


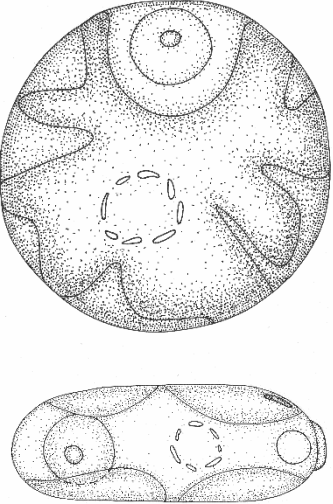


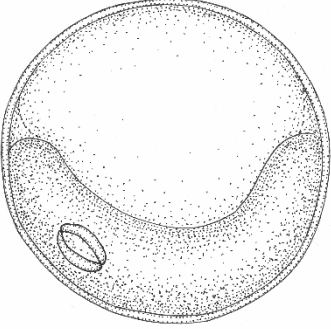

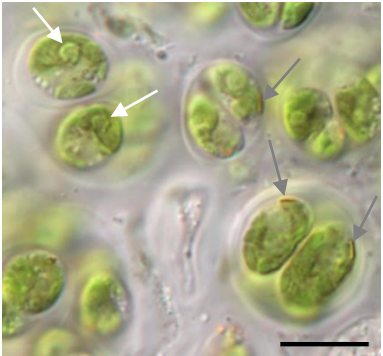
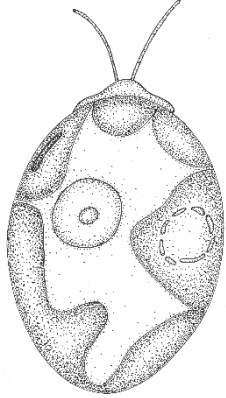
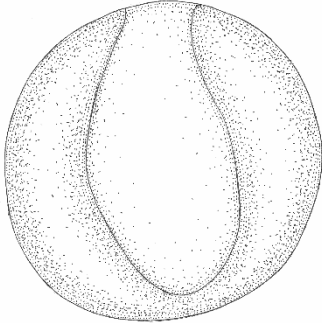


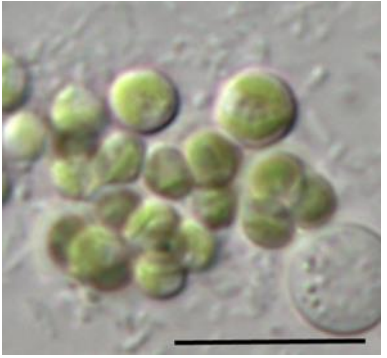
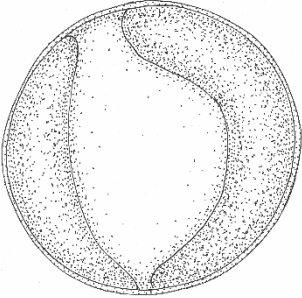
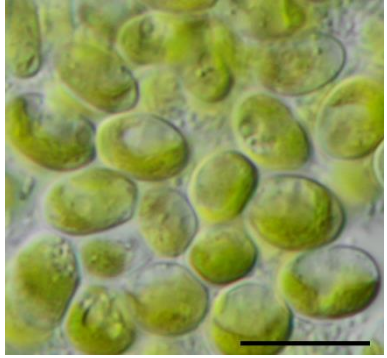
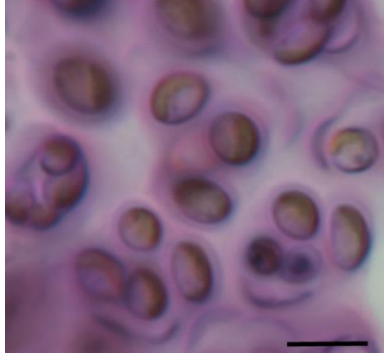
**Table S1:** Algae catalog. Species list of algae and summary of several information about every identified species. Species name in brackets is the former name which is also used in Syllabus, x: presence of the species, black arrow: nucleus, white arrow: pyrenoid, grey arrow: stigma, bar: 10  $\mu$ m

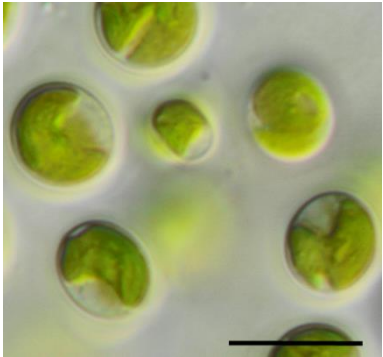
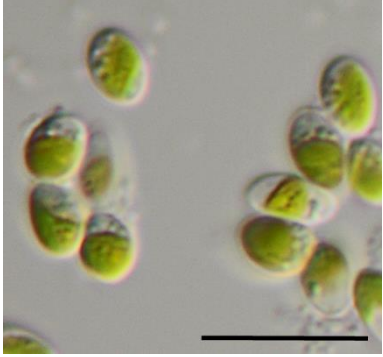
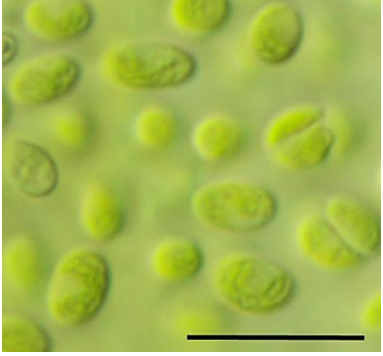
species	light micrograph	drawing	reference	Ardley	Ardley Palaeo	AB01	isolate number
<b>Chlorophyceae</b>							
<i>Chlamydomonas</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus	x			A7-1aII
<i>Chlorococcum</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus		x		

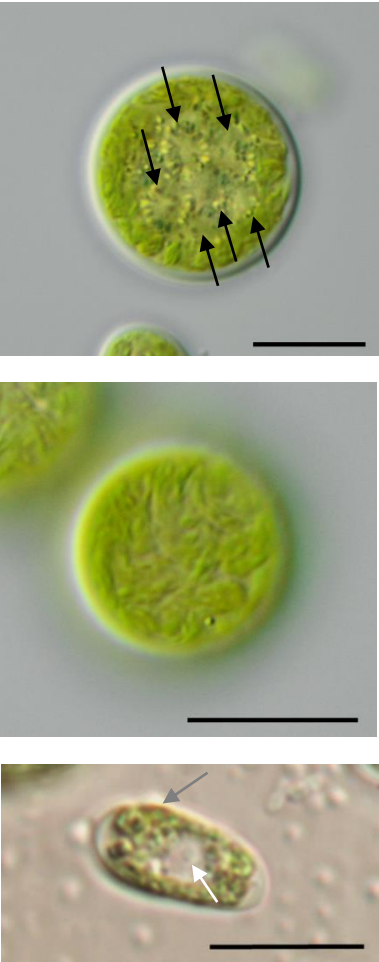
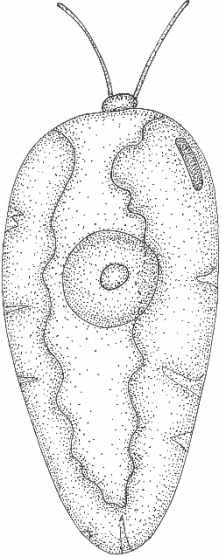
<i>Chloromonas</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus		x		
<i>Chlorosarcina</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus	x	x	x	AB01-24a AP-24a
<i>Chlorococcum lobatum</i>			Ettl, E. & Gärtner, G., 2014, Syllabus		x		AP-28a

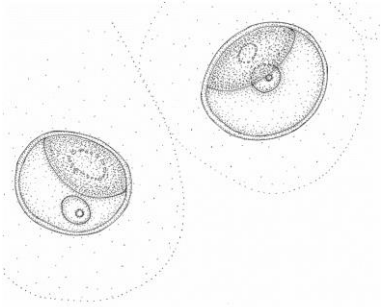
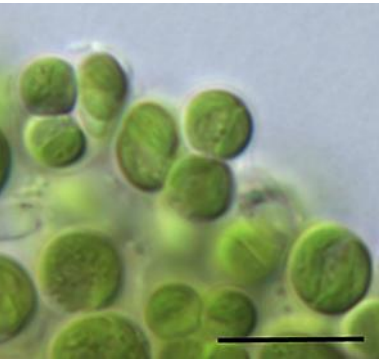
<p><i>Chlorococcum cf. infusionum</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Chlorococcum sp.</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>	<p>x</p>	<p>AB01-19a AB01-19b</p>
<p><i>Desmodesmus abundans</i> (<i>Chlorella fusca</i>)</p>			<p>Kessler, E. et al., 1997;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		<p>AP-29</p>

<p><i>Gloeocystis</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		<p>AP-27a, AP-27b, AP-27c</p>
<p><i>Lobochlamys</i> cf. <i>culleus</i> (<i>Chlamydomonas culleus</i>)</p>			<p>Pröschold, T. et al. 2001;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Mychonastes homosphaera</i> (<i>Chlorella homosphaera</i>; <i>Chlorella minutissima</i>)</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>		

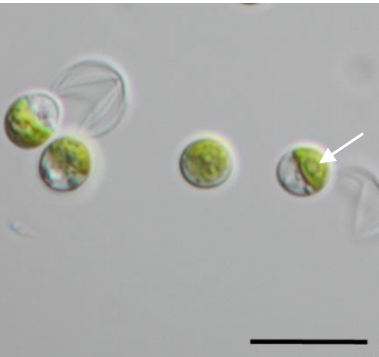
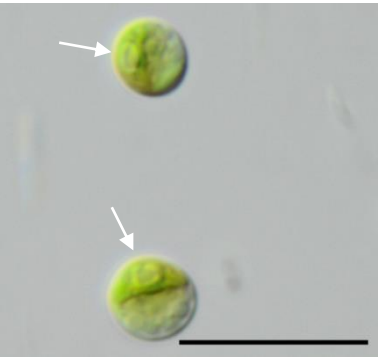
<p><i>Mychonastes</i> cf. <i>homosphaera</i> (<i>Chlorella homosphaera</i>; <i>Chlorella minutissima</i>)</p>			<p>Huss, V. et al., 1999;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Neocytis</i> cf. <i>brevis</i> (<i>Nephrodiella</i> cf. <i>brevis</i>)</p>			<p>Elias, M. et al., 2013;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>	<p>x</p>	<p>A1-8a</p>
							

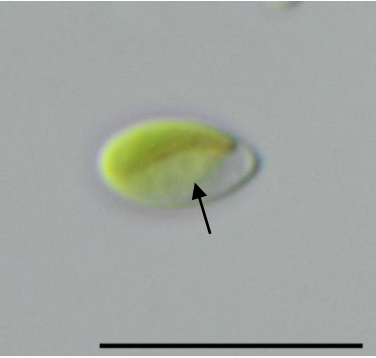
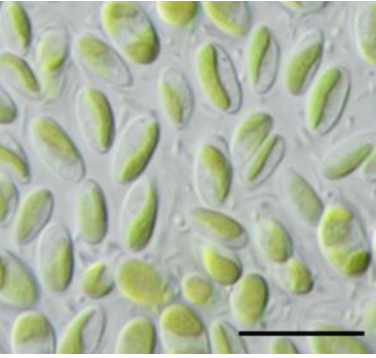
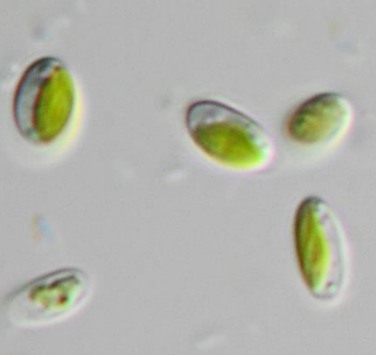
<p><i>Neocystis</i> sp.1</p>			<p>Elias, M. <i>et al.</i>, 2013;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		<p>AP-27aII</p>
<p><i>Neocystis</i> sp.2</p>			<p>Elias, M. <i>et al.</i>, 2013;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>	<p>x</p>	<p>AP-26aII AP-26b</p>
<p><i>Neocystis</i> sp.3</p>			<p>Elias, M. <i>et al.</i>, 2013;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		<p>AP-26a</p>

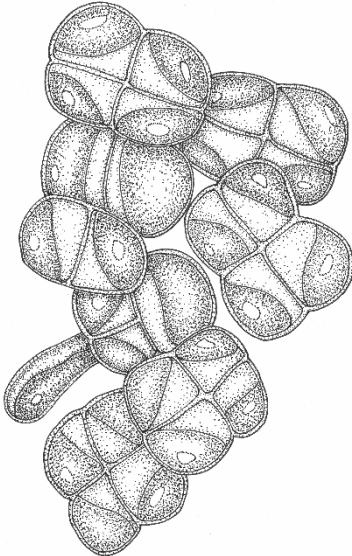
<p><i>Poloidion</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>		<p>A1-3a</p>
<p><i>Pseudodictyochloris multinucleata</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>		<p>A1-10a, AP-10a, A3-10aII, A3-10bII</p>

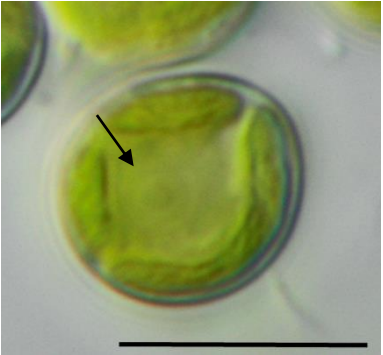
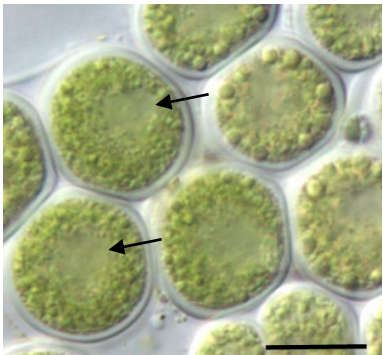
Radiococcacea gen. sp.			Ettl, E. & Gärtner, G., 2014, Syllabus			x	
<i>Radiococcus</i> cf. <i>signiensis</i>			Kostikov, I. et al. 2002; Ettl, E. & Gärtner, G., 2014, Syllabus	x			
<i>Radiococcus</i> sp.			Kostikov, I. et al. 2002; Ettl, E. & Gärtner, G., 2014, Syllabus		x		
<b>Trebouxiophyceae</b>							

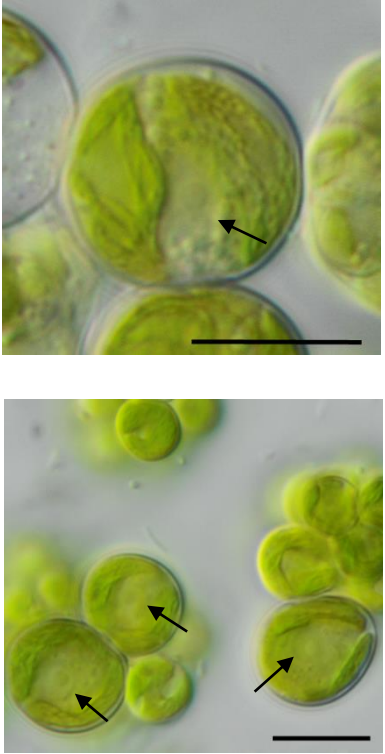
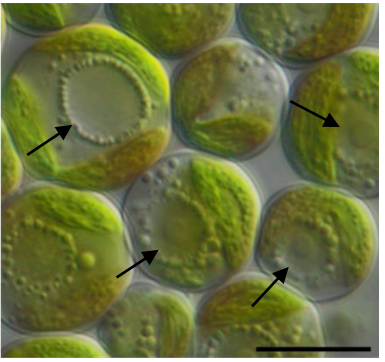
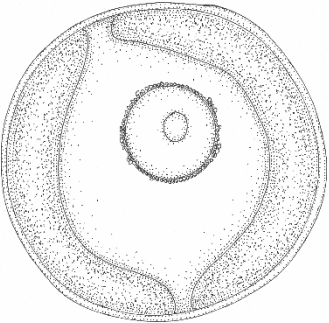


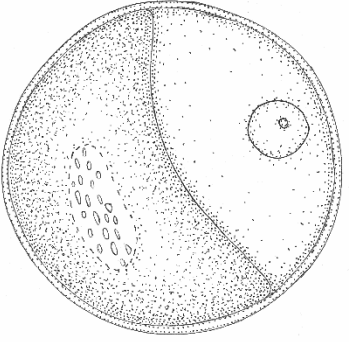


<p><i>Chlorella chlorelloides</i> (<i>Dictyosphaerium chlorelloides</i>)</p>			<p>Bock, C. et al. 2011;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	<p>AB01-21a</p>
<p><i>Chlorella vulgaris</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	
<p><i>Chlorella</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	

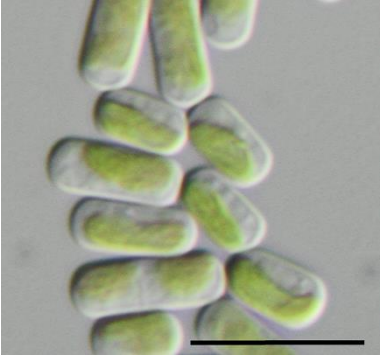
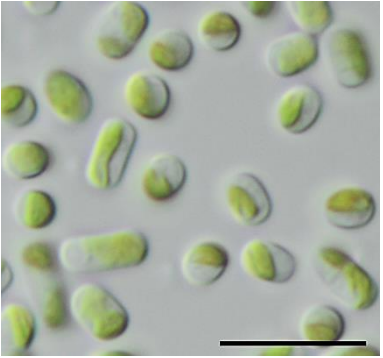
<p><i>Coccomyxa simplex</i></p>	 		<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus;</p> <p>Darienko, T. et al. 2015</p>	<p>x</p>			<p>A1-6aII AP-28aII</p>
<p><i>Coccomyxa</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus;</p> <p>Darienko, T. et al. 2015</p>	<p>x</p>	<p>x</p>	<p>x</p>	<p>A1-9a, A3-9aII, A3-9bII, AB01-17a AB03-17a AP-9a, AP-9b, AP-9c, AP-9d, AP-17aII AP-17bII AP-17a AP-17b</p>

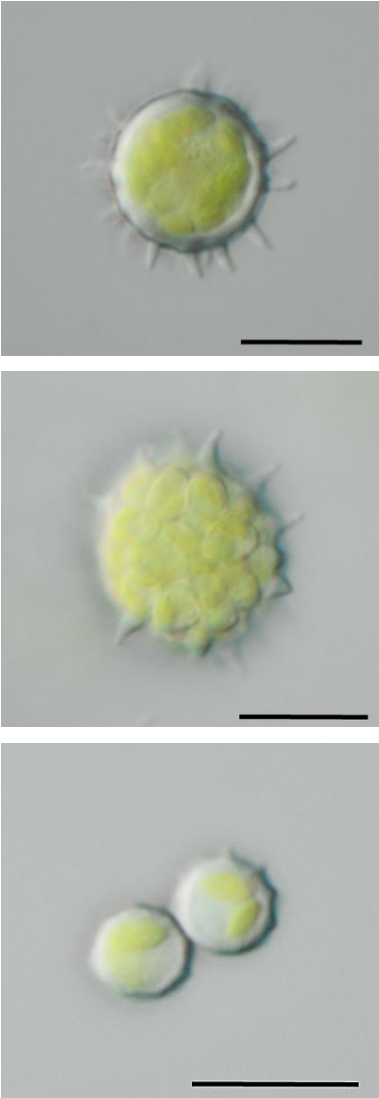
<i>Desmococcus olivaceus</i>			Ettl, E. & Gärtner, G., 2014, Syllabus			x	
<i>Desmococcus sp.</i>			Ettl, E. & Gärtner, G., 2014, Syllabus			x	AB01-20a
<i>Diplosphaera chodatii</i>			Ettl, E. & Gärtner, G., 2014, Syllabus			x	AB01-16a
<i>Diplosphaera cf. mucosa</i>			Ettl, E. & Gärtner, G., 2014, Syllabus			x	AB01-15a

<p><i>Elliptochloris bilobata</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>		<p>x</p>	<p>A1-4a</p>
<p><i>Muriella</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>			<p>A3-29aII</p>

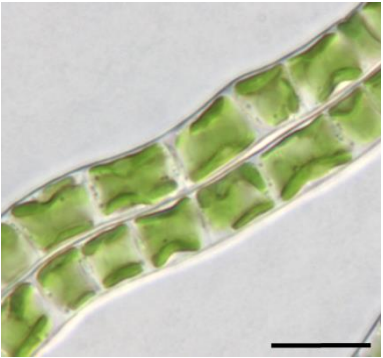

<p>Myrmecia bisecta</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	<p>AB01-23a</p>
<p>Myrmecia macronucleata</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>		<p>x</p>	

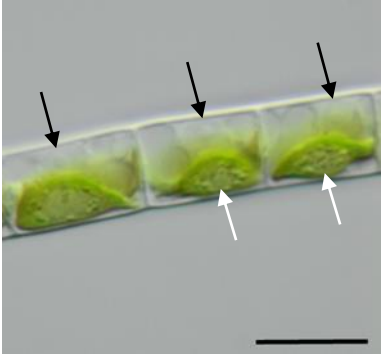
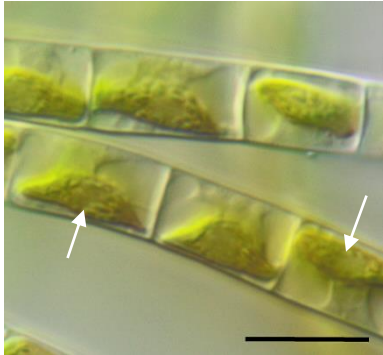
<p><i>Parietochloris</i> cf. <i>alveolaris</i> (<i>Ettlia</i> cf. <i>alveolaris</i>)</p>			<p>Deason, T. R. <i>et al.</i>, 1991;  Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Stichococcus</i> <i>allas</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Stichococcus</i> cf. <i>allas</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	

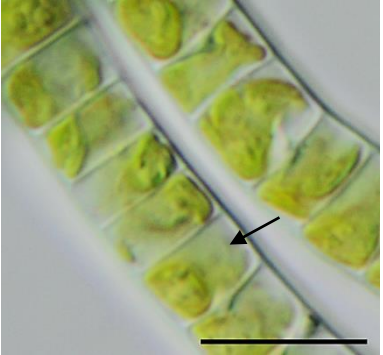
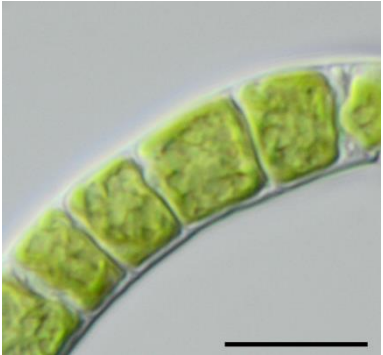
<i>Stichococcus bacillaris</i>			Ettl, E. & Gärtner, G., 2014, Syllabus		x		AP-25a
<i>Stichococcus chlorelloides</i>			Ettl, E. & Gärtner, G., 2014, Syllabus	x		x	A1-12a, AB01-12a
<i>Stichococcus</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus			x	

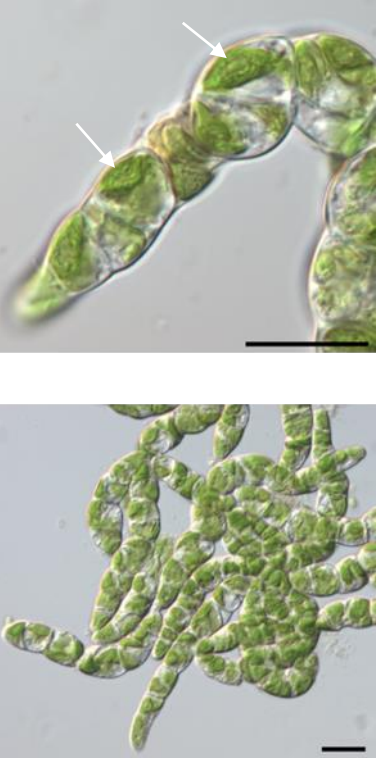
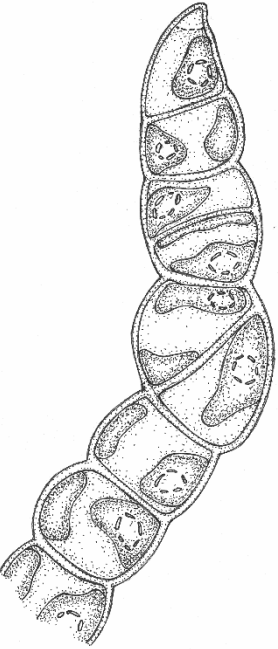
<p><i>Trochiscia granulata</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>			<p>A1-7a</p>
<p><b>Klebsormidiophyceae</b></p>							





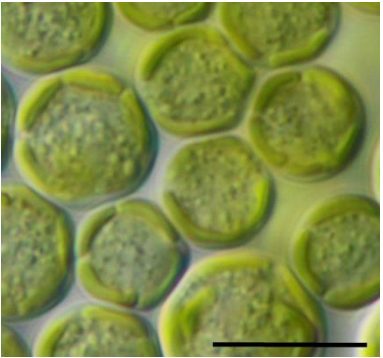
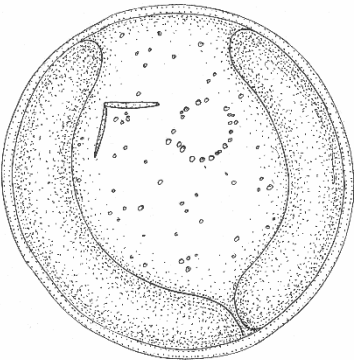
<p><i>Interfilum</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>	
<p><i>Klebsormidium</i> cf. <i>bilatum</i></p>			<p>Rindi, F. <i>et al.</i>, 2011; Mikhailyuk, T. <i>et al.</i> 2014</p>	<p>x</p>		
<p><i>Klebsormidium</i> cf. <i>dissectum</i></p>			<p>Rindi, F. <i>et al.</i>, 2011; Ettl, E. &amp; Gärtner, G., 2014, Syllabus; Mikhailyuk, T. <i>et al.</i> 2014</p>	<p>x</p>	<p>x</p>	<p>AB01-14a</p>

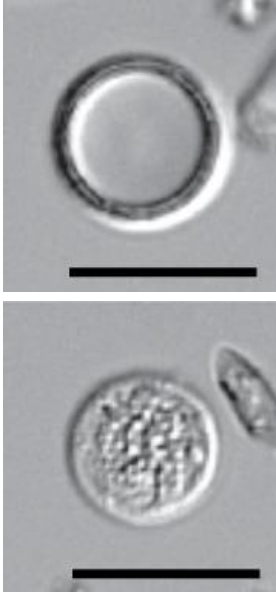
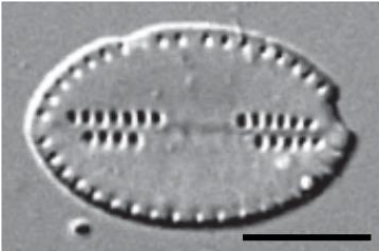
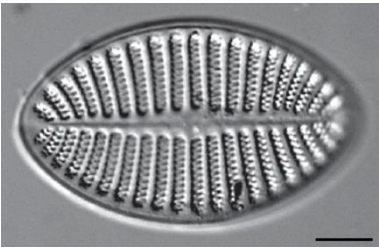
<p><i>Klebsormidium</i> cf. <i>flaccidum</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus; Mikhailyuk, T. et al. 2014</p>	<p>x</p>	<p>x</p>	<p>x</p>	<p>A1-1a, A1-1b, A1-1c, A1-1aII, AB01-1aII, AB01-1a, AP-1aII, AP-1bII, AP-1a, A4-1aII</p>
<p><i>Klebsormidium</i> cf. <i>subtile</i></p>			<p>Rindi, F. et al., 2011; Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	<p>AB01-13a</p>

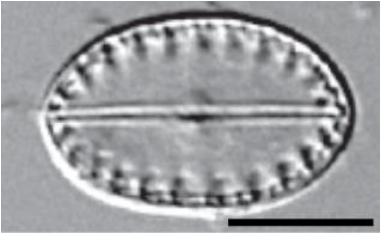
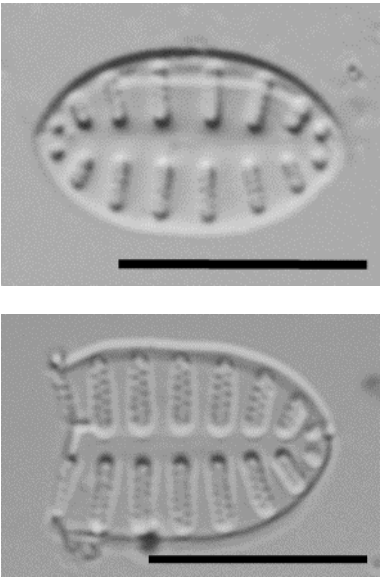
<p><i>Klebsormidium cf. montanum</i></p>	 		<p>Rindi, F. <i>et al.</i>, 2011;</p> <p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus;</p>	<p>x</p>		<p>x</p>	<p>A1-2a, AB01-2a, AB01-2b, A3-2aII, A3-2bII</p>
<p><i>Klebsormidium cf. nitens</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus;</p> <p>Mikhailyuk, T. et al. 2014</p>	<p>x</p>			

<p><i>Klebsormidium</i> sp. 1</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>			
<p><i>Klebsormidium</i> sp.2</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>	<p>x</p>		
<p><b>Xanthophyceae</b></p>							
<p><i>Chlorellidium</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>			

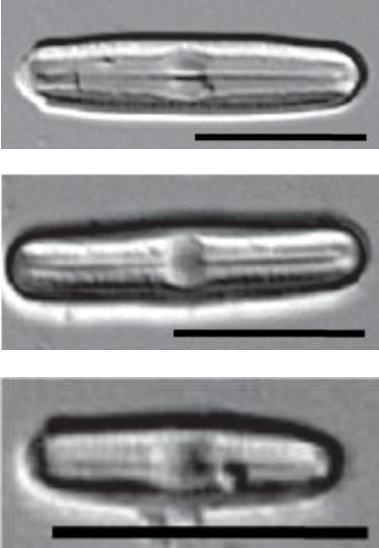
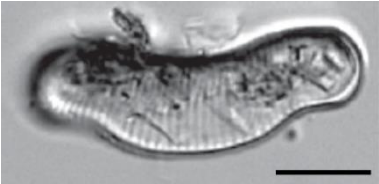
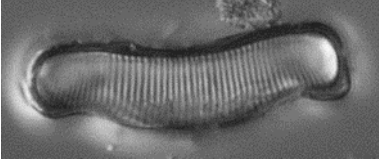
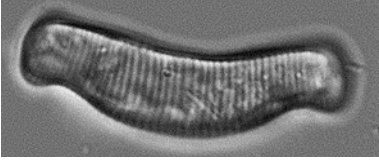
<i>Chlorocloster</i> cf. <i>inaequalis</i>			Ettl, E. & Gärtner, G., 2014, Syllabus	x			
<i>Chlorellidium</i> cf. <i>tetrabotrys</i>			Ettl, E. & Gärtner, G., 2014, Syllabus	x			A1-11aII
<i>Heterococcus</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus			x	AB01-22a

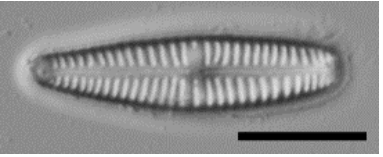
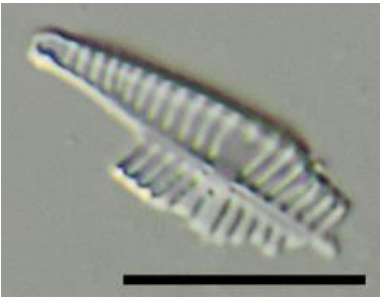
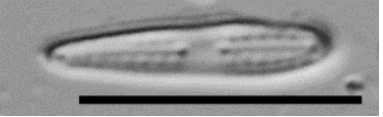
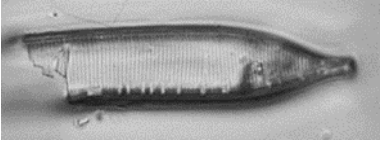
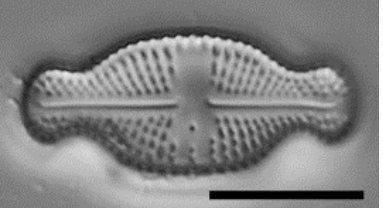
<i>Pleurochloris pseudopolychloris</i>			Ettl, E. & Gärtner, G., 2014, Syllabus	x			A1-5a
<i>Xanthonema</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus			x	
<b>Eustigmatophyceae</b>							
<i>Eustigmatos</i> cf. <i>vischeri</i>			Ettl, E. & Gärtner, G., 2014, Syllabus			x	
<b>Bacillariophyceae</b>							

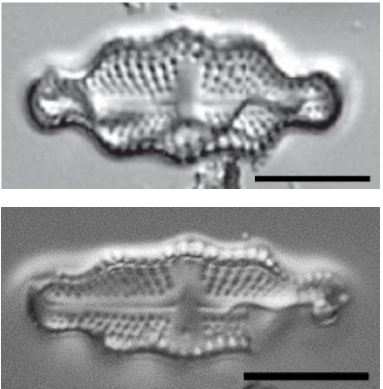
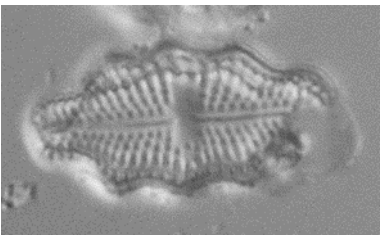
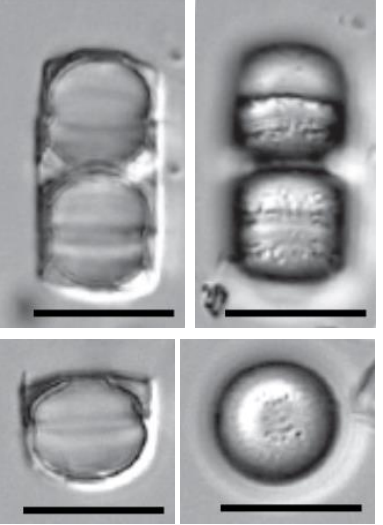
<p><i>Aulacoseira</i> sp.</p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Cocconeis californica</i> var. <i>keruelensis</i></p>			<p>Al-Handal, A.Y. &amp; Wulff, A., 2008</p>			<p>x</p>	
<p><i>Cocconeis fasciolata</i></p>			<p>Al-Handal, A.Y. &amp; Wulff, A., 2008</p>			<p>x</p>	

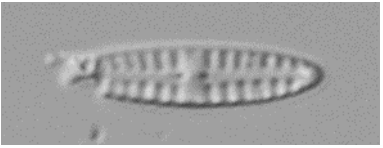
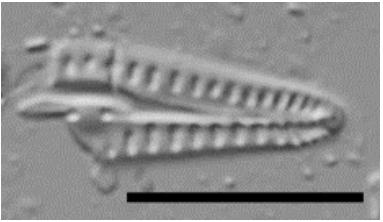
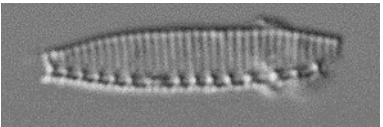
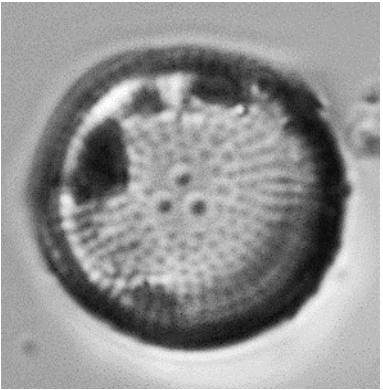
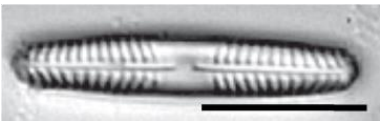
<p><i>Cocconeis melchioroides</i></p>			<p>Al-Handal, A.Y., Riaux-Gobin, C., Romero, O.E. &amp; Wulff, A., 2008</p>			<p>x</p>	
<p><i>Cocconeis pinnata</i> var. <i>mattsii</i></p>			<p>Al-Handal, A.Y., Riaux-Gobin, C. &amp; Wulff, A., 2010</p>	<p>x</p>		<p>x</p>	

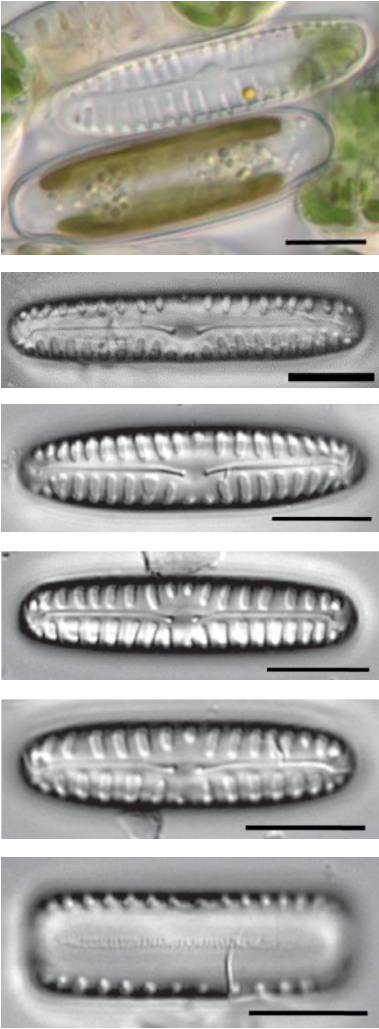


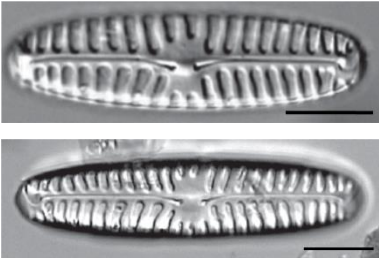
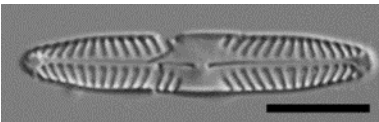
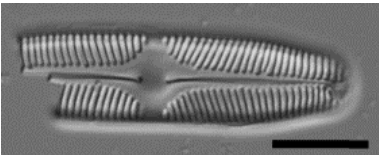
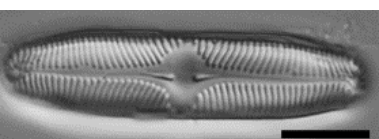
<p><i>Diadesmis cf. vidalii</i></p>			<p>Van de Vijver, B., Frenot, Y. &amp; Beyens, L., 2002</p>	<p>x</p>		<p>x</p>	
<p><i>Eunotia ralitsae</i></p>			<p>Van de Vijver, B., De Hann, M. &amp; Lange-Bertalot, H., 2014</p>		<p>x</p>	<p>x</p>	
<p><i>Eunotia sp.1</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Eunotia sp.2</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>			<p>x</p>	

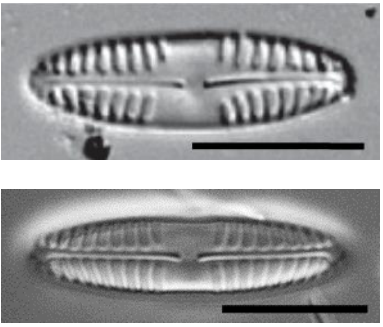
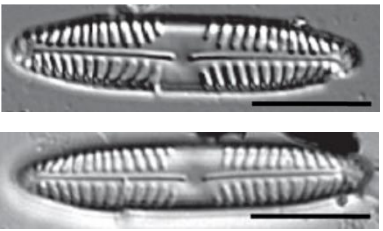
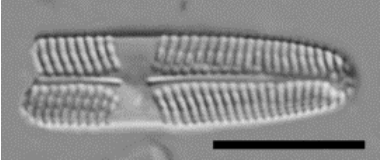
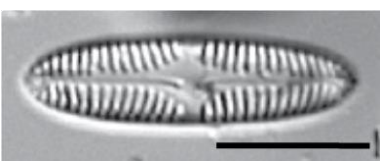
<i>Gomphonema olivaceum</i>			Ettl, E. & Gärtner, G., 2014, Syllabus	x			
<i>Gomphonema</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus	x			
<i>Gomphonemopsis</i> sp.			Al-Handal, A.Y. & Wulff, A., 2008	x			
<i>Hantzschia</i> sp.			Ettl, E. & Gärtner, G., 2014, Syllabus			x	
<i>Luticola caubergsii</i>			Van de Vijver, B. & Mataloni, G., 2008	x			

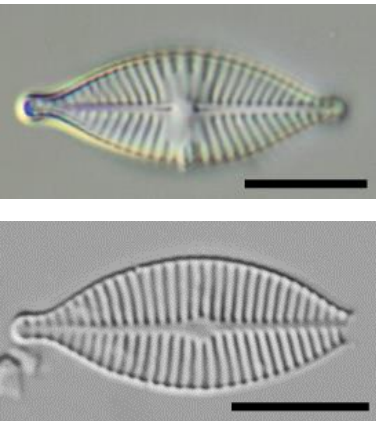
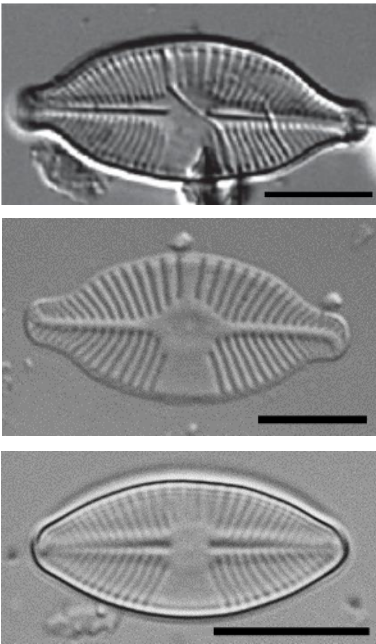
<p><i>Luticola nivalis</i></p>			<p>Van de Vijver, B. &amp; Mataloni, G., 2008</p>		<p>x</p>		
<p><i>Luticola cf. nivalis</i></p>			<p>Van de Vijver, B. &amp; Mataloni, G., 2008</p>		<p>x</p>		
<p><i>Melosira dickiei</i></p>			<p>Krammer, K. &amp; Lange-Bertalot, H., 2000</p>		<p>x</p>		

<i>Navicula cf. perminuta</i>			Al-Handal, A.Y. & Wulff, A., 2008		x		
<i>Navicula sp.</i>			Ettl, E. & Gärtner, G., 2014, Syllabus	x			
<i>Nitzschia sp.</i>			Ettl, E. & Gärtner, G., 2014, Syllabus		x	x	
<i>Orthoseira roeseana</i>			Zidarova, R. P., 2008; Kopalova, K. et al., 2012; Ettl, E. & Gärtner, G., 2014, Syllabus			x	
<i>Pinnularia cf. acidophila</i>			Krammer, K., 2000	x	x	x	

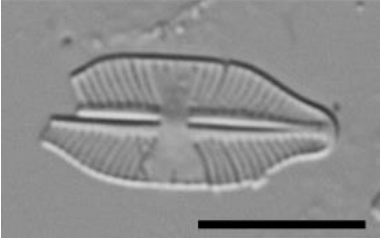
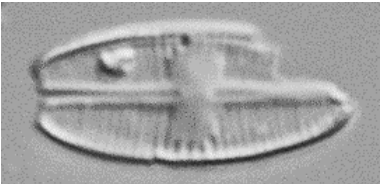
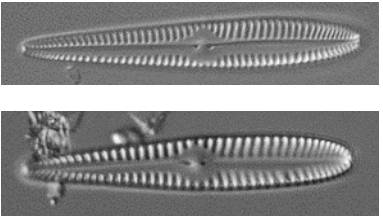
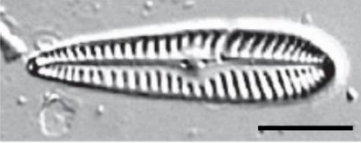
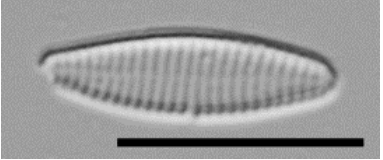
<p><i>Pinnularia borealis</i></p>			<p>Hofmann, G., Werum, M. &amp; Lange-Bertalot, H., 2013</p>	<p>x</p>	<p>x</p>	<p>x</p>	
-----------------------------------	--	--	--	----------	----------	----------	--

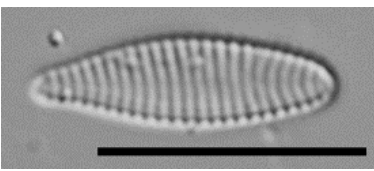
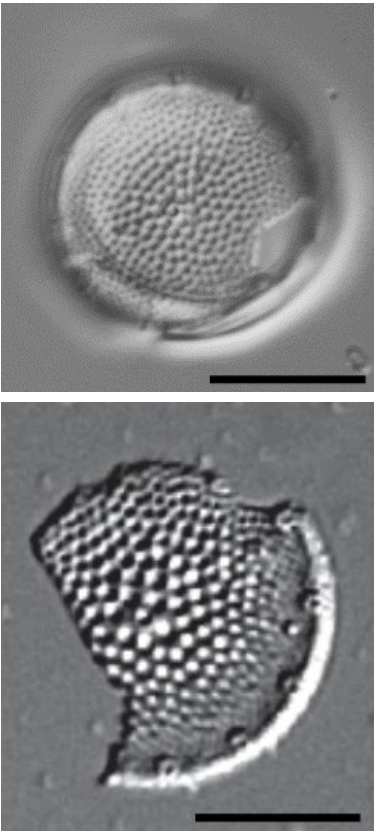
<p><i>Pinnularia borealis</i> var. <i>scalaris</i></p>			<p>Van de Vijver, B., Frenot, Y. &amp; Beyens, L., 2002</p>	<p>x</p>	<p>x</p>	<p>x</p>	
<p><i>Pinnularia divergentissima</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>	<p>x</p>			
<p><i>Pinnularia</i> cf. <i>divergentissima</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		
<p><i>Pinnularia microstauron</i></p>			<p>Krammer, K., 2000</p>	<p>x</p>			
<p><i>Pinnularia</i> cf. <i>microstauron</i></p>			<p>Krammer, K., 2000</p>		<p>x</p>		


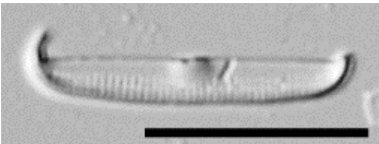
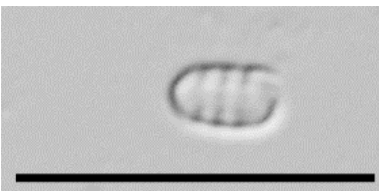
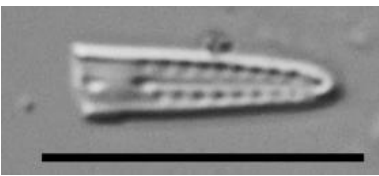
<p><i>Pinnularia obscura</i></p>			<p>Van de Vijver, B., Frenot, Y. &amp; Beyens, L., 2002</p>		<p>x</p>	<p>x</p>	
<p><i>Pinnularia cf. obscura</i></p>			<p>Van de Vijver, B., Frenot, Y. &amp; Beyens, L., 2002</p>	<p>x</p>		<p>x</p>	
<p><i>Pinnularia cf. subantarctica var. elongata</i></p>			<p>Van de Vijver, B., Frenot, Y. &amp; Beyens, L., 2002</p>	<p>x</p>			
<p><i>Pinnularia sp.</i></p>			<p>Ettl, E. &amp; Gärtner, G., 2014, Syllabus</p>		<p>x</p>		

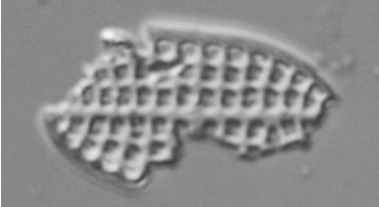
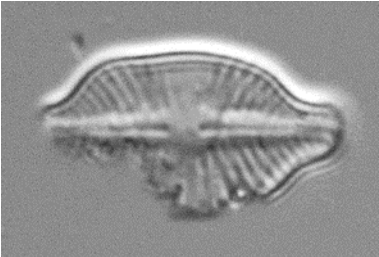
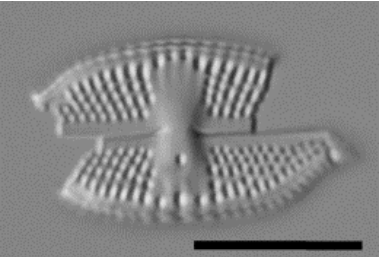
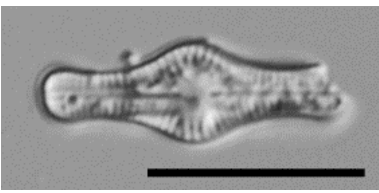
<p><i>Planothidium linkei</i></p>			<p>Lange-Bertalot, H. &amp; Krammer, K., 1989</p>	<p>x</p>			
<p><i>Psammothidium germanii</i></p>			<p>Van de Vijver, B., Frenot, Y. and Beyens, L., 2002;  Sabbe, K., Verleyen, E., Hodgson, D.A., Vanhoutte, K. &amp; Vyverman, W., 2003</p>		<p>x</p>	<p>x</p>	



<i>Psammothidium manguinii</i>			Van de Vijver, B., Frenot, Y. & Beyens, L., 2002	x		x	
<i>Psammothidium</i> cf. <i>oblongellum</i>			Van de Vijver, B., Frenot, Y. & Beyens, L. 2002	x	x		
<i>Pseudogomphonema kamschaticum</i>			Al-Handal, A.Y. & Wulff, A., 2008		x		
<i>Pseudogomphonema</i> cf. <i>kamschaticum</i>			Al-Handal, A.Y. & Wulff, A., 2008	x			
<i>Stauroforma exiguiformis</i>			Van de Vijver, B., Frenot, Y. & Beyens, L., 2002	x			

<p><i>Stauroforma cf. exiguiformis</i></p>			<p>Van de Vijver, B., Frenot, Y. &amp; Beyens, L., 2002</p>	<p>x</p>			
<p><i>Thalassiosira gracilis var. expecta</i></p>			<p>Johansen, J.R. &amp; Fryxell, G.A., 1985</p>		<p>x</p>	<p>x</p>	

<p><i>Thalassiosira gracilis</i></p>			<p>Johansen, J.R. &amp; Fryxell, G.A., 1985</p>	<p>x</p>			
<p>diatom sp.1</p>				<p>x</p>			
<p>diatom sp.2</p>				<p>x</p>			
<p>diatom sp.3</p>				<p>x</p>			

diatom sp.4					x		
diatom sp.5					x		
diatom sp.6				x			
diatom sp.7				x			