calcification from 1890 - 1990 and 9 - 30 % from 1990 - 2100.

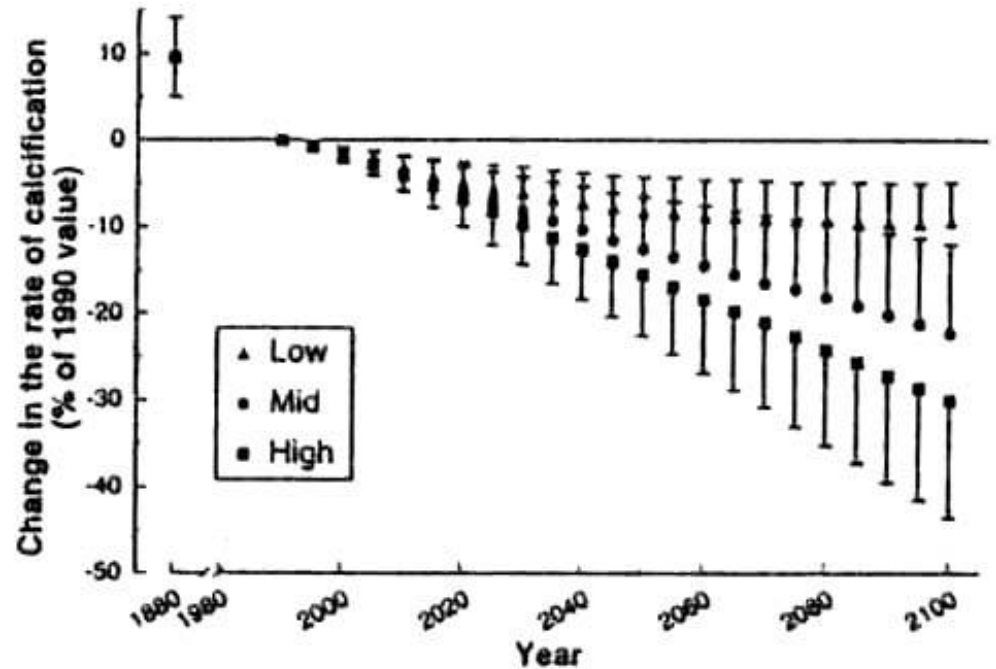
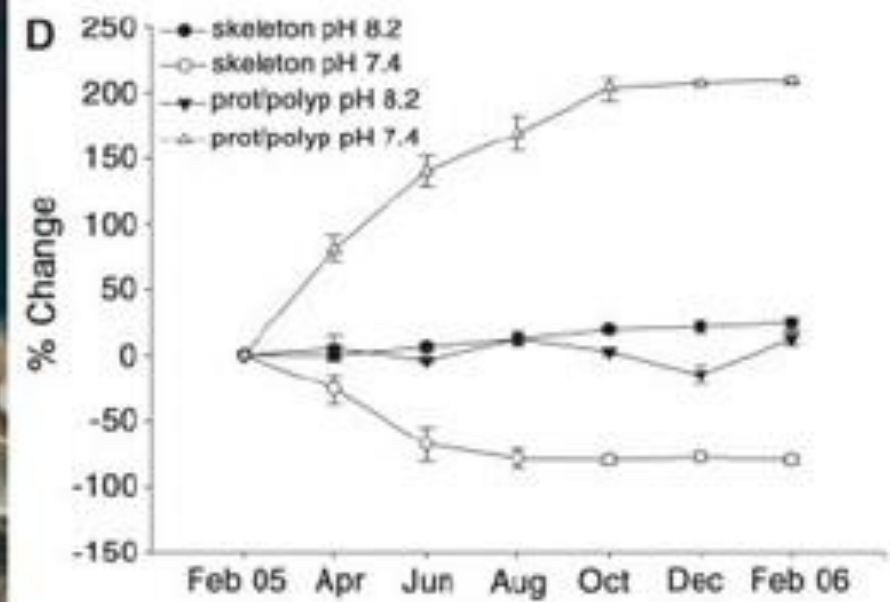
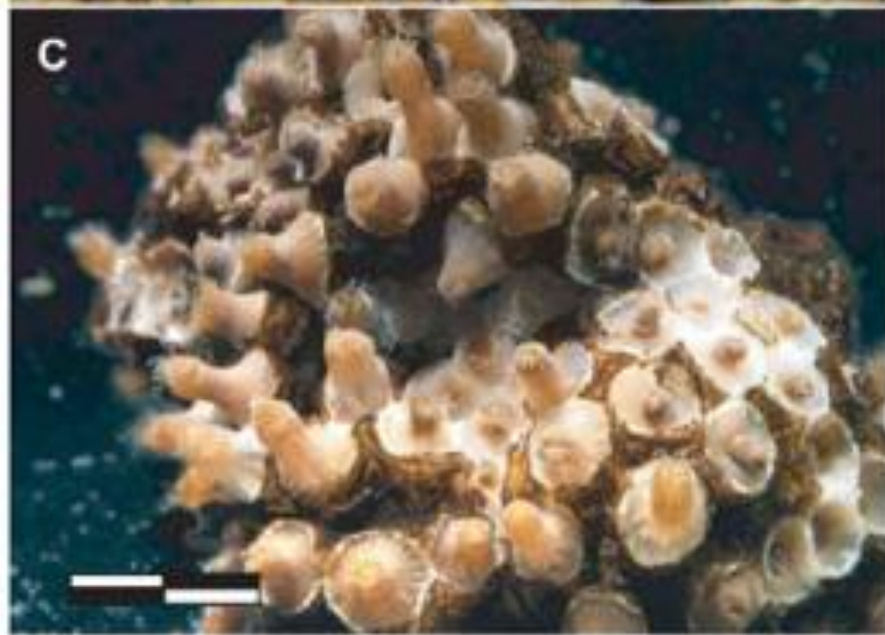
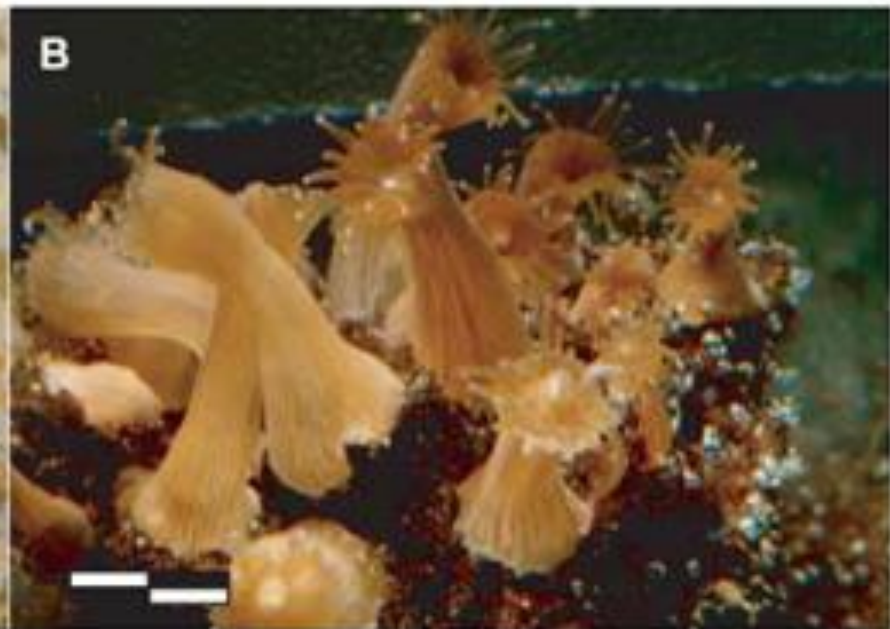
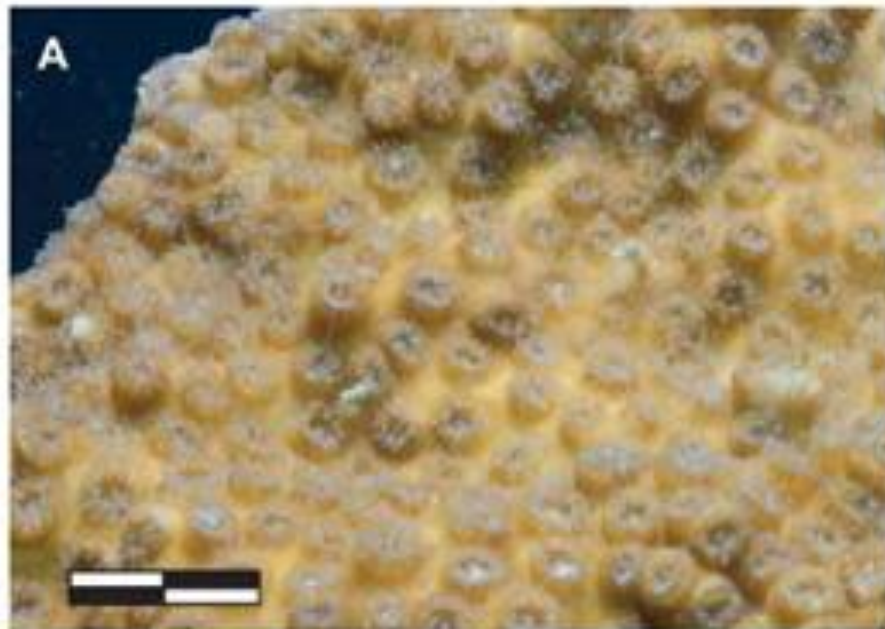


FIG. 9. Past and future changes in rate of CaCO_3 deposition (relative to 1990) of various marine photosynthetic and calcifying organisms and communities. Ω was calculated as described for Table 3. The following revised IPCC scenarios were considered (Houghton *et al.*, 1996): high (IS92e), mid (IS92a) and low (IS92c). Five of the data sets shown in Table 3 were used; the remaining two (Gao *et al.*, 1993a; F. Marubini and M. J. Atkinson, personal communication) could not be used because they did not cover the entire range of Ω encountered during the period 1880–2100. Mean \pm standard error of the mean; $N = S$.





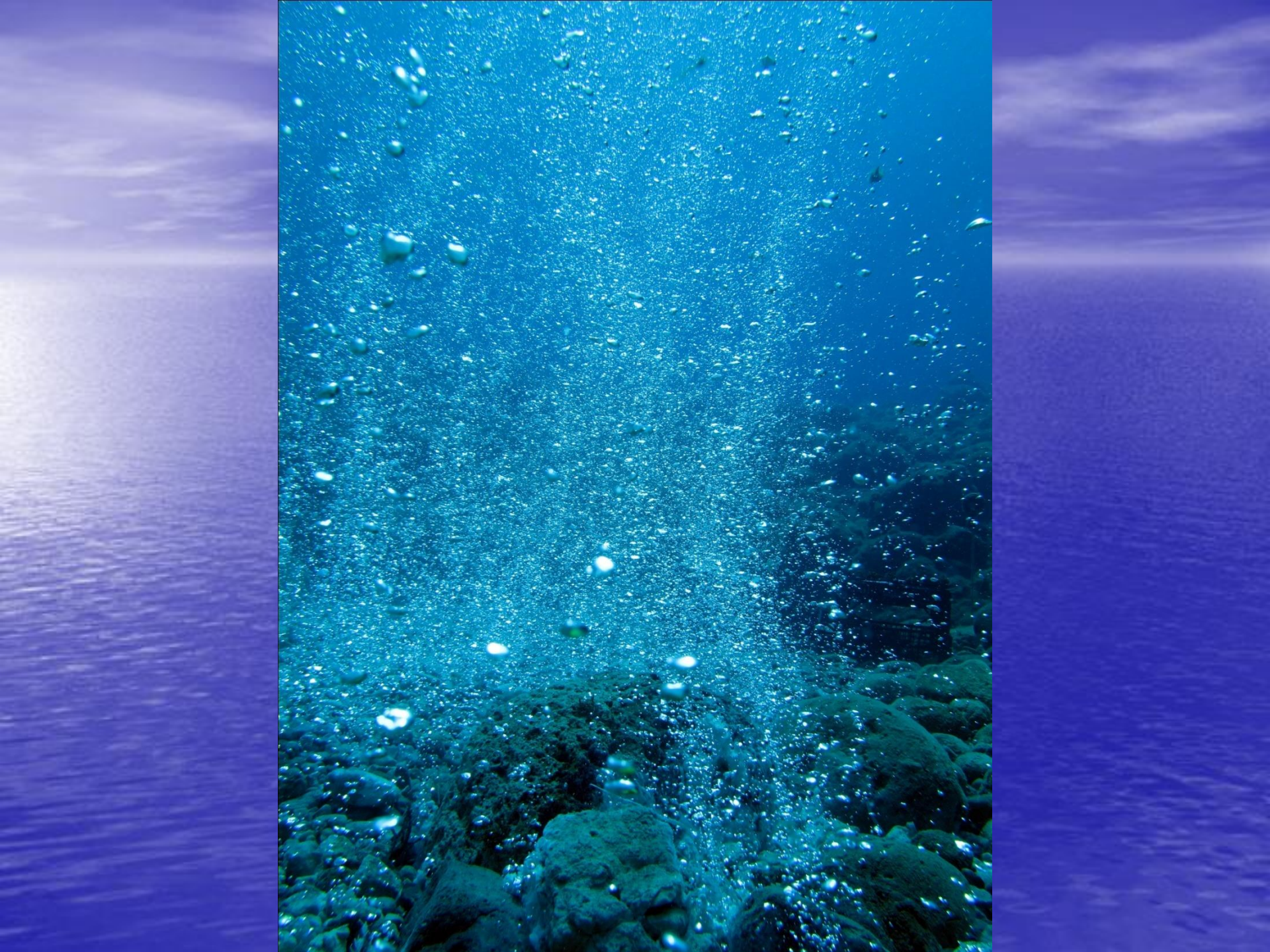


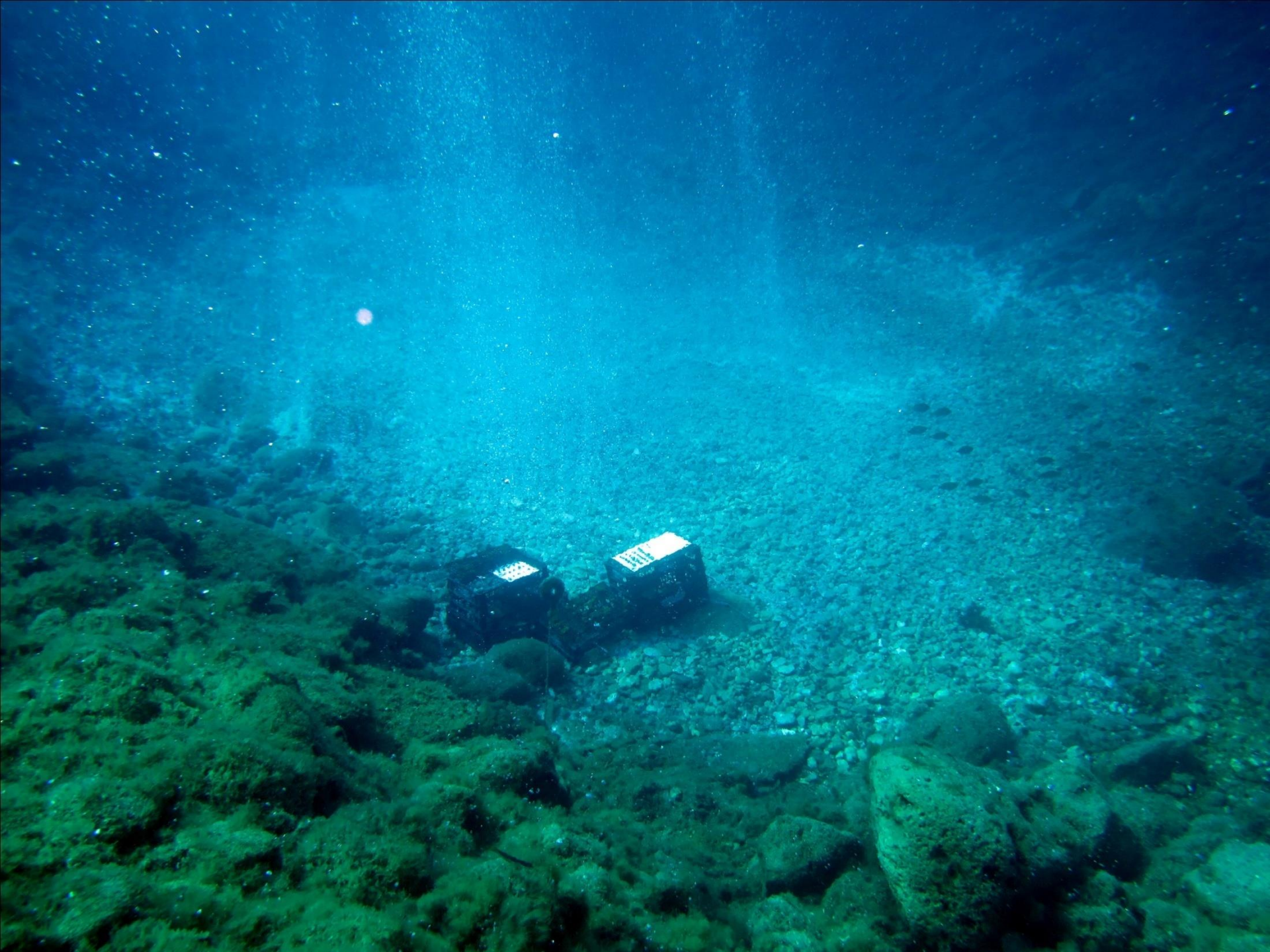




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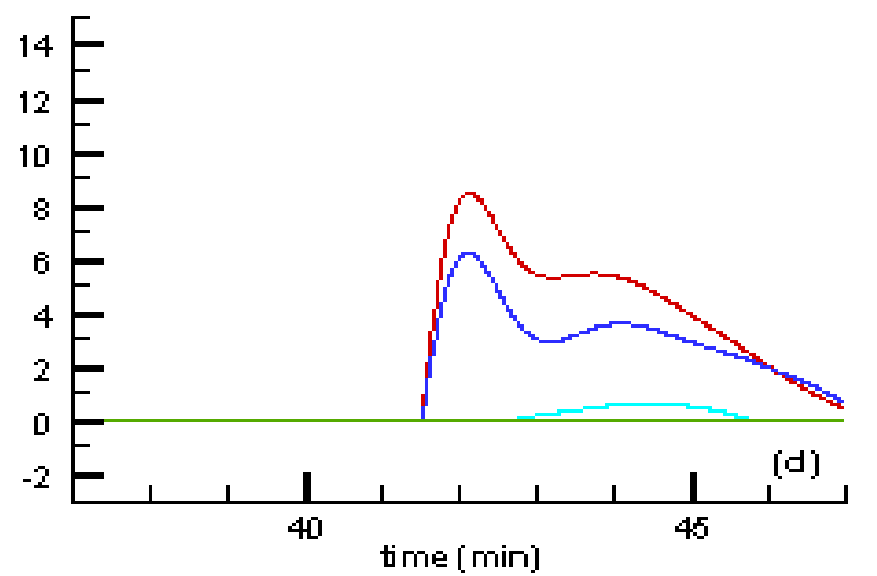
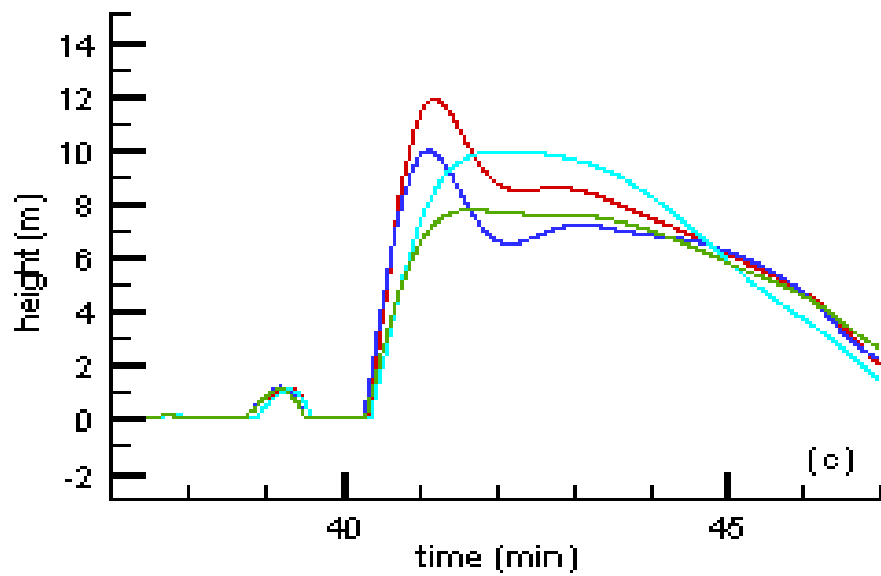
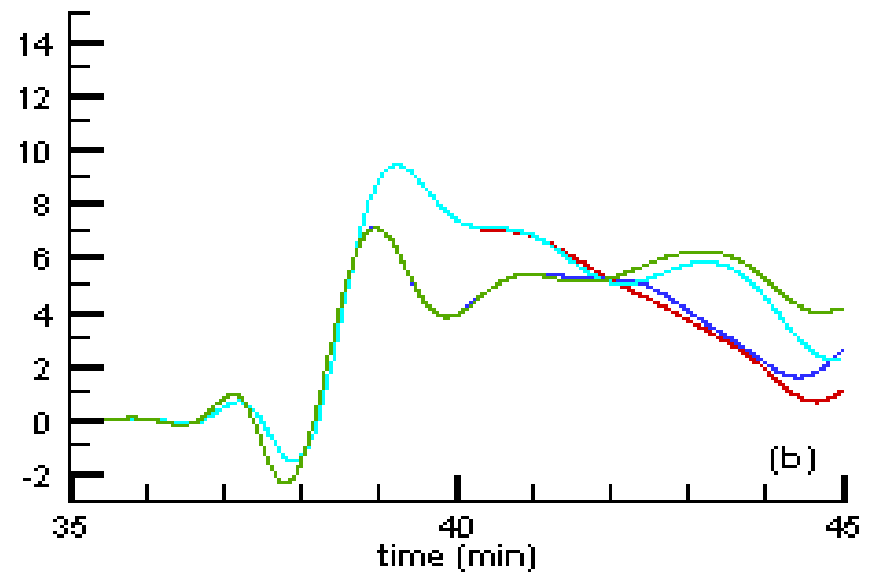
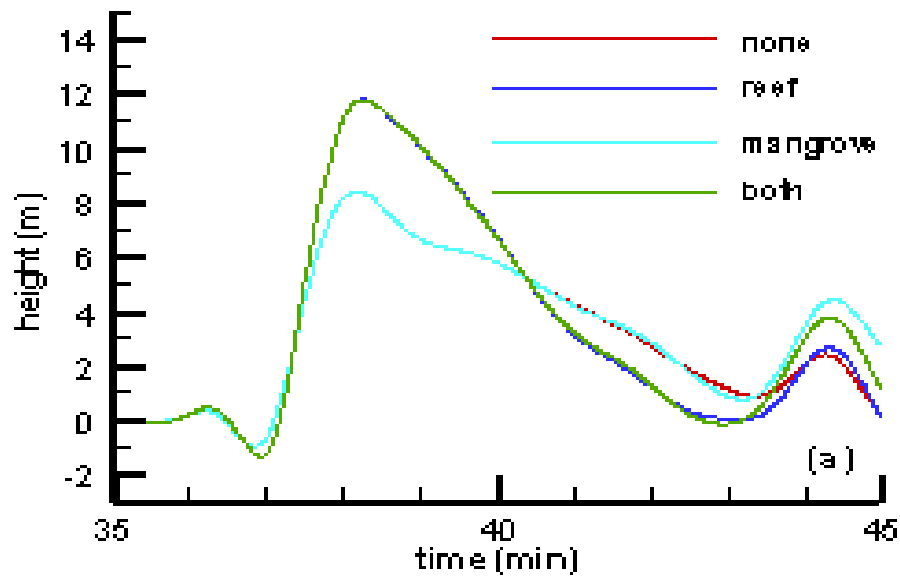










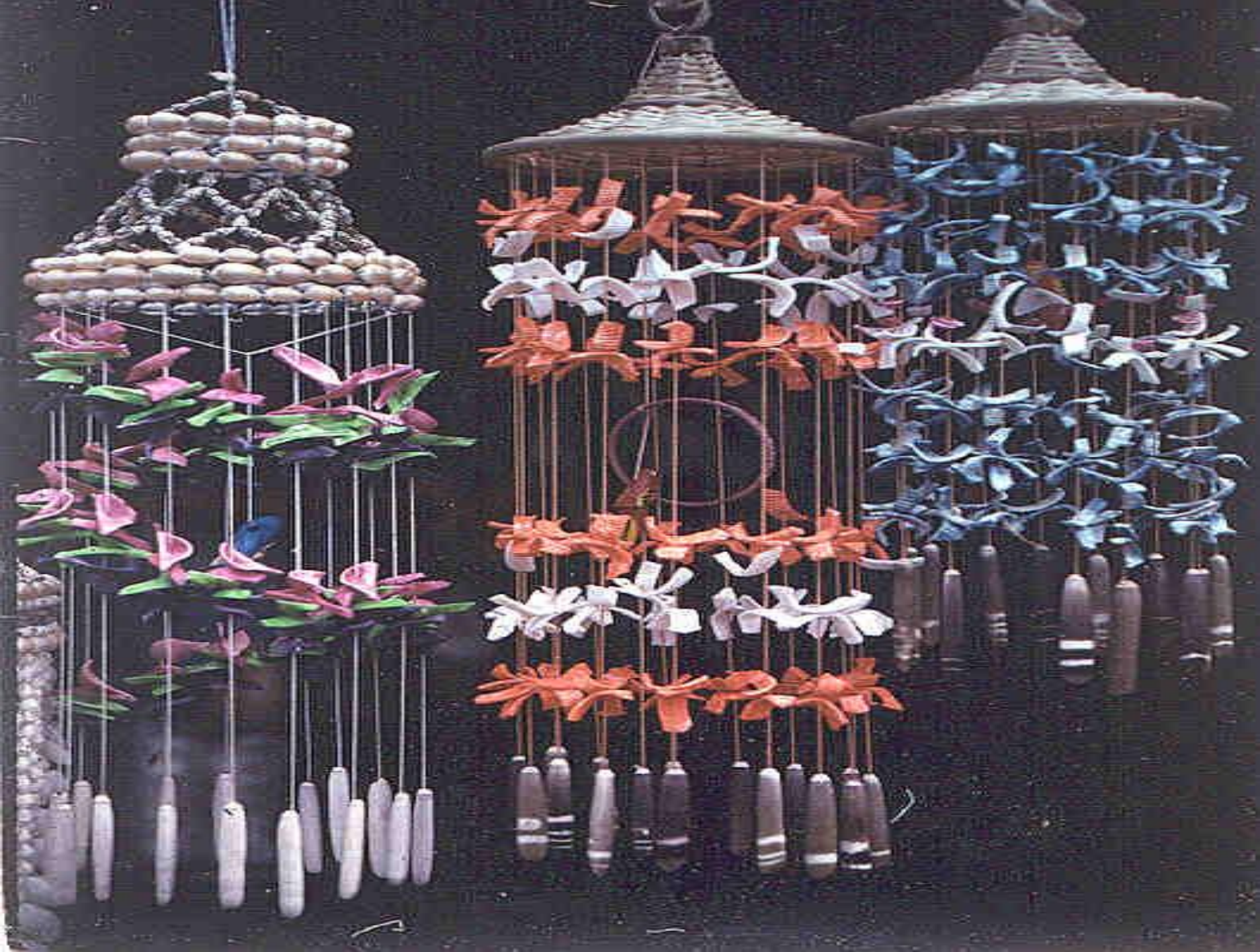


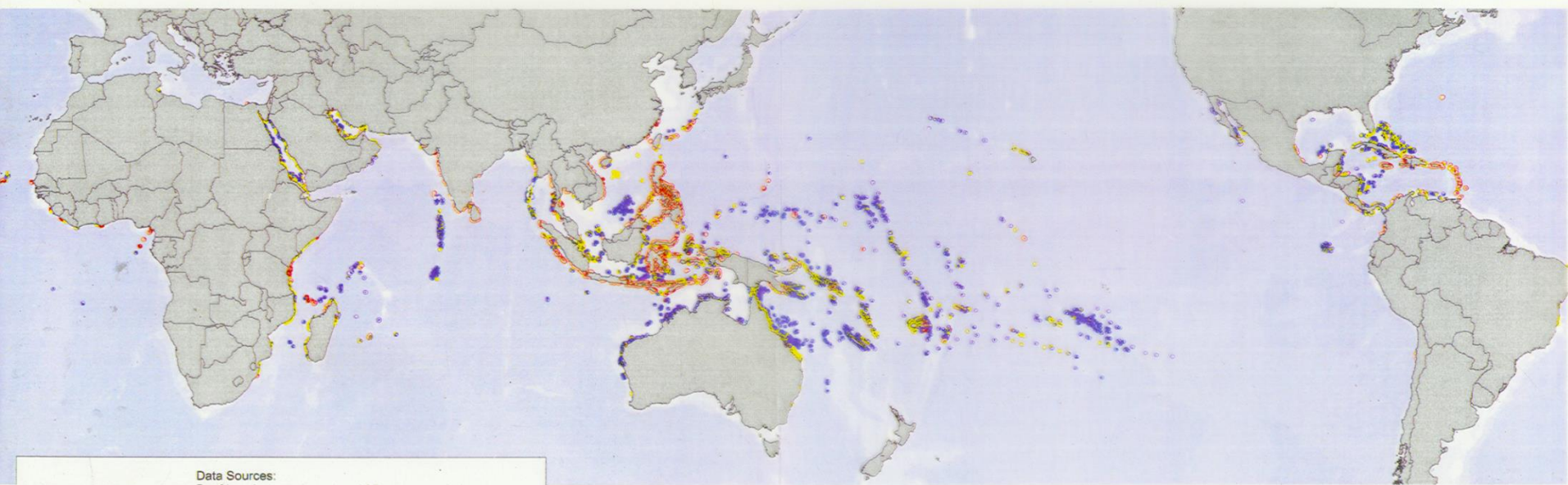
A close-up photograph of a rough, textured stone or brick surface. The surface is composed of irregular, light brown and tan-colored blocks with a highly irregular, pitted, and cracked texture. The mortar joints between the blocks are visible, showing a similar but slightly smoother texture. The lighting is bright, highlighting the uneven surface and creating deep shadows in the crevices.

**Turkish 19th century
fort, Wasit, Sinai**

**Sun drying parrot fish and giant
clams, Eastern Sinai**







לסיכום: החדשות הרעות

- **ההתחממות של מי האוקיינוסים מגבירה את עצמתם ושכיחותם של ארועי "הלבנה" של אלמוגים והרס שוניות**
- **החמצת האוקיינוסים מקשה על השקעת הגיר על ידי אלמוגים ומאטה את גדילתם**
- **עליית מפלס האוקיינוסים מקשה בתנאי החמצה גוברת על השארות האלמוגים באור**
- **העשרת האוקיינוסים בחמרי דישון פוגעת באלמוגים ומביאה להשתלטות אצות במקומן**

הסוף



של שוניות האלמוגים???

