

Table 1 Summary of key limnological parameters for the epilimnion of Lake Kinneret based on the Lake Kinneret data base (Sukenik et al., 2014, Nishri, 2014, Katz and Nishri, 2013).

Chemical parameters (annual means):		
<i>pH</i>	8.6	
<i>alkalinity</i> (as HCO_3^-)	165	mg/l
<i>anions</i> ($\text{Cl}^- + \text{SO}_4^{2-}$)	340	mg/l
<i>cations</i> ($\text{Na}^+ + \text{Mg}^{2+} + \text{Ca}^{2+} + \text{K}^+$)	236	mg/l
<i>silica</i> (as SiO_2)	10	mg/l
<i>soluble P</i> (as PO_4^{3-})	2	$\mu\text{g/l}$
<i>total phosphorus</i>	15-60	$\mu\text{g/l}$
<i>nitrate</i> (as NO_3^-)	800	$\mu\text{g/l}$
Pelagic bottom sediments:		
<i>clay minerals</i>	35	%
<i>calcium carbonate</i>	55	%
<i>organic matter</i>	5	%
<i>residual</i>	5	%
Secchi depth	2.8-4.0	m

Table 2 Table with detailed description of diatom assemblage zones and their species composition (DAZ = diatom assemblage zone; DA = diatom assemblage; DC = diatom concentration; LB = lower boundary; P = Planktonic; FP = Facultative Planktonic; B = Benthic)

DAZ	Depth [cm]	Age [cal yrs BP]	Diatom assemblage	P [%]	FP [%]	B [%]
1a: <i>Aulacoseira granulata</i> DAZ	30-1	0.2-present	<p>DA: dominated by <i>C. ocellata</i> and <i>A. granulata</i> (increasing up to 20 % and forming long filament chains); <i>C. meneghiniana</i> and benthic species such as <i>Fragilaria capucina</i> become more common</p> <p>DC: low (< 50 [10⁴ valves/g]) to high (> 200 [10⁴ valves/g]) with rapid changes</p> <p>LB: increase in <i>A. granulata</i>, <i>C. meneghiniana</i> and DC</p>	60-80	< 5	5-15
1b: <i>Stephanodiscus</i> DAZ	160-30	0.9-0.2	<p>DA: dominated by <i>C. ocellata</i> (35-55 %); <i>C. polymorpha</i> and small <i>Stephanodiscus</i> species are common as well as facultative planktonic fragilarioid taxa such as <i>P. brevistriata</i>, <i>Staurosira venter</i> and <i>Staurosirella pinnata</i>; Naviculoid taxa increase slightly; occurrence of <i>A. granulata</i> increases towards top of this subzone</p> <p>DC: low (< 50 [10⁴ valves/g]) to moderate (> 100 [10⁴ valves/g])</p> <p>LB: decrease in <i>C. ocellata</i>; increase in FP and B species</p>	50-80	10-30	5-15
1c: <i>Cyclotella</i> DAZ	320-160	1.6-0.9	<p>DA: strong dominance of <i>C. ocellata</i> (up to 80 %); <i>C. polymorpha</i> is present (10-15 %); facultative planktonic and benthic diatoms are present at low abundance (< 5 %)</p> <p>DC: moderate (> 50 [10⁴ valves/g]) to high (up to 175 [10⁴ valves/g])</p> <p>LB: increase in <i>C. ocellata</i> and DC</p>	> 80	< 5	< 5

<p>2: Cyclotella polymorpha DAZ</p>	<p>440-320</p>	<p>1.6-2.2</p>	<p>DA: dominated by <i>C. polymorpha</i> (strong increase up to 55 %); <i>A. ambigua</i>, <i>A. granulata</i> (showing strong occurrence at base of this zone: 35 %) and smaller <i>Stephanodiscus</i> taxa are common; only occurrence of <i>Discostella</i> spp. in record; strong decrease in occurrence of <i>C. ocellata</i> (< 5 %) and complete disappearance of <i>C. paleo-ocellata</i> and <i>S. galileensis</i> from record, fragilarioid and benthic species (e.g. <i>Amphora pediculus</i> at 5 %) show higher abundance (up to 10 % per species); complete shift in diatom assemblage composition compared to other DAZs</p> <p>DC: low; lack of diatom preservation in some samples</p> <p>LB: decrease in <i>C. ocellata</i>/<i>C. paleo-ocellata</i>/other planktonics; strong decrease in DC; strong increase in <i>C. polymorpha</i>, <i>A. granulata</i> and benthic taxa</p>	<p>40-70</p>	<p>10-50</p>	<p>5-40</p>
<p>3a: Cyclotella paleo-ocellata DAZ</p>	<p>920-440</p>	<p>4.7-2.2</p>	<p>DA: strongly dominated by <i>Cyclotella</i> species: <i>C. paleo-ocellata</i> is often exhibits higher relative abundances (up to 65 %) than <i>C. ocellata</i>; both species strongly co-dominating DA; at top of this subzone <i>Cyclostephanos dubius</i> (maximum peak of 15 %) and <i>Stephanodiscus galileensis</i> become more abundant</p> <p>DC: moderate to high (maximum values in record: 250 [10⁴ valves/g]; various rapid fluctuations</p> <p>LB: remarkable increase in <i>C. paleo-ocellata</i></p>	<p>> 80</p>	<p>< 5</p>	<p>< 5</p>
<p>3b: Cyclotella ocellata DAZ</p>	<p>1460-920</p>	<p>7.4-4.7</p>	<p>DA: dominated by planktonic <i>Cyclotella</i> species: <i>C. ocellata</i> is the most common diatom in this DZ (often > 75 %) and <i>C. paleo-ocellata</i> is common at 10-25 %; <i>Stephanodiscus</i> species (all sizes) are abundant at 5-10 %; abundance of facultative</p>	<p>> 80</p>	<p>< 5</p>	<p>< 5</p>

			<p>planktonic and benthic species is very low</p> <p>DC: low (< 20 [10⁴ valves/g]) to high (> 130 [10⁴ valves/g]) with various fluctuations</p> <p>LB: increase of <i>C. ocellata</i>, other planktonic taxa & DC; decrease in FP and B species</p>			
<p>4a: <i>Pseudostaurosira brevistriata</i> DAZ</p>	1535-1460	7.9-7.4	<p>DA: dominated by robust fragilarioid species such as <i>P. brevistriata</i> reaching its maximum (ca. 80 %) in record; <i>Cocconeis</i> spp. are common, reaching maximum abundance of up to 20 %</p> <p>DC: very low; lack of diatom preservation in some samples</p> <p>LB: decrease in planktonic species & DC; increase in <i>P. brevistriata</i> & <i>Cocconeis</i> spp.</p>	5-60	35-80	10-25
<p>4b: <i>Fragilarioid</i> DAZ</p>	1695-1535	8.6-7.9	<p>DA: dominated by planktonic taxa such as <i>C. ocellata</i> (10-35 %), <i>C. paleo-ocellata</i> (20-45 %) & smaller <i>Stephanodiscus</i> species (< 10 %) and some small fragilarioid species (~ 25 %)</p> <p>DC: low (<20 [10⁴ valves/g])</p> <p>LB: increase of planktonic species and DC</p>	45-75	20-40	10-20
<p>4c: <i>Aulacoseira</i> DAZ (lower boundary not defined)</p>	1772-1695	9.1 -8.6	<p>DA: dominated by robust fragilarioid species (< 50 %), <i>Cocconeis</i> spp. common (up to 10 %) and <i>Navicula</i> and <i>Nitzschia</i> are also present; presence of planktonic diatoms low; besides <i>C. ocellata</i>, <i>A. ambigua</i> is abundant up to 15 %</p> <p>DC: very low; lack of diatom preservation in some samples</p> <p>LB: not defined (start of record)</p>	5-35	45-56	20-45

Table 3: Average major mineral composition for each DAZ

Diatom Assemblage Zone	Depth [cm]	Quartz [w%]	Muscovite/Illite [w%]	Feldspars [w%]	Dolomite [w%]	Calcite [w%]
DAZ-1	320 - 0	2.1	9.2	2.4	1.1	84.1
DAZ-2	440 - 320	4.0	14.7	2.4	1.2	76.7
DAZ-3	1460 - 440	6.8	15.3	3.7	2.4	70.5
DAZ-4	1772 - 1460	10.2	21.4	4.4	1.5	60.9
Event Layer	at 457	24.7	23.3	5.8	10.2	35.2