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Foraminiferal community response to seasonal anoxia in Lake Grevelingen (the Netherlands)

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Table S1. Oxygen Penetration Depth ± sd and free H2S detection depth ± sd for each month in 2012 for both stations 1 and 2 (in mm).

Station	Month	OPD (mm)	H_2S depth (mm)
Station 1	January	1.7 ± 0.3	16.5 ± 3.2
	February	2 ± 0.4	17.1 ± 2.8
	March	1.7 ± 0.3	17.5 ± 0.7
	April	1 ± 0.2	18.6 ± 4.8
	May	1 ± 0.1	9.9 ± 2.2
	June	0.9 ± 0.1	7.9 ± 5.3
	July	0 ± 0	0.1 ± 0.1
	August	0 ± 0	0.9 ± 1.1
	September	0.7 ± 0.1	0.3 ± 0.2
	October	1.1 ± 0.1	3.3 ± 1.1
	November	0.4 ± 0	10.3 ± 1.9
	December	1.1 ± 0.2	13.4 ± 1.8
Station 2	January	2.8 ± 0	19.6 ± 2
	February	2.4 ± 0.2	15.8 ± 1.2
	March	2.6 ± 0.6	20.3 ± 3.3
	April	1.4 ± 0.2	23.3 ± 0.3
	May	1.6 ± 0	26.4 ± 1
	June	1.1 ± 0.4	17.1 ± 0.4
	July	1.3 ± 0.4	1.1 ± 0.8
	August	0 ± 0	0.4 ± 0.2
	September	1.2 ± 0.2	0.8 ± 0.2
	October	1.6 ± 0.3	6.4 ± 2.9
	November	1.3 ± 0.2	9.1 ± 3.3
	December	1.5 ± 0.2	9.2 ± 0.7

Table S2. Living foraminiferal abundances for each replicate for the dominant species and total assemblage (ind. 10cm^{-3}).

STATION 1

Species		*Elphidium selseyense*		*Ammonia* sp. *T6*		*Elphidium magellanicum*		*Trochammina inflata*		Total assemblage	
Year	**Month**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
2011	August	2.1	0.4	1.4	1.1	0.0	0.0	0.0	0.0	4.2	2.5
2011	November	0.0	1.1	0.0	0.7	0.0	0.0	0.0	0.0	0.0	2.1
2012	January	2.8	7.4	0.7	5.7	0.0	0.4	0.4	2.1	5.0	18.0
2012	March	28.6	19.1	12.0	13.8	29.4	13.8	2.1	0.7	75.7	48.5
2012	May	141.5	531.6	13.8	4.6	63.0	129.8	0.4	3.2	222.1	677.6
2012	July	76.0	247.9	8.1	12.4	3.9	3.5	0.0	0.0	88.4	270.6
2012	September	21.2	38.2	0.7	3.9	0.0	0.0	0.0	0.7	21.9	46.0
2012	November	0.7	1.4	0.4	0.4	0.0	0.0	0.0	0.0	1.4	1.8

STATION 2

Species		*Elphidium selseyense*		*Ammonia* sp. *T6*		*Elphidium magellanicum*		*Trochammina inflata*		Total assemblage	
Year	**Month**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
2011	August	53.8	95.8	72.5	91.6	0.0	0.0	10.6	18.7	140.1	208.0
2011	November	33.2	71.4	61.9	59.8	0.0	0.0	13.1	10.6	111.1	146.4
2012	January	122.0	201.6	263.1	189.2	1.1	0.7	142.5	100.4	545.4	501.9
2012	March	225.6	203.7	275.2	152.8	41.0	56.6	73.9	76.0	624.2	500.5
2012	May	254.6	321.8	165.9	128.4	120.6	111.4	42.1	30.1	602.3	607.3
2012	July	318.3	246.9	172.2	144.7	39.6	36.1	35.4	27.6	589.9	473.2
2012	September	415.2	315.8	141.1	63.7	97.3	46.7	14.9	17.3	681.2	453.8
2012	October	104.7	92.7	87.0	111.1	2.1	1.4	5.3	9.5	205.8	217.2
2012	November	29.4	32.5	66.5	29.7	3.9	4.2	5.0	2.5	108.9	73.2
2012	December	281.2	223.2	78.9	77.1	16.3	34.7	15.9	9.5	405.3	350.5

Table S3. Living foraminiferal abundances for each replicate, year and month for all the species of the assemblage (ind. 10cm^{-3}). Empty cases represent the absence in the sample. Last column: absolute abundance of the total fauna.

Year	Station	Replicate	Month	*Ammonia falsobeccarii*	*Ammonia* sp. T1	*Ammonia* sp. T2	*Ammonia* sp. T3	*Ammonia* sp. T6	*Bulimina denudata*	*Bulimina elongata*	*Bulimina marginata*	*Bulimina* sp.	*Cassidulina* sp.	*Elphidium selseyense*	*Elphidium magellanicum*	*Elphidium magellanicum* (encrusted)	*Elphidium margaritaceum*	*Elphidium* sp.	*Epistominella* sp.	*Haynesina depressula*	*Haynesina germanica*	*Hopkinsina* sp.	*Leptohalysis* sp.	Non determined	*Nonion* sp.	*Nonionella* sp.	*Quinqueloculina leavigata*	*Quinqueloculina* sp.	*Stainforthia* sp.	*Textularia* sp.	*Trochammina inflata*	Total
2011	1	A	August					1.4						2.1										0.4				0.4				4.2
2011	1	A	November																													
2012	1	A	January					0.7						2.8						1.1											0.4	5.0
2012	1	A	March	0.4		1.1		12.0	0.4					28.6	29.4			0.4		0.4								0.7		0.4	2.1	75.7
2012	1	A	May					13.8	1.1		0.4			141.5	47.7	15.2								0.4		0.4	1.1		0.4		0.4	222.1
2012	1	A	July					8.1						76.0	1.8	2.1													0.4			88.4
2012	1	A	September					0.7						21.2																		21.9
2012	1	A	November			0.4		0.4						0.7																		1.4
2011	1	B	August					1.1						0.4			1.1															2.5
2011	1	B	November					0.7						1.1														0.4				2.1
2012	1	B	January			0.7		5.7						7.4	0.4		0.4										1.1	0.4			2.1	18.0
2012	1	B	March					13.8						19.1	13.8					0.4				0.4			0.4				0.7	48.5
2012	1	B	May					4.6	0.4					531.6	93.4	36.4	0.4		0.7	0.4				2.1		0.4	0.4	1.1	2.5	0.4	3.2	677.6
2012	1	B	July			0.4		12.4	0.4		0.7			247.9	2.1	1.4	1.4	0.4						0.7			0.7	0.4	1.8			270.6
2012	1	B	September					3.9						38.2			0.4												2.5	0.4	0.7	46.0
2012	1	B	November					0.4						1.4																		1.8
2011	2	A	August					72.5						53.8			0.7				0.4		1.1			0.4		0.4		0.4	10.6	140.1
2011	2	A	November					61.9						33.2			0.7							1.1				1.1			13.1	111.1
2012	2	A	January	0.7		2.5	8.8	263.1		1.1				122.0	1.1		0.7	0.4	1.1						0.7	0.4				0.4	142.5	545.4
2012	2	A	March			1.4		275.2				1.8		225.6	40.0	1.1	0.4		0.4						0.7	0.7		1.4		1.8	73.9	624.2
2012	2	A	May			1.1		165.9			0.4	3.9		254.6	38.6	82.1	0.4		1.4							3.2	0.4	2.1	1.4	5.0	42.1	602.3
2012	2	A	July			1.8		172.2	6.0	2.1	0.4	0.4		318.3	3.9	35.7	1.4		0.4	0.7						0.4		7.1	1.8	2.1	35.4	589.9

2012	2	A	September		0.7			141.1		1.4	0.4			415.2	16.3	81.0	0.4	0.4	3.2			1.4						0.4	1.4	3.2	14.9	681.2
2012	2	A	October		0.4	0.7		87.0	1.1	2.5	0.4			104.7		2.1							0.4							1.4	5.3	205.8
2012	2	A	November					66.5	0.7		0.4			29.4		3.9	0.4					2.1							0.7		5.0	108.9
2012	2	A	December	0.7		1.8		78.9	1.1	0.7	1.4			281.2	0.4	15.9			0.7	0.4		1.8		0.4		0.4		0.4	0.4	3.2	15.9	405.3
2011	2	B	August					91.6				0.4		95.8						0.7	0.4			0.4							18.7	208.0
2011	2	B	November					59.8				0.4		71.4			1.1			1.1				1.1				1.1			10.6	146.4
2012	2	B	January		0.4	2.1		189.2		0.4				201.6	0.7			1.1										5.7		0.4	100.4	501.9
2012	2	B	March			1.1		152.8	0.4			2.1		203.7	56.2	0.4	1.1	0.7	1.4						1.1	0.4		1.8	0.7	0.7	76.0	500.5
2012	2	B	May			1.4		128.4	2.1		0.7		0.4	321.8	25.8	85.6			0.4	0.4				1.8		2.8	1.1	0.7	1.1	2.8	30.1	607.3
2012	2	B	July		1.1	1.4		144.7	0.4	1.8	1.8	2.1		246.9	8.1	27.9	0.7		1.1	1.1						0.4	2.1	1.1	0.7	2.5	27.6	473.2
2012	2	B	September			0.4		63.7	1.8	0.7				315.8	8.1	38.6	1.4	0.4	2.1		0.4							0.4	1.4	1.4	17.3	453.8
2012	2	B	October		0.7	1.1		111.1	0.4					92.7	1.1	0.4			0.4												9.5	217.2
2012	2	B	November			0.4		29.7	1.1		0.4			32.5	1.8	2.5	0.4		0.7									0.4	0.4	0.7	2.5	73.2
2012	2	B	December					77.1	1.4	0.7				223.2	5.7	29.0	1.1		1.4			0.4					0.4	0.4		0.4	9.5	350.5

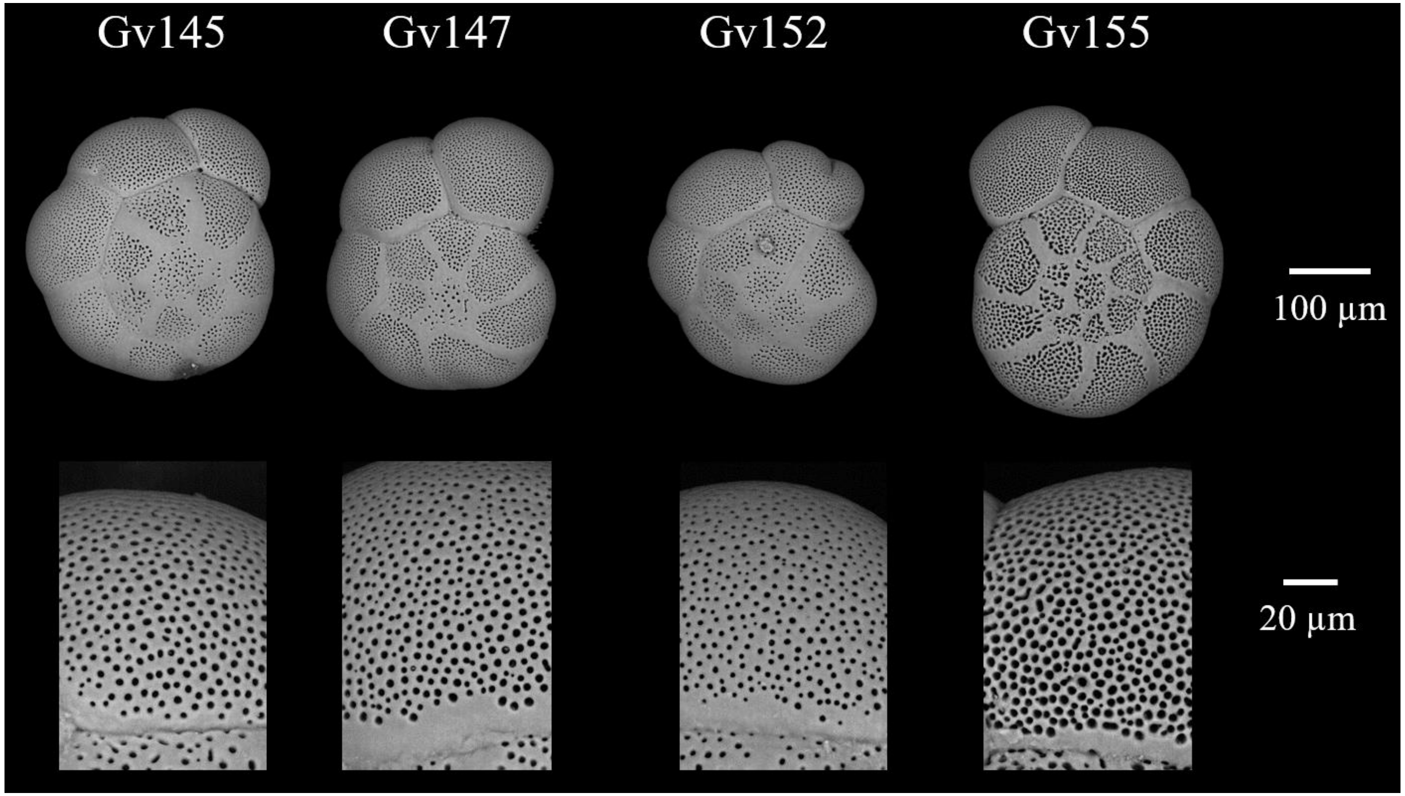

Figure S1. SEM images of spiral side and a 1000x magnification of the penultimate chamber for four individuals from Grevelingen station 1 identified T6 by molecular identification.

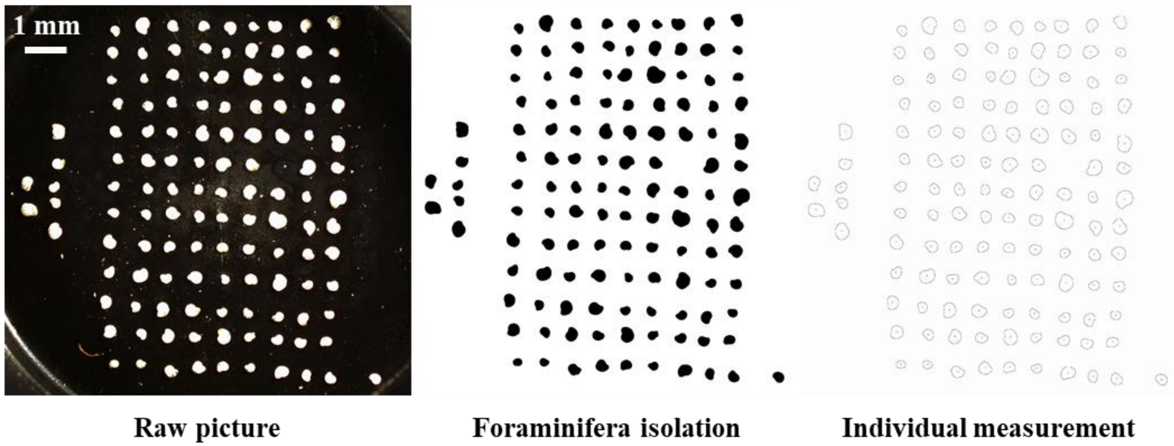

Figure S2: Numerical treatment used for the size measurement for each image performed with ImageJ software. The three size fractions (125–150, 150–315, >315 µm) were analysed together for the size distribution analyses. The left figure shows the untreated image, the middle figure presents the next step, when all individual foraminifera are depicted. Finally, the figure on the right shows the individual foraminiferal outlines which were measured.

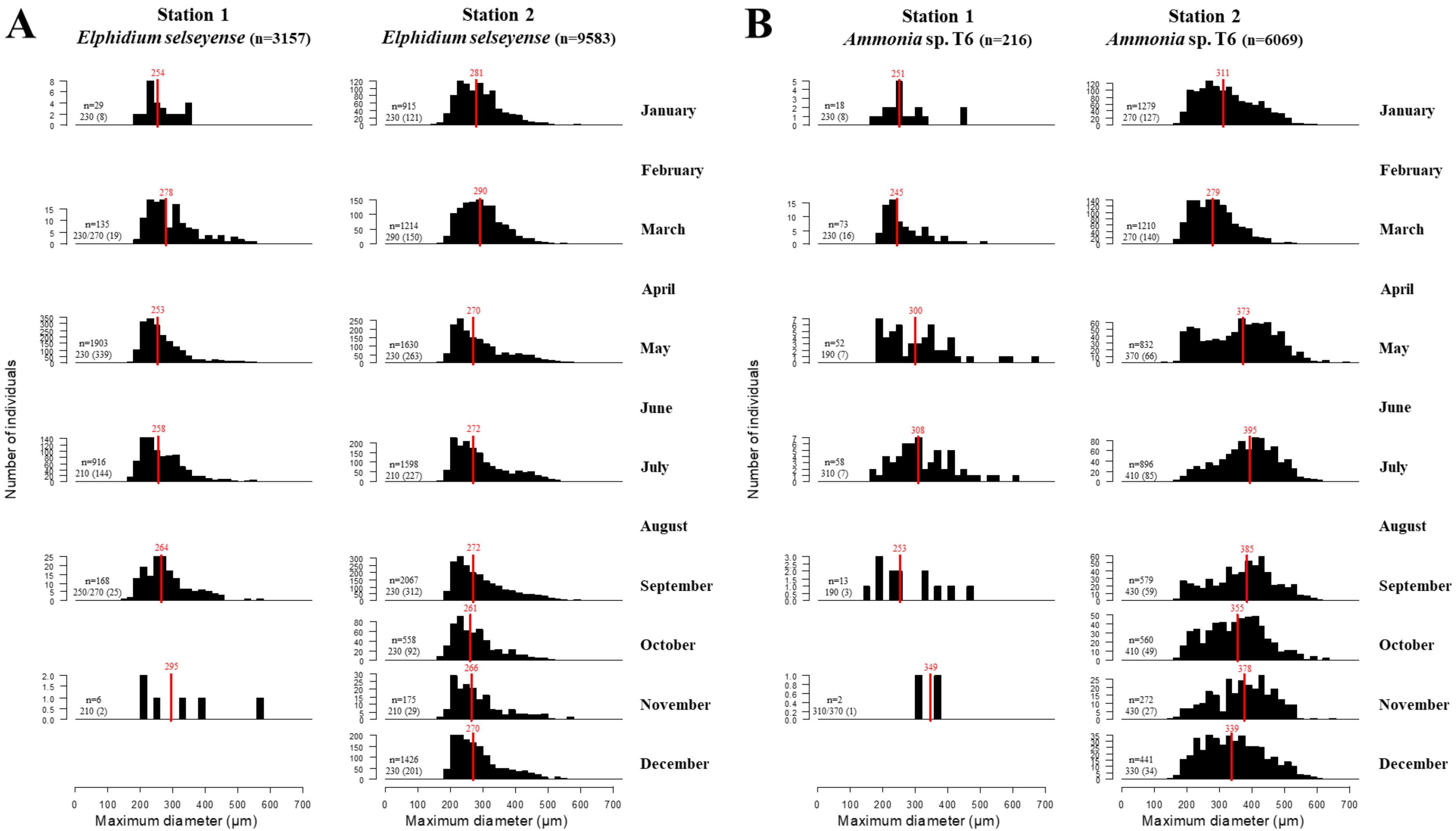

Figure S3: A: size distribution (maximum diameter for each individual in µm) of *Elphidium selseyense* for stations 1 (left) and 2 (right) in 2012. B: size distribution (maximum diameter for each individual in µm) of *Ammonia* sp. T6 for stations 1 (left) and 2 (right) in 2012. For each month, the number of individuals (n), the mode and the number of individuals associated to the mode (between brackets) are indicated in black. The medians are indicated by the red bars in each panel. In order to base our analysis on a sufficiently high number of specimens, we focused on *E. selseyense* and *Ammonia* sp. T6. As explained before, we only considered specimens retained on a 125 µm mesh meaning that juvenile specimens are not represented. Only the samples taken in 2012 were considered. The size distribution of *E. selseyense* was relatively similar between the two stations regarding the median, ranging from 253 µm (in May) to 295 µm (in November) at station 1 and from 261 µm (in October) to 290 µm (in March) at station 2. At both stations, we observed the presence of an abundant group of smaller specimens, with a mode that never exceeded 250 µm, except in March at station 2, when it is difficult to separate this subpopulation from the larger specimens. The main difference between the two stations was the higher proportion of larger individuals (>400 µm) at station 2, which was visible through the better-developed tails at the right side of the distribution graphs. The low number of *Ammonia* sp. T6 individuals at station 1 did not allow us to draw any firm conclusion concerning the size distribution

at this station (Supplementary Figure 3). At station 2, a group of individuals with smaller diameters (< 300 µm) was always present. The overall size distribution showed a clear shift to higher diameters between March (median = 279 µm) and May (median = 373 µm, Fig. 7), which is also evidenced by the much higher proportion of larger individuals. Specimens larger than 400 µm were abundantly found until November (median = 378 µm), but started to diminish in December, as is also shown by the decrease of the median to 339 µm. Our tentative to distinguish cohorts by using a deconvolution method to separate the total size distributions into a sum of Gaussian curves was not conclusive. The main problem was the fact that we did not have any information concerning individuals smaller than 125 µm, so that our size distributions were systematically skewed on the left side (i.e. toward small individuals). An additional problem was the large number of smaller specimens which were always present. Because the identification of individual cohorts was not successful, parameters like reproduction rate, growth rate or lifespan were not assessable. Nevertheless, the size distribution data give some clues concerning the population dynamics of the two dominant species.