Update on Diatom Genera Identified on *Zostera marina, Montague Harbour Marine Provincial Park, Galiano Island —*

Mark Webber, IMERSS-UVIC and UBC, March 6, 2023

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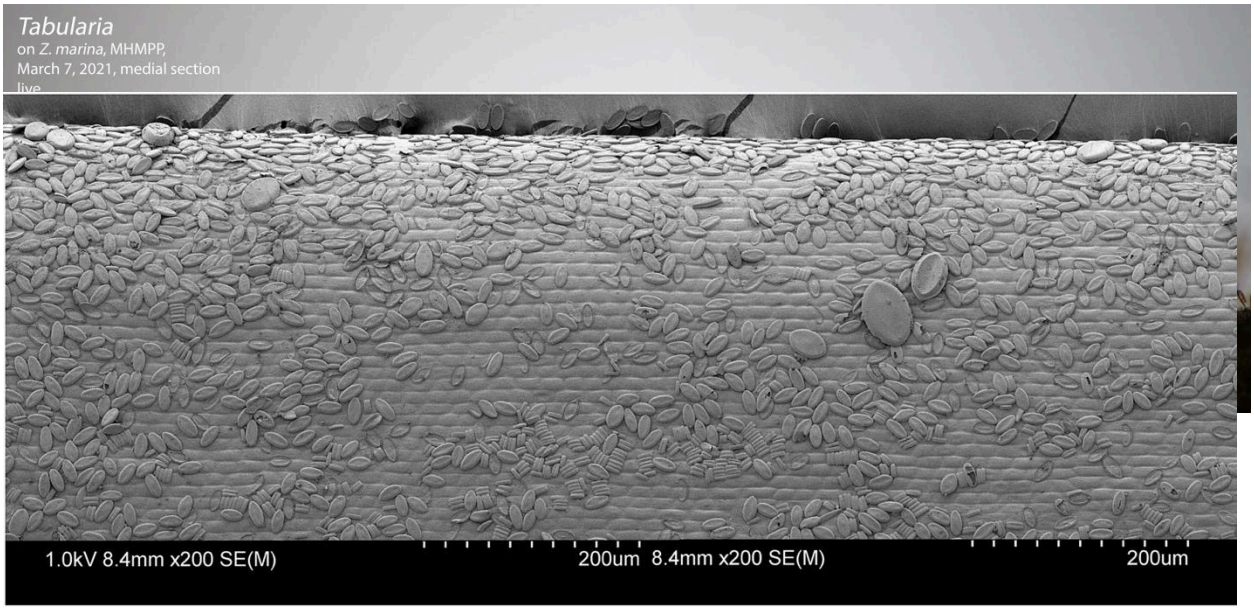


List of Genera identified

The abbreviation **MOL** indicates confirmation by Parfrey Lab (UBC) molecular data for the March 7, 2021 sampling. (Additional information is found in: 1) Table of Identified and Unidentified Diatom Genera with Morphological and Molecular Methods, 2) An excel file called *Diatoms of the Southern Gulf Islands - A Checklist* and 3) genera taxonomic identification notes)

1. ***Achnanthes* Bory 1822 :** (common) Aug. 4, 2020; Nov. 15, 2020; March 7, 2021; July 22, 2021 (Slide #1, TC3, July 31-2021**). MOL, but only for the order Achnanthales** (so far *Planothidium*: no matches for the only *Achnanthes sp*. found on March 7, 2021 samples of an elongate *Achnanthes* most similar to *A. elongata*, found on the carapaces of marine turtles from the Caribbean. A. Witkowski (pers. Comm.) has confirmed it's close similarity to A. elongata.
2. **Actinoptychus Ehrenberg 1843:** (Actinoptychus senarius) (rare). July 22, 2021, file name: Actinoptychus senarius on Zm MHMPP July 22-2021-H2O2-slide 1 TE300 40 ELWD-d, m, p-(July 31-2021)_2.tif). Not yet foud in March 2021 samples. **MOL: 96% with BLAST sequences.**
3. ***Amphora*** Ehrenberg ex Kützing, 1844**:** (frequent) Aug. 4, 2020, Nov. 15, 2020, March 7, 2021, July 22, 2021, file name: Diatoms on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-. **MOL: confirmed with six species listed.**
4. ***Attheya* T.West, 1860*:*** (rare, though commonly regarded as planktonic, some species are common on sand grains), July 20, 2020, file name: Attheya-Navicula sp or Achnanthes-MHMPP-(July 20-2020)-TM4000 Stub 1-tip II-Aug 1-2020_29(x1.0k)_2.tif. **MOL: confirmed with one species listed.**
5. ***Bacillaria*** Gmelin, J.F. (1791)**:** (frequent in summer) July 20, 2020; March 7, 2020 (live & SEMs), July 22, 2021, file name: SEM Zm stub 81 leaf 14 July 22-2021 07(x1.2k).tif. **MOL: confirmed, *Bacillaria paxiillifer* max score and 97% BLAST.**
6. ***Campylodiscus* Kützing 1844**: (rare), March 7, 2021. Campylodiscus-Zm MHMPP-Mar 7-2021-slide 1-T42_4Db+c_E800 20xapo-(May 2-2023-fs-0039-0045_3.tif**. MOL:** matches found with BLAST, **but non-confident matches.**
7. ***Chaetoceros* Ehrenberg 1844:** (rare) March 7, 2021, file names: Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 26-2021)_021(x3.0k).tif; Chaetoceros on Zm MHMPP Mar 7 21 Leaf 7 Da_En_RR June 1-2021_m010 copy.tif. **MOL: confirmed.**
8. ***Cocconeis*** Ehrenberg 1836*:* (very common) Aug. 4, 2020, Nov. 15, 2020; March 7, 2021, July 22, 2021, file names: Diatoms on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-. **MOL: confirmed.**
9. ***Coscinodiscus* Ehrenberg, 1839, nom. et typ. cons.:** (occassional) Nov 15, 2020-stub 4 3b m002, Coscinodiscus Stb 1-Zm NA cleaned-MHMPP-Nov 15-20(x500)-TM4000-Dec 29-2020-2.tif; March 7, 2021: Diatoms on Zm stb 21-Mar 7-2021 CR-TM4000 (Aug 26-2021)_006(x3.0k).tif. **MOL: so far only the class Coscinodiscophyceae confirmed, but no genus *Coscinodiscus*.**
10. ***Cyclotella*** (Kützing) Brébisson, 1838, nom. et typ. cons.: (occassional) August 4, slide 1_3 Oct 23-2020: Diatoms on Z marina-H2O2 slide #1_3-Naphrax-MU2003-Aug 4-20200044.tif). **MOL: none. Not yet observed on images studied from March 7, 2021 samples.**
11. ***Cylindrotheca Rabenhorst, 1859, nom. cons.*:** (frequent) Nov. 15, 2020, file names: live cell-Jan 10c, 2021_0056_2; March 7, 2021: Diatoms on Zm stb 21-Mar 7-2021 CR-TM4000 (Aug 26-2021)_038(x2.5k).tif, Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 28-2021)_024(x2.0k).tif; July 22, 2021: Diatoms on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ; Cylindrotheca stub3 Zm mar 7-2021 leaf 1 Da+c_m007_2.tif. **MOL: confirmed.**

12. ***Dimeregramma* Ralfs 1861*:*** March 7, 2021 (LM cleaned frustule), file name: Dimeregramma cf minor on Zm MHMPP-Mar 7-2021-leaf1 T31 Pb_c SA#1b-E800-MU2003-May 10-2021_0143_2.tif. **MOL: not confirmed.**
13. ***Diploneis* Ehrenberg ex Cleve, 1894:** (occassional) (Aug. 4, 2020, Oct. 16, 2020 (Slide 2_1-Nov 1-2020). **MOL: confirmed.**
14. ***Ditylum* J.W.Bailey ex L.W.Bailey, 1861**: (frequently observed valves and external processes). In August 2020, Nov. 15, 2020, March 7, 2021 and July 22, 2021 samplings: valve plus external process and numerous external processes, file names: Ditylum brightwellii on Zm MHMPP July 22-2021-H2O2-slide 1 TE300 40 ELWD-d, m, p-(July 31-2021) TC_5_2.tif; Ditylum b. external process on_Zm MHMPP-Mar 7-2021_Box 9 T46 Pa RR (Oct 27-2021)_m036_2.tif. **MOL: not confirmed.**
15. ***Donkinia* Ralfs, 1861*:*** *(unconfirmed-* Uncertain identification: only one live sample and it looks similar to *Pleurosigma directum*. Requires more samples and cleaned.*) family Pleurosigmataceae:* (July 22, 2021 (live): Donkinia like (central constriction in girdle view, lobed plastids and the pattern of the strongly sigmoid raphe coincident with the valve margin) on Zm MHMPP-live-July 21-2021-E800-MU2003-July 21-2021_0056_5.tif, SEM Zm stub 81 leaf 14 July 22-2021 26(x1.8k).tif. **MOL: uncertain. *Donkinia* possibly showed up in the MOL under Naviculales MOL- 123-V143 100%, 93.42% BLAST.**
16. ***Ellerbeckia Crawford 1988****.* (rare). Ellerbeckia on Zm MHMPP_Stb 1-Zm NA cleaned-MHMPP-Nov 15-20(x500)-TM4000-Dec 29-2020-2.tif. (March 7, 2021 sampling): Ellerbeckia_Zm MHMPP_Mar 7-2021_Box 9 16P_RR (Feb 23 2022)_m006_3.tif
    MOL: confirmed.
17. ***Entomoneis* Ehrenberg, 1845*:*** (common) (*Amphipora* - older name): March 7, 2021 (SEM), file names: *Entomoneis* and *Tabularia* on Zostra m-Monta H Beach-(July 20-2020)-TM4000-Aug 3-2020_02(x1.5k)_4.tif). July 22, 2021: Entomoneis & Skeletonema on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-(x2.5)_2.tif. **MOL: confirmed.**
18. ***Epithemia* Kützing, 1844:** (rare) Nov. 15, 2020, file names: Epithemia sp on Z. marine, MHMPP Nov. 15-2020 6_3NAL_60x DIC TE300-TC_87_2.tif, March 7, 2021: SEMs-ZM MHMPP-stb 9M_2-gently H2O2 cleaned Mar 7-2021-TM4000 MW(Sept 6-2021_011). **MOL: not confirmed.**
19. ***Eucampia* Ehrenberg, 1839:** (rare on eelgrass) July 22, 2021, file names: Eucampia zodiacus on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-(x1.2)_2.tif. **MOL: not confirmed, but only observed in the July 22, 2021 sampling.**
20. ***Eupyxidicula*** (Greville) S.Blanco & C.E.Wetzel 2016 (synonym of Stephanopyxis). **MOL: not confirmed.**
21. ***Encyonema*** Kützing, F.T. (1834) (appears in March 7, 2021 molecular data): Nov. 7, 2021 sampling, live image, leaf 24 M & D sections (Nov. 11, 2021), file name: Encyonema or Cymbella? on leaf 20 Z marina-Nov 7-2021-E800-MU2003-Nov 11-2021_0012_2.tif. **MOL: confirmed.**
22. ***Fallacia*** *Stickle et Mann in Round et al. 1990.* SEM: Mar 7-2021, T57 9M_B H-H2O2 TM4000 MQ July 29-2021. **MOL: confirmed.**
23. ***Fogedia*** Witkowski, Lange-Bertalot, Metzeltin & Bafana, 1997 (Occassional, possibly common): August 4th, 2020, LM; Fogedia on Z marina-Mar 7-2021-leaf 9 T57 9Da+b H2O2 HOT-E800-MU2003-slide 3-July 22-2021_0063_2.tif.; Fogedia sp_Box 11-Zm Mar 7-2021-stb2 T45 SA1-H2O2-TM4000 MW-Oct 24-2022-39_2(x3.0k).tif **MOL: not confirmed**.
24. ***Fragilariopsis*** Hustedt, 1913 (MOL-444-V507). March 7, 2021: Fragilariopsis or Nitzschia on Zm stub 20 En-7-medial-Mar 7-2021 (MW) (Aug 24-2021)_035(x3.0k)_2.tif. **MOL: confirmed.**

25. ***Gomphonemopsis* Medlin, 1986:** (common) March 7, 2021 (file names): Gomphonemopsis cf (A)-on Zm MHMPP-stub 6 10Db+c-s4800 (MQ-July 5-2021)_m003_3.tif, July 22, 2021: T80 leaf 14, medial; Diatoms on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ, and box 8 stub 80 Gomphonemopsis(x5.0k).tif. **MOL: confirmed.**
26. **Gomphoseptatum Medlin, 1986: (likely-note the pattern of the pores at foot pole and terminal endings of the raphe):** March 7, 2021: Gomphoseptatum or Gomphonemopsis on ZM MHMPP-T56 9M_B H2O2-TM4000-(MQ-July 29-2021_29 (x2.0k)_2.tif (only one specimen to date). **MOL: not confirmed**.
27. ***Grammatophora* Ehrenberg 1840*:*** (occasional to common) Nov. 15, 2020, file names: Grammatophora on Z marina-Mar 7-2021-M leaf E800 20x apo-MU2003-Mar 9c-2021-0105_3.tif; Grammatophora (marina) on Z marina-Nov 15-2020-leafslide 1 SA#1-E800-100x oil-MU2003-Mar 7-2021-0094_2.tif; Zm leaf 3 3Db stub 8 150x_m001_3_edited-1.jpg. **MOL: not confirmed**.
28. ***Gyrosigma* Hassall, 1845, nom. cons:** (occassional) Nov 15, 2020, Stub 6, proximal, file name: Gyrosigma or Pleurosigna Stub 6-Zm-proximal-enviro-sections-Nov 15-20-MHHPP Gyrosigma & Achnanthes sp Dec 29-2020-(x1.2k)_2.tif; **MOL: not confirmed**.
29. ***Halamphora* (Cleve) Mereschkowsky, 1903*:*** (common) (as in *Halamphora coffeaeformis*): July 20, 2020 and March 7, 2021. July 22, 2021, file name: Zm stub 81 leaf 14-July 22-2021-005(x5.0k).tif. **MOL: confirmed**.
30. ***Hanzschia* Grunow, A. (1877)** (unconfirmed, rare): Aug 4, 2020: Hanzschia cf. virgata on Zm MHMPP-Aug 4-2020-slide 1b-H2O2_E800 100x-MU2003-Nov 20b-2021 fs_0001-13_2.tif. **MOL: not confirmed**.
31. ***Haslea*** Simonsen, 1974 (MOL-*Haslea* and *Haslea howeana*). Two specimens (LM & SEM), March 7, 2021, distal. LM: Haslea crucigera_Box 11-Zm Mar 7-2021-stb2 T45 SA1-H2O2-TM4000 MW-Oct 24-2022-24_4(x1.tif ; Haslea on Zm-Mar 7-2021-leaf 4 T42 4Db_c Nit A-E800-MU2003-Mar 25-2022-slide 1-0078_2.tif; Haslea on Zm-Mar 7-2021-leaf 4 T42 4Db_c Nit A-E800-MU2003-Mar 25-2022-slide 1-0079_2.tif; Haslea on Zm-Mar 7-2021-leaf 4 T42 4Db_c Nit A-E800-MU2003-Mar 25-2022-slide 1-fs-0072-0090)_2.tif; Haslea on Zm-Mar 7-2021-leaf 4 T42 4Db_c Nit A-E800-MU2003-Mar 25-2022-slide 1-0079a_2.tif. **MOL: confirmed**.
32. ***Hobaniella* P.A.Sims & D.M.Williams, 2018:** *(formerly Odontella longicrucis-* monogenera*),* (rare) *Aug. 4, 2020, slide 1a.* **MOL: not confirmed**.
33. ***Hyalodiscus* Ehrenberg (1845):** (common at certain times of the year) *Nov. 15, 2020, see Dec 28, 2020 live images, July 22-2021, file names: Hyalodiscus cf. scoticus on Zm-Nov 15-2020-6_2NAL-TE300 100xoil-DR16-(Dec 15-2020) TC_116_2.tif; SEM Zm stub 81 leaf 14 July 22-2021 29(x1.8k).tif; **March 7, 2021**, Hyalodiscus Zm MHMPP Box 1b Stub 32-7 16 Mar 2022_b-RR_m015_2.tif.* **MOL: confirmed**.
34. ***Leptocylindrus* Cleve, 1889:** (rare) March 7, 2021, file name: Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 28-2021)_018(x3.0k).tif. **MOL: confirmed**.
35. ***Licmophora*** C.Agardh, 1827, nom. et typ. cons.**:** Rare to frequent. In Mar. 7, 2021 sampling, more common in summer time and autumn. Abundant on leaf #18, Z. marina collected Nov 7, 2021 (LM) March 7, 2021, file names: SEM stub T59 9M_B MQ-TM4000 (July 29, 2021); March 7, 2021, stub 9 leaf 3 En images 027 & 028 SEM; July 22, 2021: Licmophora on Z marina-July 22-2021-TE300-40xELWD MU1203FL-July 23-2021_0004_2.tif & Licmorphora on Z marina-July 22-2021-E800-40x MU2003-(July 24-2021)__FS009+0019_3.tif **MOL: confirmed.**
36. ***Lyrella*** (Ehrenberg) Karayeva*:* (rare) Nov. 15, 2020 (LM), March 7, 2021 (SEM). **MOL: confirmed.**
37. ***Melosira* C. Agardh, 1824, nom. cons.:** (common, summer and autumn) Aug. 4, 2020, March 7, 2021?, July 22, 2021, file names: Melosira nummuloides on Zm MHMPP-En-Box 8-leaf

14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-(x1.5k)_2.tif, SEM Zm stub 81 leaf 14 July 22-2021 16(x1.0k).tif. **MOL: confirmed.**

38. ***Minidiscus* Hasle, 1973 :** (rare to occasional), March 7, 2021, file names: Minidiscus sp on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 28-2021)_038(x9.0k)_3.tif. **MOL: confirmed.**
39. ***Navicula** Bory 1822:* (very common) Nov. 15, 2020, March 7, 2021, July 22, 2021. **MOL: confirmed.**
40. ***Nitzschia*** Hassall, 1845, nom. cons.**:** (common) Aug. 4, 2020, Nov. 15, 2020, March 7, 2021, July 22, 2021. **MOL: confirmed.**
41. ***Odontella*** (Lyngbye) C. Agardh: (common to occasional). The frequently occurring *O. obtusa* can be miss identified as *Biddulphia*) Aug. 4, 2020, Nov 15, 2020, March 7, 2021(Diatoms on Zm-Mar 7-2021-leaf 1 T32 1Mb_c SA#1b-TE300-MU2003-May 27b-2021-slide 2-0011.tif), **MOL: confirmed.**
42. ***Opephora* P. Petit, 1889:** (common, but small and historically easily overlooked) Aug 4, 2020 (Oct 23, 2020), March 7, 2021, file names: slide 1_4. Nov. 15, 2020; Opephora-Zm MHMPP-stb-T45 distal-SA#1 cleaned Mar 7-2021-TM4000-MW-(Sept 4-2021)_024(x3.0k)_2.tif. **Confirmed morphologically:** Opephora pacifica_Box 11-Zm Mar 7-2021-stb2 T45 SA1-H2O2-TM4000 MW-Oct 24-2022-10_3-(x2.0k).tif **MOL: not confirmed. Other specimens may be the similar looking genera *Serratifera* (MOL-348-V404, 3e-140 to 2e-138) and *Gedaniella* (#2137, SILVA (BLAST: Gedaniella 100% 1e, 93.77) found in the molecular data, but not confirmed by morphology.**
43. ***Paralia* Heiberg, 1863:** (occasional) Aug. 4, 2020, March 7, 2021, file name: T59 9M-B, July 29-2021), Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 28-2021)_029(x1.8k).tif; July 22, 2021 (slide 1, TC_19). **MOL: confirmed** using the sequence data of Coscinodiscophyceae (98-V115), gaving only readings for the genus Paralia (taxid:216907 & 216927):query cover of 100% for Paralia sulcate and 85% for Paralia fenestrata.
44. ***Paribellus* Cox 1988**: Aug. 4, 2020 sample, Only LM. **MOL: confirmed.**
45. ***Pariraphis** like (aka the biscotti). Formerly described as Catenula or Catenulopsis like. This diatom is similar to a yet to be erected genus called Pariraphis. A paper is forthcoming, including LM and SEM images from Z. marina, MHMPP by A. Witkowski's group. Frequent, as high as 34% in some proximal samples***:** March 7, 2021 (SEMs). **MOL: not confirmed.** Class to order uncertain at this time.
46. ***Petroneis* A. J. Stickle & D. G. Mann, 1990*:*** (common in Aug 4, 2021): Petroneis on Zm MHMPP-Aug 4-2020-slide 5-H2O2_E800-40x_MU2003-Nov 21b-2021 fs 0002-16_2.tif. **MOL: confirmed???** (Showed up in BLAST: Petroneis humerosa 100% & 94.44%).
47. ***Plagiogramma* Greville, 1859*:*** Cleaned frustules on slides 3 & 6: Plagiogramma on Zm MHMPP-July 22-2021-P-M-D leaf 11-13_H-H2O2_E800-MU2003-May 27-2021-slide 3-Nov 16-2021_fs 0095-0098_2.tif; Plagiogramma diatom on Zm MHMPP-July 22-2021-P-M-D leaf 11-13_H-H2O2_E800-MU2003-May 27-2021-slide 3-Nov 16-2021_0020_2.tif**. MOL: confirmed.**
48. ***Plagiotropis* Pfitzer, 1871, nom. illeg.:** *(Tropidoneis* - older genus name*):* (frequent) Nov 15-2020. Live cells in both valve and girdle views: Plagiotropis girdle view-on Zm MHMPP-Nov 15-2020-TE300-MU2003-Dec 28-2020-live-0062_2_edited-1.jpg; Plagiotropis on Zm stub 20_Ma En March 7-2021 (MW)_018(x1.5k)_2.tif; Plagiotropis on Zm MHMPP stub3 Zm3 mar 7 21 En leaf 1 Da_(May 20-2021_MQ_m005_2.tif. **MOL: confirmed.**
49. ***Planothidium (common):** Planothidium Zm MHMPP Mar 7-2021-Box 9 leaf 6 stb 17M En MQ s4800_Nov 25 2021-m013_2.tif; Planothidium Zm MHMPP Mar 7-2021-Box 9 leaf 6 stb 17M En MQ s4800_Nov 25 2021-m014_2.tif; Planothidium on Zm MHMPP Mar 7-2021-Box 9 leaf 6 stb 17M En MQ s4800_Nov 25 2021-m016_2.tif; Planothidium on Zm MHMPP Mar 7-2021-Box 9 leaf 6 stb 17M En MQ s4800_Nov 25 2021-m020_3.tif.* **MOL: confirmed.**
50. ***Pleurosigma*** W. Smith, 1852, nom. et typ. cons.: (occasional) Nov. 15, 2020, March 7, 2021, file names: Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 26-2021)_026(x1.0k).tif;

live Nov 7, 2021, Pleurosigma on leaf 20 Z marina-Nov 7-2021-E800-MU2003-Nov 11-2021_0005_2.tif. **MOL: confirmed.**

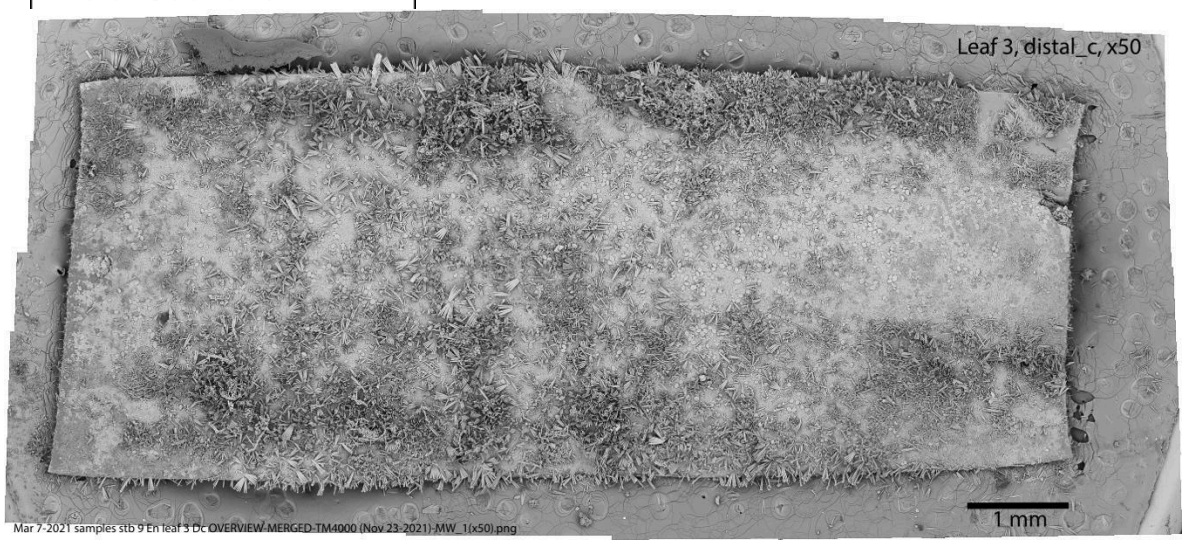
51. ***Podosira Ehrenberg, 1840***: March 7, 2021: Podosira sp-Zm, MHMPP-Mar 7-21-T57 9D C H2O2 Hot-TM4000-before(x2.0k) July 23-2021-ECH_2.tif; Podosira sp_Zm MHMPP(Mar 7-2021-Box 1b Stub T32-7 March 31 2022_m021_2.tif. **MOL: confirmed**; under Coscinodiscophyceae (*Podosira baldjickiana* max score, 100%, 92.01%).
52. **Psammodictyon D. G. Mann, 1990.** Many images, need to sort out between Psammodictyon and Trybionella. **MOL: confirmed.**
53. ***Pseudogomphonema** Medlin 1986***:** (frequent) (looks like *Gomphonemopisis*, but has a distinctive circular central area and no bar separating the striae), March 7, 2021, file names: SEMs-Zm MHMPP-stb-T45 distal-cleaned Mar 7-2021-TM4000-MW-(Sept 4-2021)_003(x2.0k).tif, SEM Zm stub 20 March 7-2021 (MW)_006(x1.0k).tif, July 22, 2021: SEM Zm stub G-cleaned July 22-2021 (MW)_026(x3.0k).tif. **MOL: confirmed.**
54. ***Pseudo-nitzschia* H. Peragallo, 1900:** (frequent in summer of 2020) July 20, 2020, file names: Unidentified Z. m Monta H Beach-(July 20-2020)-Stub 2-TM4000 Aug 4-2020_10(x800).tif. **MOL: not confirmed.**
55. ***Rhabdonema* Kützing, 1844, nom. cons.:** (occassional) Aug 14, 2020, March 7, 2021, file names: Rhabdonema isolate-Zm MHMPP-E800-MU2003-April 11b-2021-B-W-(FS 17,23,30,38)_2.tif); Aug 4, 2021 slide 1b E800 cleaned 0076-0101, valve view. **MOL: not confirmed.**
56. ***Rhizosolenia* Brightwell, 1858, nom. et typ. cons.:** (occassional, summer) July 22, 2021, two different species. Rhizosolenia setigera f. pungens (A.Cleve) Brunel. File names: Rhizosolenia setigera f. pungens on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-(x0.8k)_2.tif. **MOL: not confirmed.**
57. ***Rhoicosphenia* Grunow, 1860:** (frequent) July, Aug & Nov. 15, 2020, March 7, 2021, file names: Diatoms on Zm stb 21-Mar 7-2021 CR-TM4000 (Aug 26-2021)_039(x1.2k).tif, July 22, 2021: Zm stub 81 leaf 14-July 22-2021-006(x800).tif. **MOL: not confirmed.**
58. ***Rhopalodia* O. Müller, 1895, nom. cons.*:*** *(unconfirmed):* (rare) *Nov. 15, 2020—possible. (NAL-6_1—Dec 8, 2020_FS4 2,45, 53).* **MOL: not confirmed.**
59. ***Skeletonema* Greville, 1865, nom. et typ. cons.*:*** (common on some sections and occurs in chains) Aug. 4, 2020, March 7, 2021 samples, file names: Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 26-2021)_009(x600).tif, July 22, 2021: Entomoneis & Skeletonema on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-(x2.5)_2.tif. **MOL: confirmed.**
60. ***Tabularia* (Kützing) D.M.Williams & Round, 1986: (very frequent):** Aug. 4, 2020, Nov. 15, 2020. (It is likely *Synedra* will be found as well (There are diatom frustules that have many *Synedra* features). March 7, 2021 and July 22, 2021: July 22, 2021, file names: Diatoms on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ. **MOL: confirmed.**
61. ***Thalassiosira** Cleve, 1873***:** (common on some samples and in chains) Aug. 4, 2020, Nov. 15, 2020, March 7, 2021: Diatoms on Zm stb 21-Mar 7-2021 CR-TM4000 (Aug 26-2021)_011(x3.0k).tif, Diatoms on Zm stb 21-Mar 7-2021-TM4000-MW-(Aug 26-2021)_033(x1.0k).tif, July 22, 2021; Thalassiosira on Zm MHMPP stub3 Zm3 mar 7 21 En leaf 1 Da row 2_(May 20-2021_MQ_m004_2.tif. **MOL: confirmed.**
62. ***Trigonium* (Kützing) D. M. Williams & Round, 1986:** (occassional) March 7, 2021 (live-LM) [found on April 12, 2021, in sample of Z. marina leaves], file names: Trigonium sp-on Zm MHMPP-multi-leaf-live-Mar 7-21-TE300-(April 12-21)_FS-TC18+20_2.tif. **MOL: not confirmed.**
63. ***Trachyneis* Cleve, P.T. (1894):** (occassional) Aug. 4, 2020, Nov. 15, 2020, July 22, 2021, file names (TC_28); SEM Zm stub 81 leaf 14 July 22-2021 10(x1.2k).tif; Tachyneis (aspera) on Z.

marine, MHMPP Nov. 15-2020_40x DIC TE300-TC_17_2.tif. **MOL: not fully confirmed** (Naviculales (*Haslea nipkowii*, max score, 100% &95.15; *Trachyneis sp*., 100%, 94.79% BLAST).

64. ***Tryblionella* W. Smith, 1853:** (occassional) March 7, 2021: SEM stub T59 9M_B MQ-TM4000 (July 29, 2021) March 7, 2021 (LM: Tryblionella on Zm-Mar 7-2021-leaf 3 T39 3Da+b SA#1b-E800-MU2003-June 20-2021-slide 2-FS0026-28-30_2.tif). **MOL: confirmed.**
65. ***Undatella* Paddock & P.A.Sims, 1980:** (Likely. Formerly of *Amphora spp*., may still be) (occasional) Aug. 4, 2020 and July 22, 2021 (common). Requires further images and well cleaned specimens, file names: Undatella (Amphora-Biremis) sp-on Zostra m-Monta H Beach-(July 20-2020)-TM4000-Aug 3-2020_18(x1.5k)_2_edited-1.jpg; Unknown diatom (Amphora?) on Zm-MHMPP-Oct 16-2020-TE300-DR16-(Oct 29-2020)TC_18_2.tif; Undatella, Amphora or Amphiprora-on Zm MHMPP-En-Box 8-leaf 14-T80_medial (July 22-2021)-TM4000-August 12-2021-MQ-(x1.2k)_2.tif

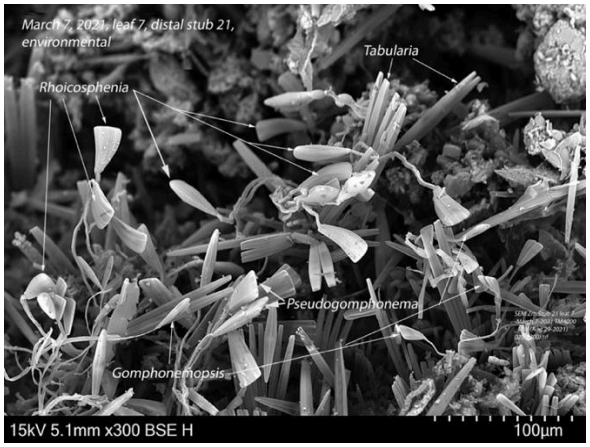
Images of Environmental (En) non-cleaned Leaf Sections

Distal Sections



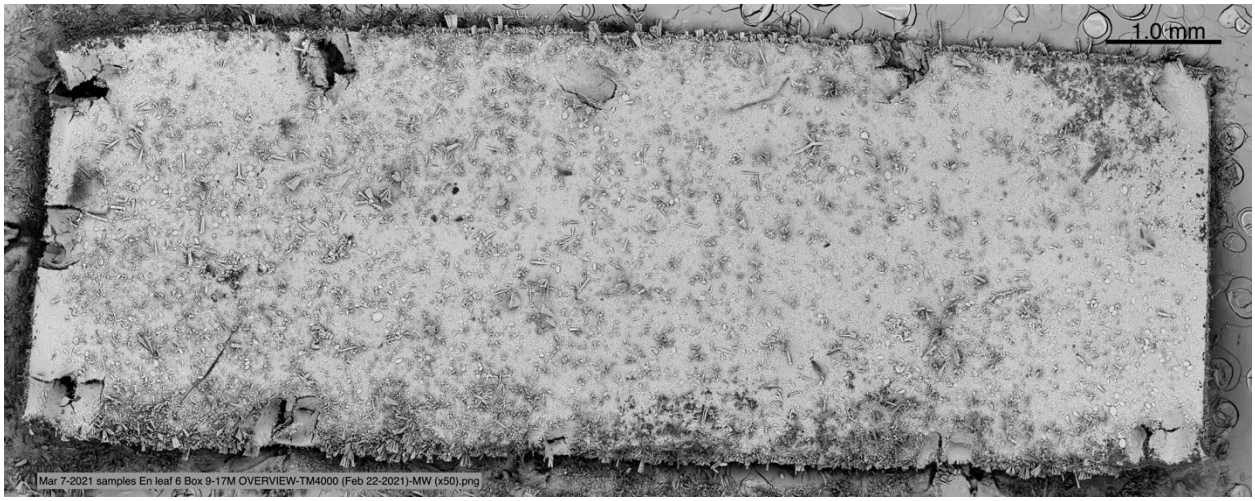
Thirty x50 images a distal environmentally (En) prepared *Z. marina* leaf section from March 7, 2021. Hitachi TM4000, AMF, UVIC.

SEM image of a small section of the edge of a distal En prepared *Z. marina* leaf section showing a high percent coverage of Gomphonemopsis, Pseudogomphonema, and *Tabularia* cells with an exposed base layer of *Cocconeis*. Nov. 15, 2020 sampling. Hitachi s4800, AMF, UVIC. (7Da RR-m004)

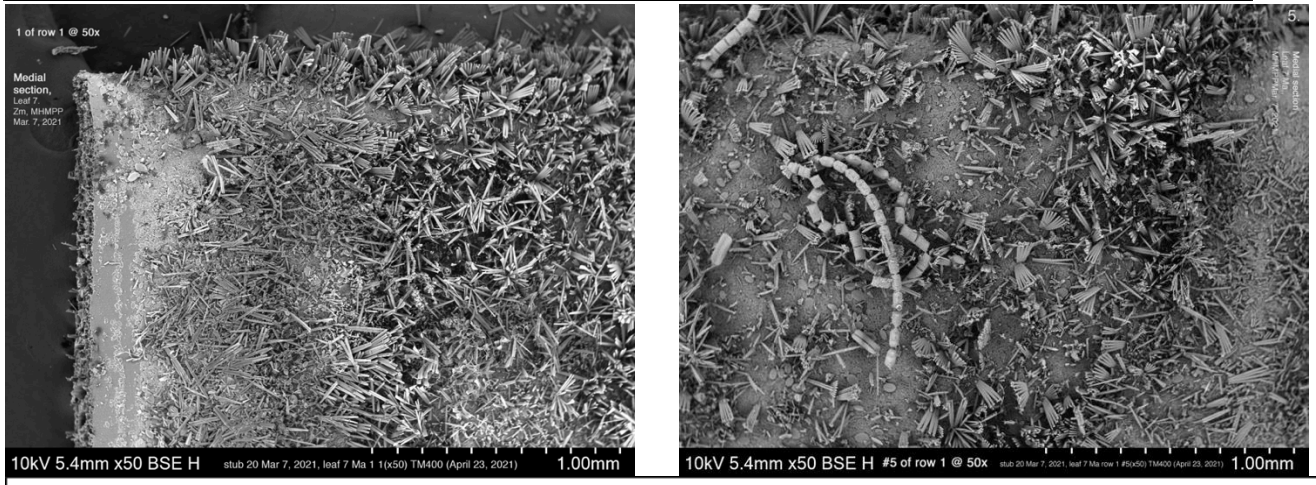


SEM image at 300x of a central distal environmental *Z. marina* leaf section showing a high percent coverage of *Gomphonemopsis*, *Pseudogomphonema*, *Rhoicosphenia* and *Tabularia* cells. Nov. 15, 2020 sampling. Hitachi TM4000, AMF, UVIC.

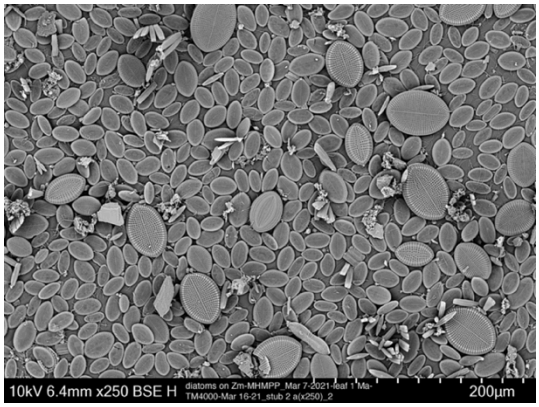
Medial Sections



A SEM image at 50x of a medial environmental *Z. marina* leaf section showing a high percent coverage of diatoms. March 7, 2021 sampling. Hitachi TM4000, AMF, UVIC.



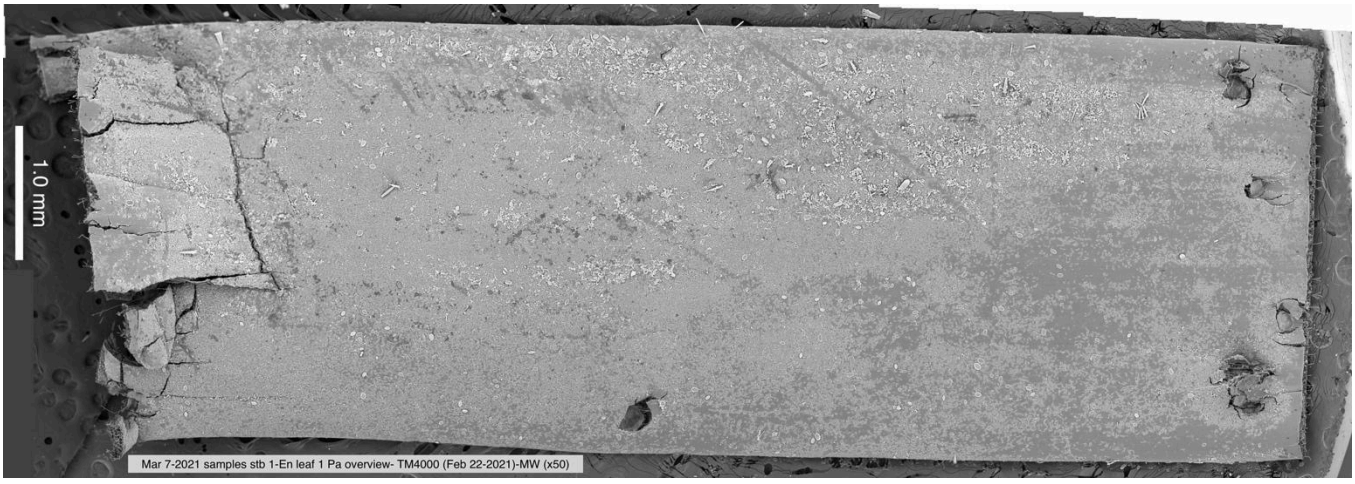
SEM images at x50 is of two edges of a medial sections from March 7, 2021. It shows a high concentration of *Tabularia, Gomphonemopsis, Pseudogomphonema, Rhoicosphenia and Odontella* mostly fitting in between a base layer of *Cocconeis*.



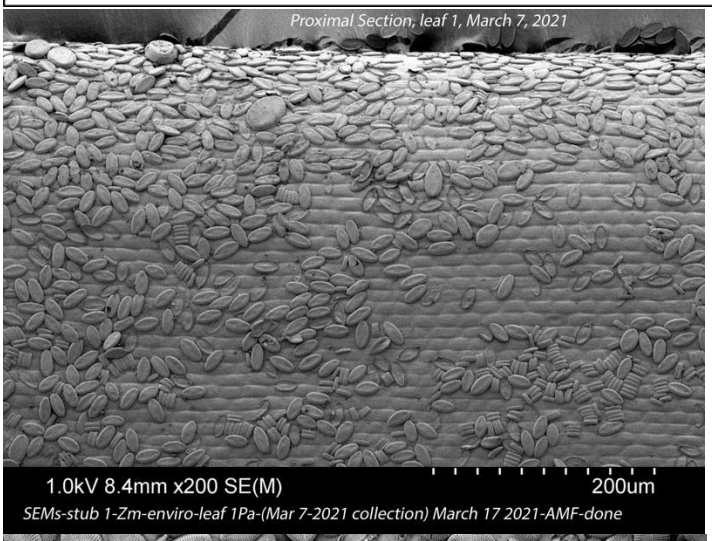
A SEM image at 250x of a medial environmental *Z. marina* leaf section showing 79% percent coverage (N = 614 cells total) of *Cocconeis sp*. March 7, 2020 sampling. Hitachi TM4000, AMF, UVIC.

SEM image at 300x is a small medial section (375 µm x 265 µm) from March 7, 2021. It shows a high concentration of *Tabularia* mostly fitting in between a base layer of *Cocconeis*

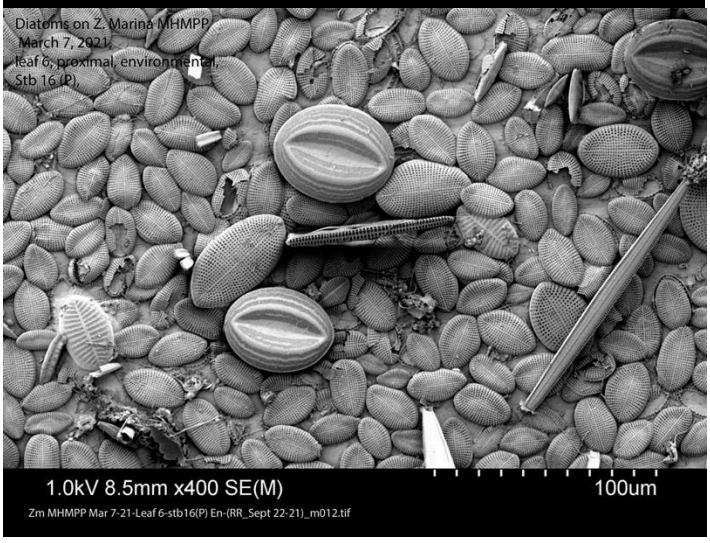
Proximal Sections



SEM image at 50x of a typical proximal section of *Z. marina* leaf section, En prepared, showing a low percent coverage of diatoms. March 7, 2021 sampling. Hitachi TM4000, AMF, UVIC.



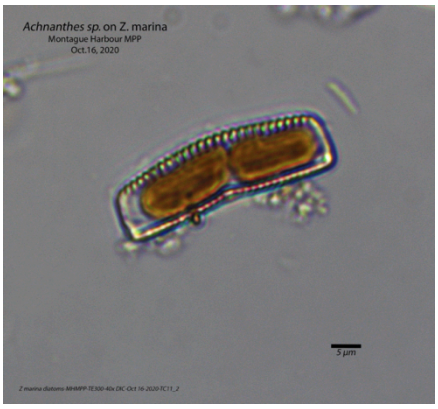
SEM image at 200x of a proximal En *Z. marina* leaf section showing a high percentage of Cocconeis spp., with colonies of a *Pariraphis* like diatom with some bare areas of leaf cells exposed. March 7, 2021. sampling. Hitachi TM4000, AMF, UVIC.

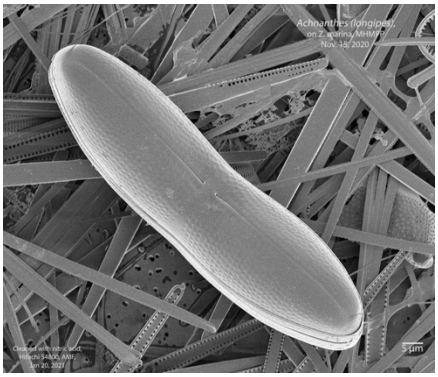


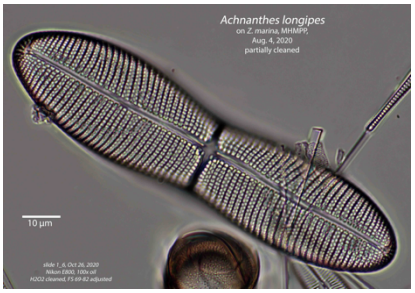
SEM image at 400x of a proximal En *Z. marina* leaf section showing a high percentage of *Cocconeis spp*., with a few elongate *Achnanthes sp*. and *Tabularia sp*. occassional bare areas of leaf cells exposed. March 7, 2021. sampling. Hitachi TM4000, AMF, UVIC.

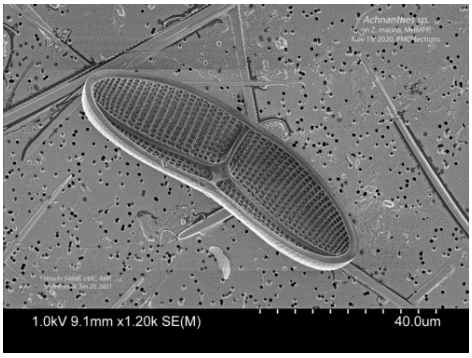
Images of identified Diatom Genera

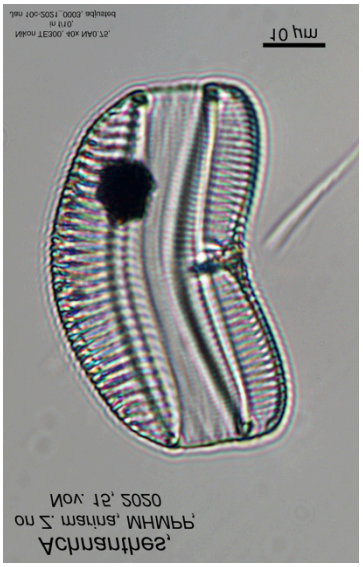
Achnanthes

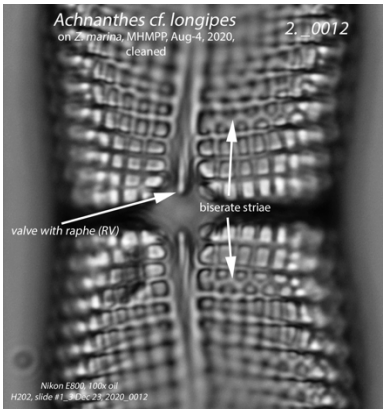


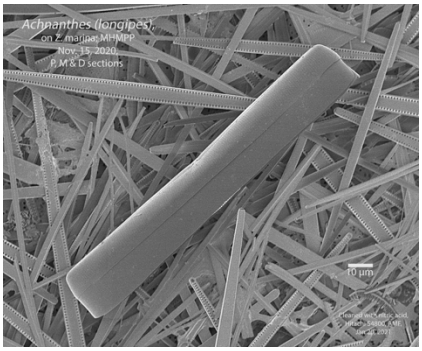






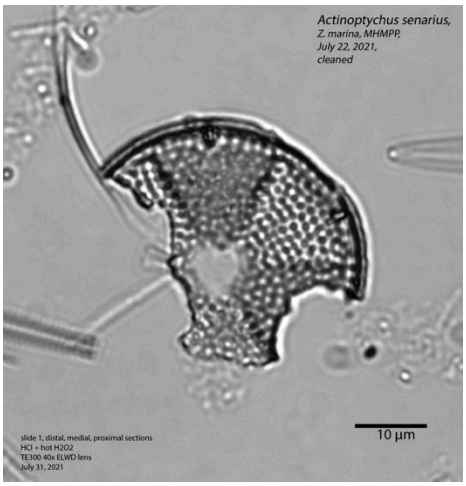






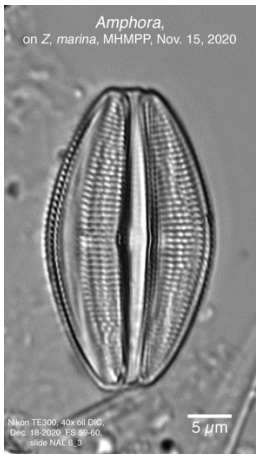

Achnanthes cf. elongatum
on Z. marina, MHMPP,
March 7, 2021,
medial, environmental
20 µm
Achnanthes
on Z. marina, MHMPP
Mar. 7, 2021
medial,
RT-cleaned
71.8 µm long
x 5.0 µm wide
Achnanthes
on Z. marina
MHMPP
Mar. 7, 2021
medial,
RT-cleaned
79.4 µm long
Achnanthes
on Z. marina, MHMPP,
March 7, 2021,
medial, environmental
Raphe Valve
(RV)
Achnanthes
on Z. marina, MHMPP
March 7, 2021,
environmental,
2nd leaf, medial section
Hitachi TM4000,
Aug. 24, 2021
no cleaning, _020_2
10kV 5.6mm x2.00k BSE H
20.0µm
Achnanthes cf. elongata,
Zm, MHMPP,
Mar. 7, 2021,
medial section
7-8 striae in 10 µm
girdle view
86 µm long
x
7 µm wide
Achnanthes cf elongata
on Zm-Mar 7-2021-leaf 1
Achnanthes
on Z. marina, MHMPP, March 7, 2021,
environmental, 2nd leaf, medial section
Achnanthes
on Z. marina, MHMPP,
March 7, 2021,
medial, environmental
apical spine
Achnanthes, on Zm, MHMPP,
Mar. 7-2021, rt-H2O2
distal
20 µm
Achnanthes (2x)-
Zm-MHMPP-stb 9D_2
-gently H2O2-Mar 7-2021-
TM4000-MW-Sept 6-2021-
041(x3.0k)_2.tif
Achnanthes?,
on Z. Marina,
Mar. 7, 2021,
distal,
RT-H2O2
17.1 µm long
x 4.2 µm wide
11 striae
in 10 µm

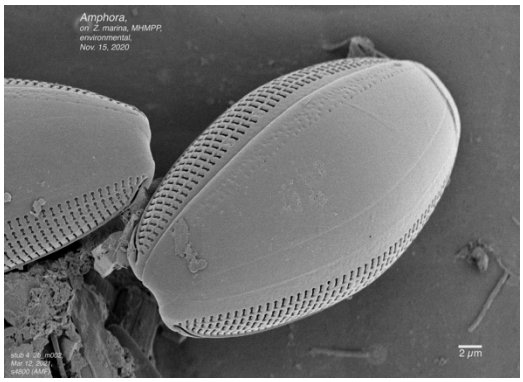
Actinoptychus



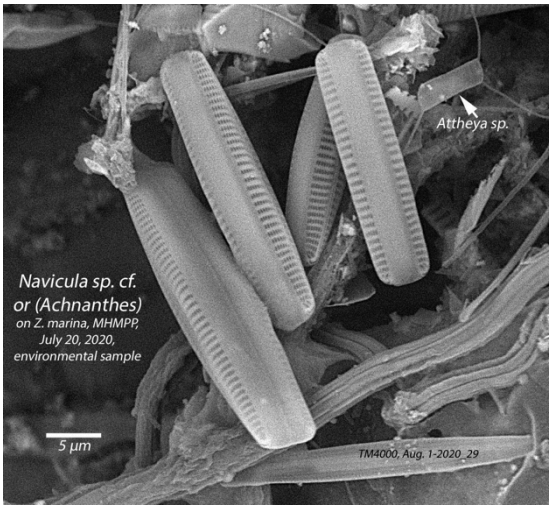
Amphora

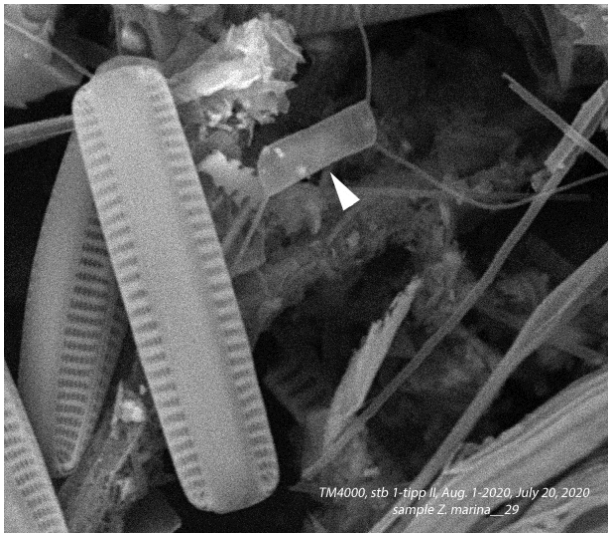

Amphora,
on Z. marina, MHMPP,
Nov. 15, 2020
61 μm long x
31 μm wide
10 μm


Amphora,
on Z. marina, MHMPP, Nov. 15, 2020
5 μm

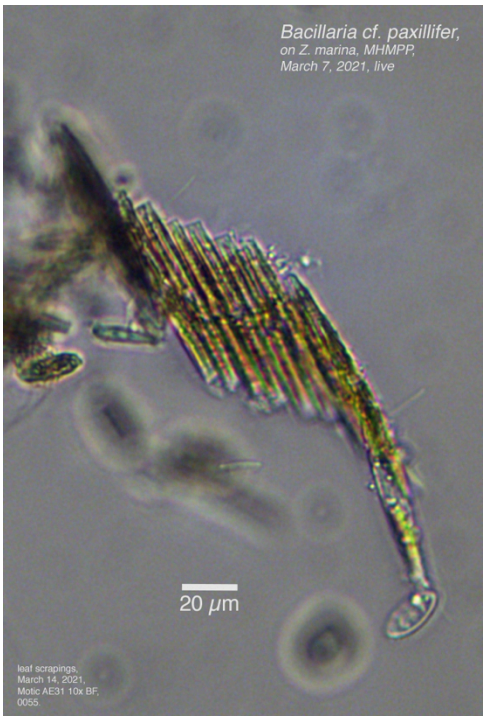

Amphora,
on Z. marina, MHMPP,
environmental,
Nov. 15, 2020
2 μm

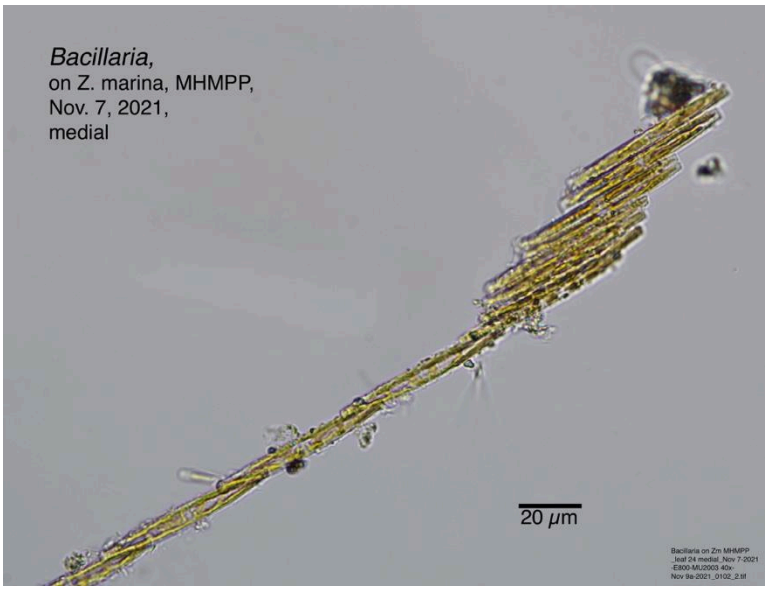
Attheya

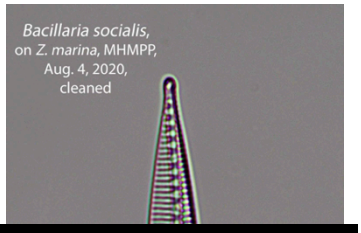

Attheya sp.
Navicula sp. cf.
or (Achnanthes)
on Z. marina, MHMPP,
July 20, 2020,
environmental sample
5 µm
TM4000, Aug. 1-2020_29

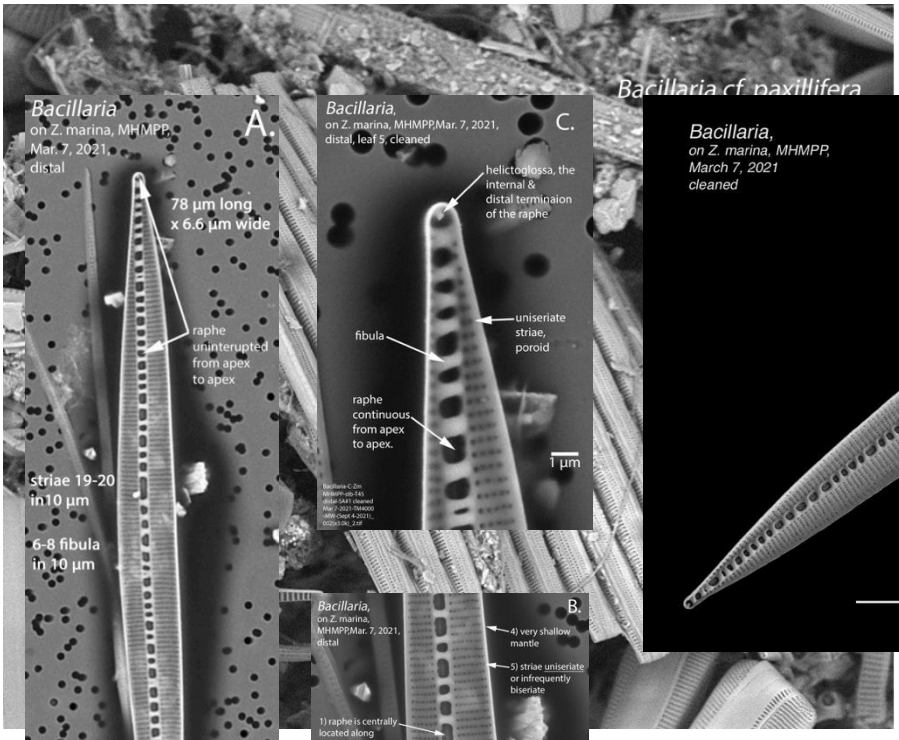

TM4000, stb 1-tipp II, Aug. 1-2020, July 20, 2020
sample Z. marina__29

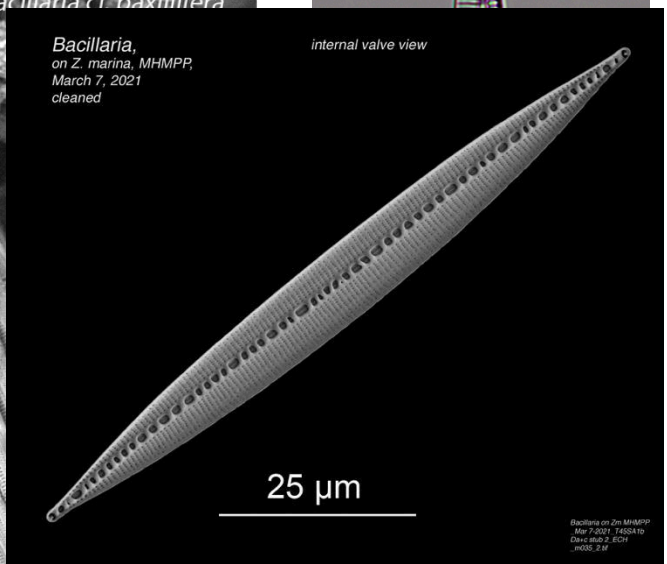
Bacillaria

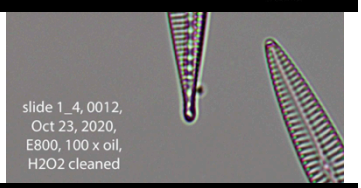

Bacillaria cf. paxillifer,
on Z. marina, MHMPP,
March 7, 2021, live
20 µm
leaf scrapings,
March 14, 2021,
Motic AE31 10x BF,
0055.

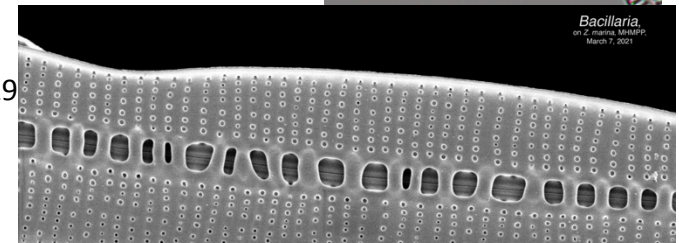

Bacillaria,
on Z. marina, MHMPP,
Nov. 7, 2021,
medial
20 µm

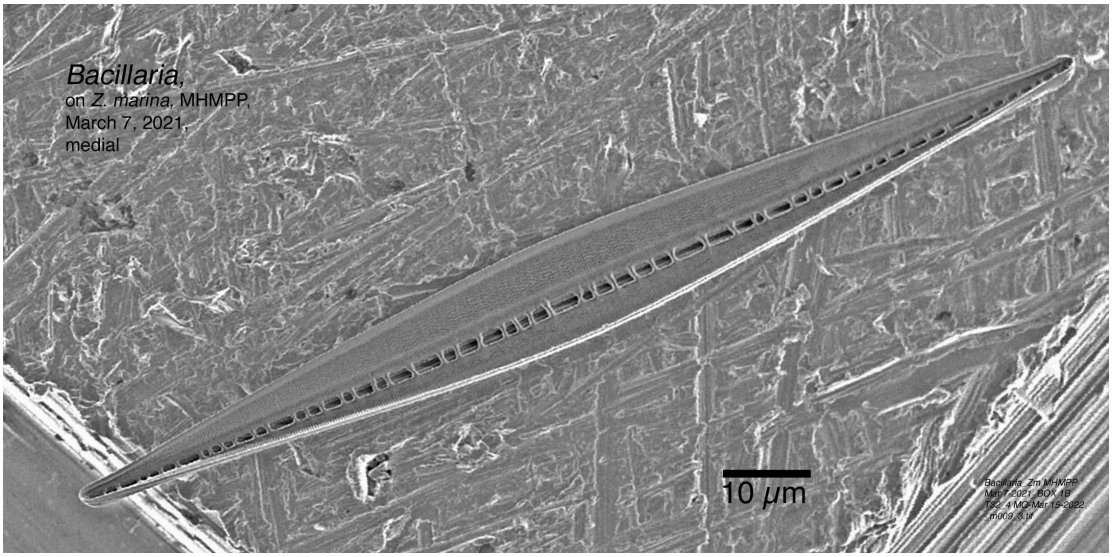

Bacillaria socialis,
on Z. marina, MHMPP,
Aug. 4, 2020,
cleaned


Bacillaria cf. paxillifera
Bacillaria
on Z. marina, MHMPP,
Mar. 7, 2021,
distal
A.
78 µm long
x 6.6 µm wide
raphe
uninterupted
from apex
to apex
striae 19-20
in10 µm
6-8 fibula
in 10 µm
5 µm
stb T45 leaf 5
D-acid cleaned
+ H2O2_TM4000
MW_001b (x800)
(Sept 4-2021)
Bacillaria,
on Z. marina, MHMPP,Mar. 7, 2021,
distal, leaf 5, cleaned
C.
helictoglossa, the
internal &
distal terminaion
of the raphe
uniseriate
striae,
poroid
fibula
raphe
continuous,
from apex
to apex.
1 µm
Bacillaria,
on Z. marina,
MHMPP,Mar. 7, 2021,
distal
B.
4) very shallow
mantle
5) striae uniseriate
or infrequently
biseriate
1) raphe is centrally
located along
the apical axis.
2) raphe is in
a raised keel
3) fibulae
5) striae are
distinct and
relatively coarse
6) striae has small
round poroids
2 µm


Bacillaria,
on Z. marina, MHMPP,
March 7, 2021
cleaned
internal valve view
25 µm


slide 1_4, 0012,
Oct 23, 2020,
E800, 100 x oil,
H2O2 cleaned

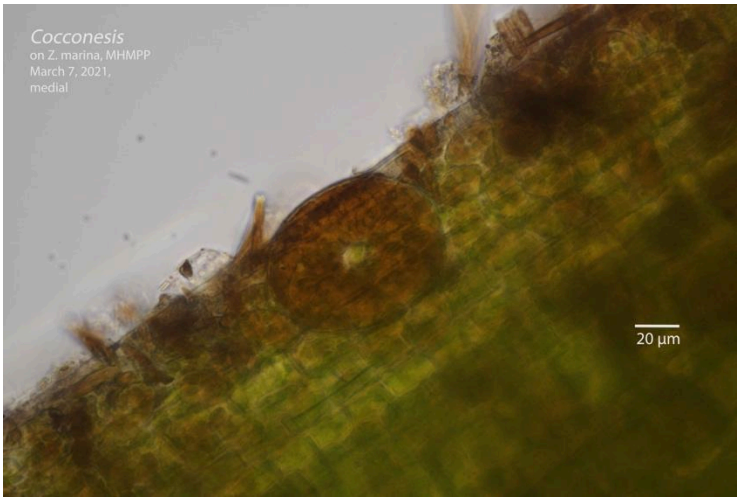

Bacillaria,
on Z. marina, MHMPP,
March 7, 2021

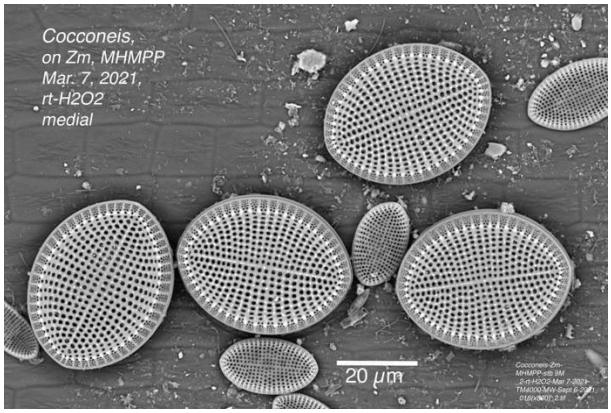

Bacillaria,
on *Z. marina*, MHMPP,
March 7, 2021,
medial
10 μm

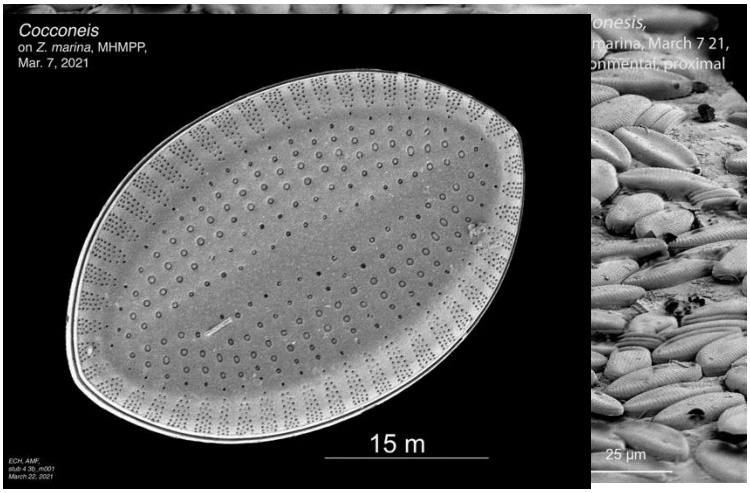
Campylodiscus

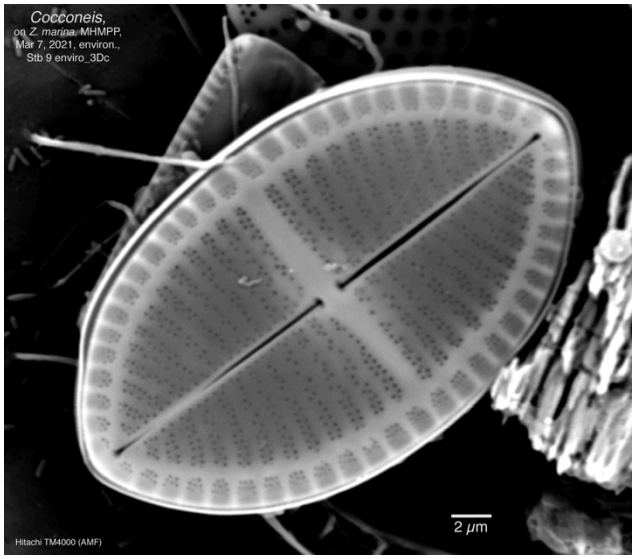
Chaetoceros

Cocconeis

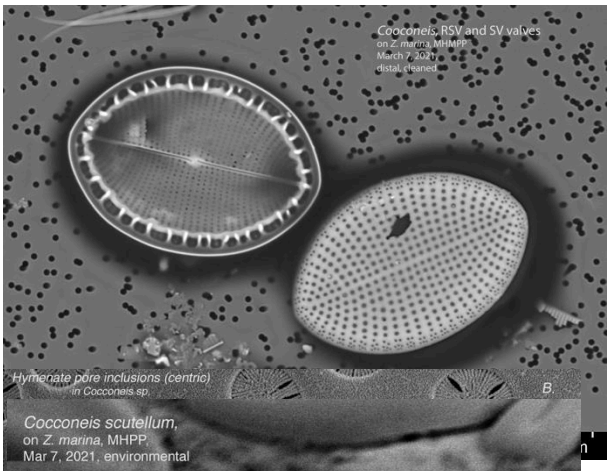


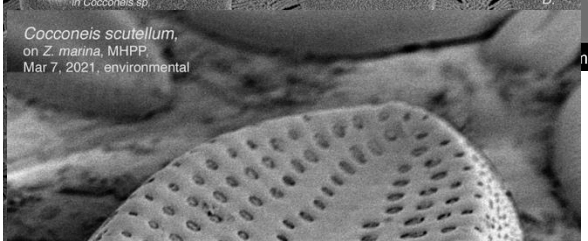


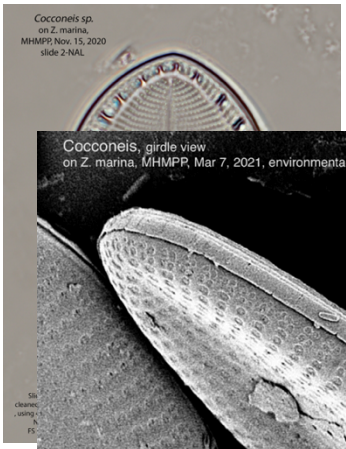


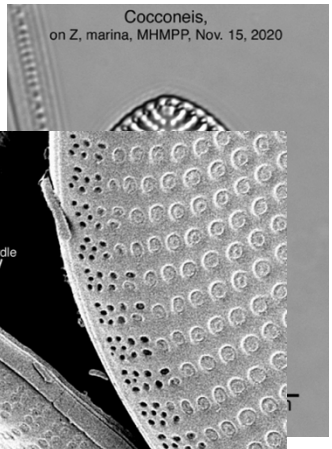


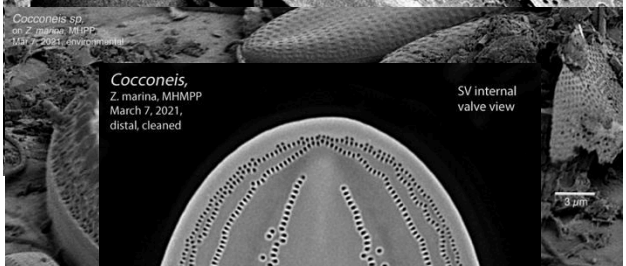
Cocconeis continued

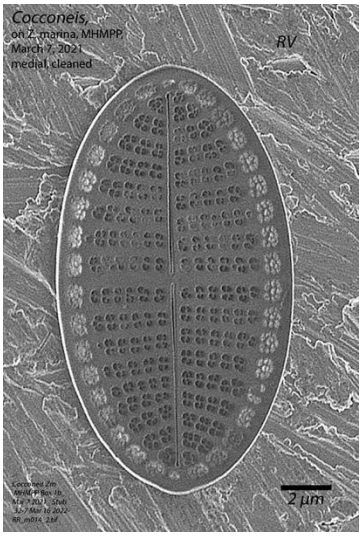


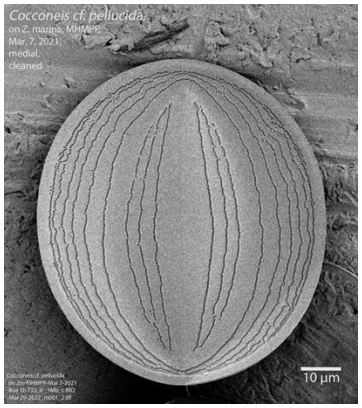


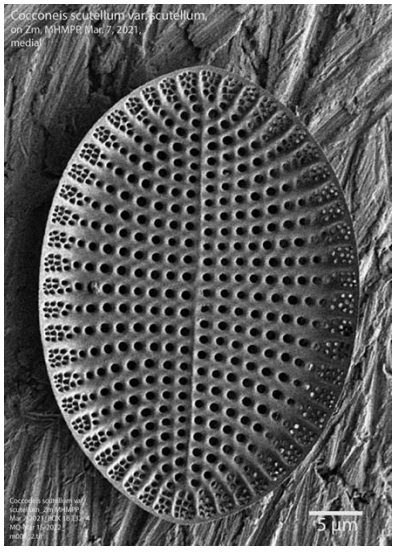


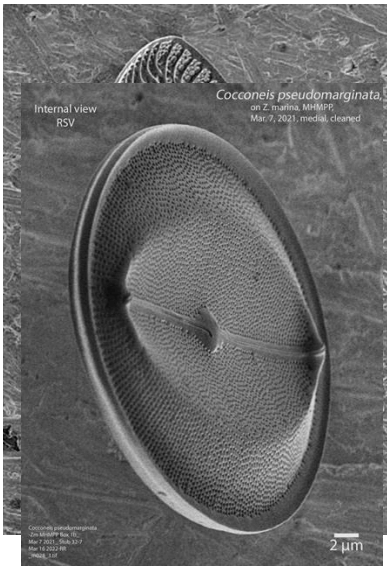


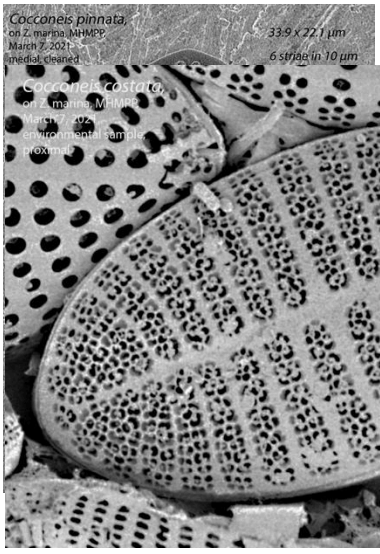



Cocconeis,
on Z. marina, MHMPP,
March 7, 2021
medial, cleaned
RV
2 µm


Cocconeis cf. pellucida,
on Z. marina, MHMPP,
Mar. 7, 2021,
medial,
cleaned
10 µm


Cocconeis scutellum Var. scutellum,
on Zm. MHMPP, Mar. 7, 2021,
medial
5 µm

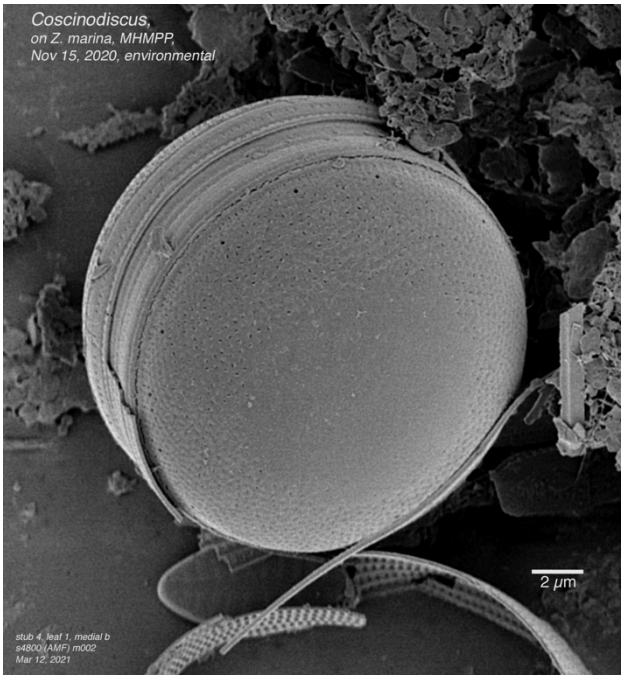

Internal view
RSV
Cocconeis pseudomarginata,
on Z. marina, MHMPP,
Mar. 7, 2021, medial, cleaned
2 µm


Cocconeis pinnata,
on Z. marina, MHMPP,
March 7, 2021
medial, cleaned
33.9 x 22.1 µm
6 striae in 10 µm

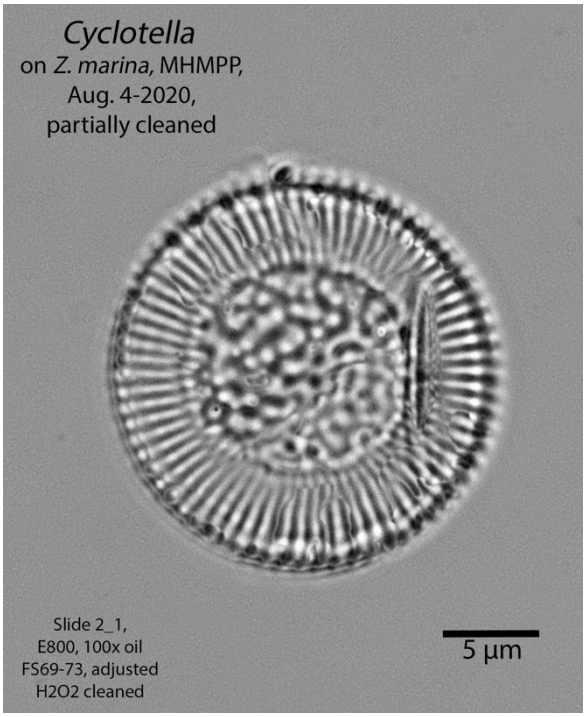
Cocconeis costata,
on Z. marina, MHMPP,
March 7, 2021
environmental sample
proximal
1µm

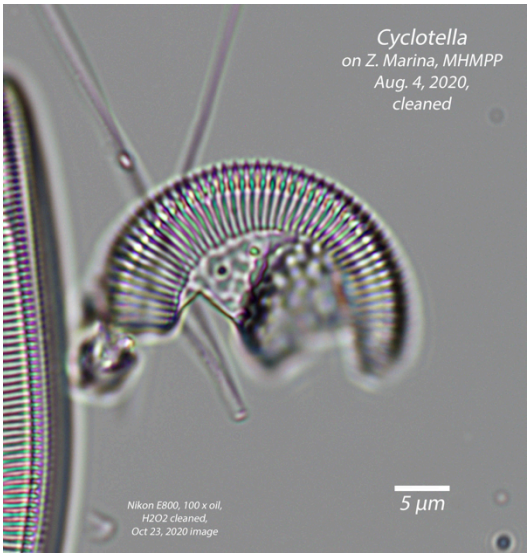
10 µm

Coscinodiscus

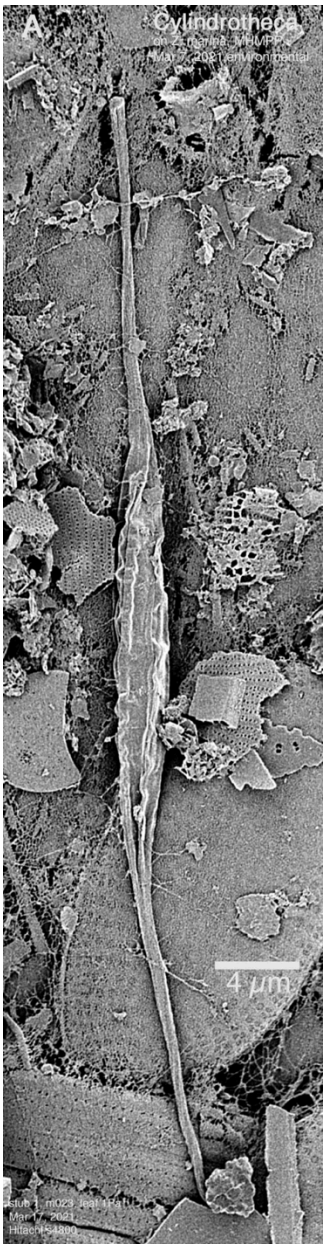


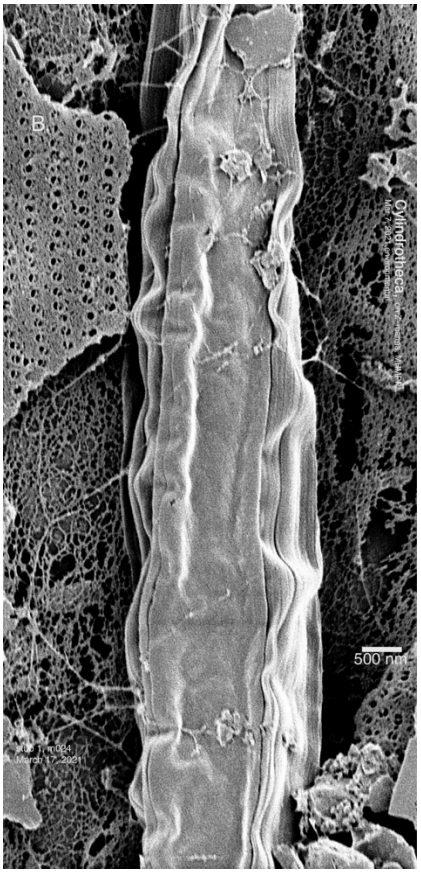
Cyclotella

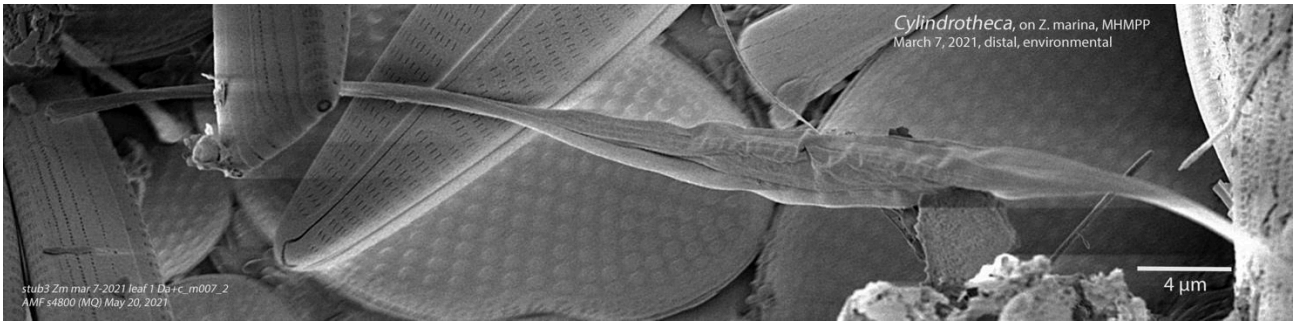

Cyclotella
on *Z. marina,* MHMPP,
Aug. 4-2020,
partially cleaned
Slide 2_1,
E800, 100x oil
FS69-73, adjusted
H2O2 cleaned
5 µm


Cyclotella
on Z. Marina, MHMPP
Aug. 4, 2020,
cleaned
Nikon E800, 100 x oil,
H2O2 cleaned,
Oct 23, 2020 image
5 µm

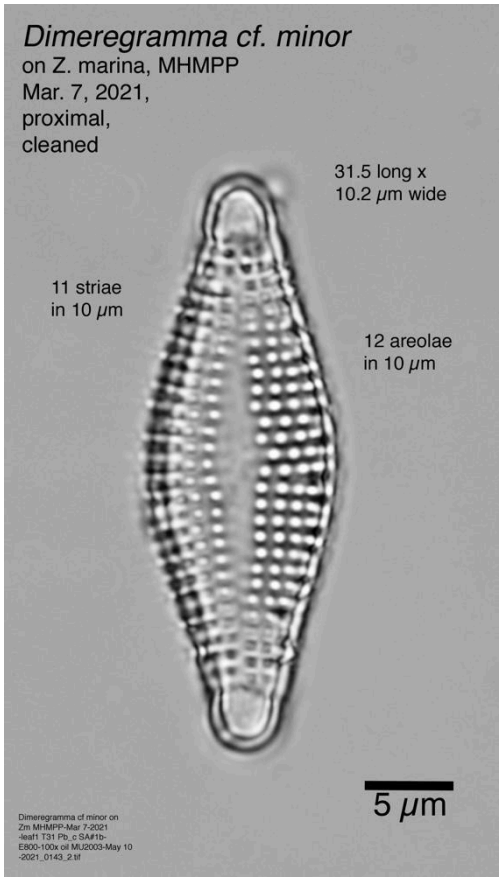
Cylindrotheca



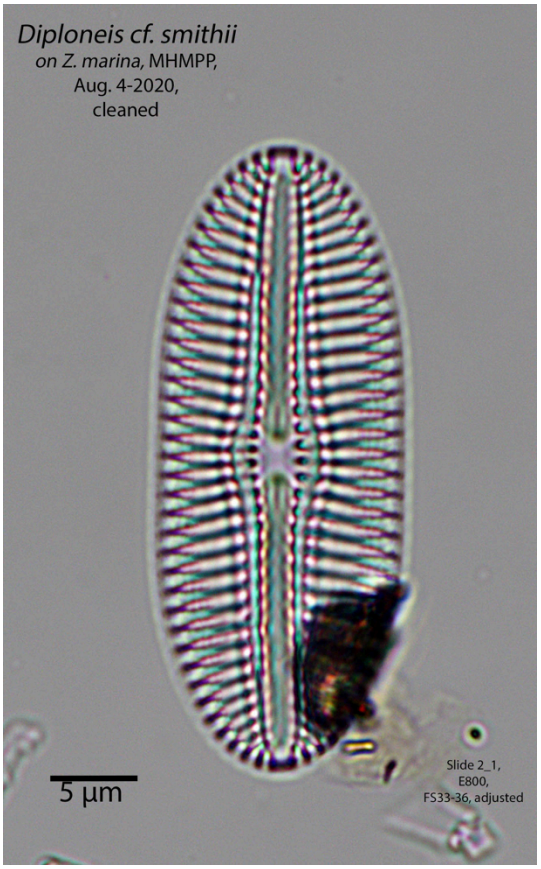


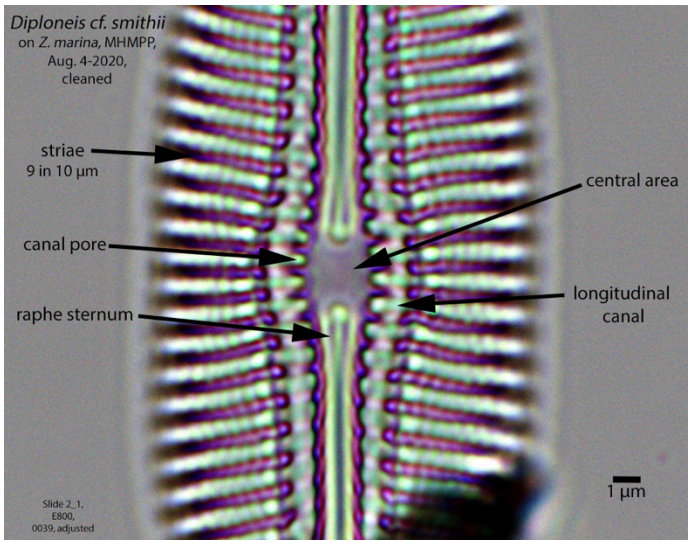


Dimeregramma

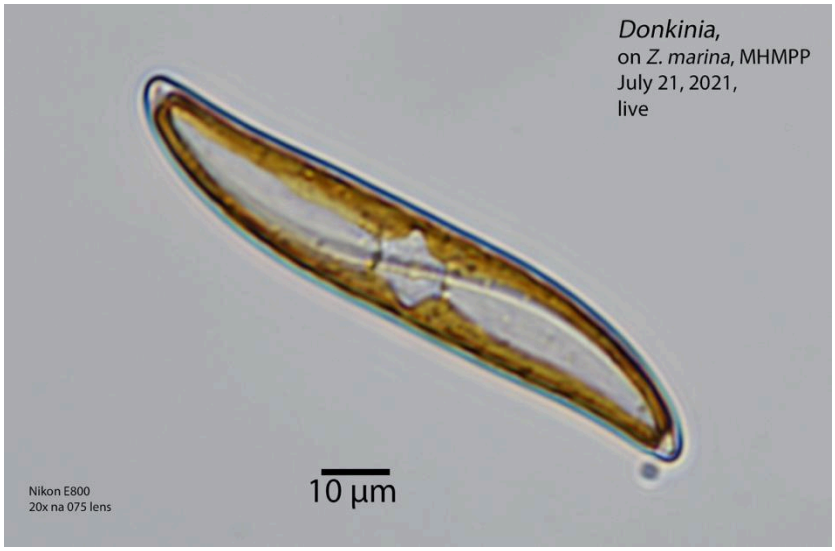


Diploneis

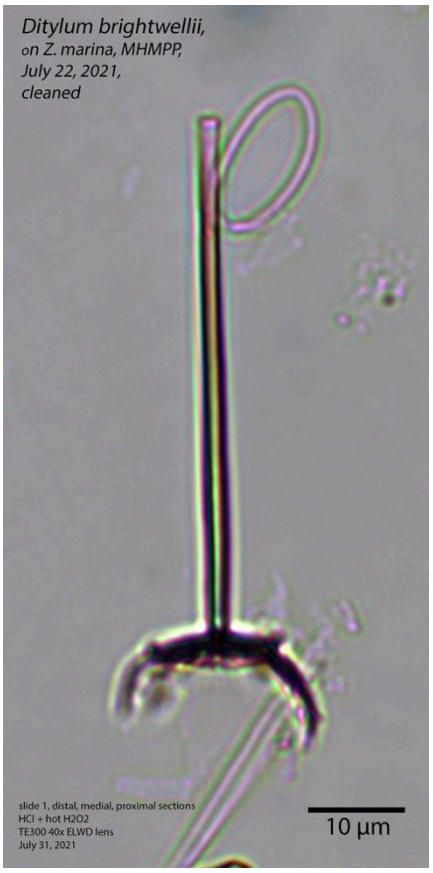

Diploneis cf. smithii
on Z. marina, MHMPP,
Aug. 4-2020,
cleaned
5 µm
Slide 2_1,
E800,
FS33-36, adjusted

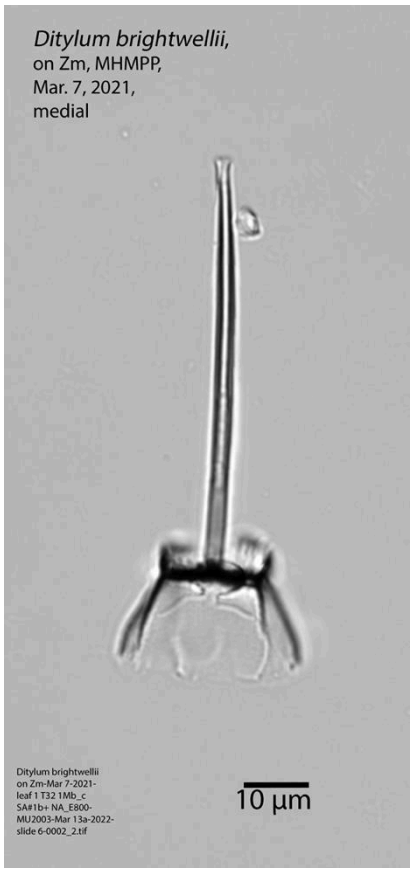

Diploneis cf. smithii
on *Z. marina*, MHMPP,
Aug. 4-2020,
cleaned
striae
9 in 10 µm
canal pore
raphe sternum
central area
longitudinal
canal
1 µm
Slide 2_1,
E800,
0039, adjusted

Donkinia *(unconfirmed) - or Pleurosigma directum, Family Pleurosigmataceae Mereschowsky*

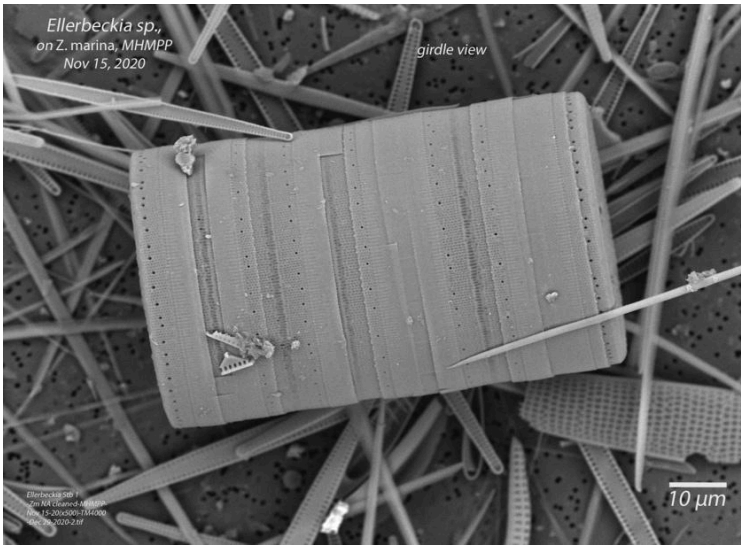


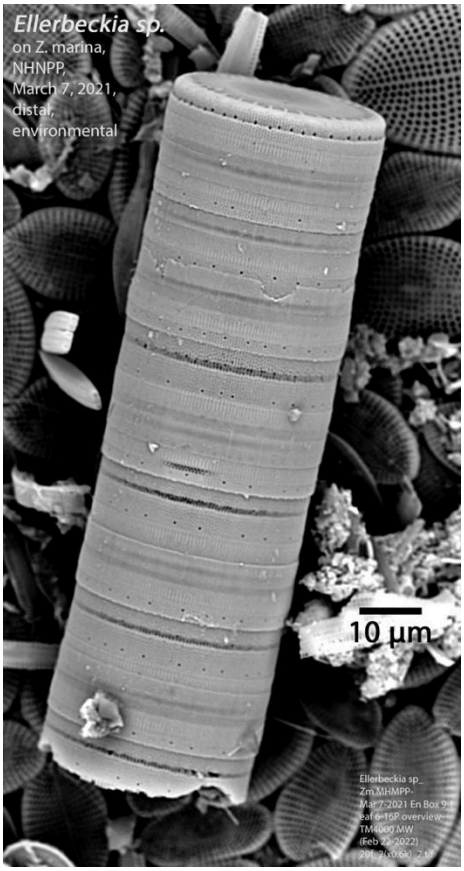
Ditylum

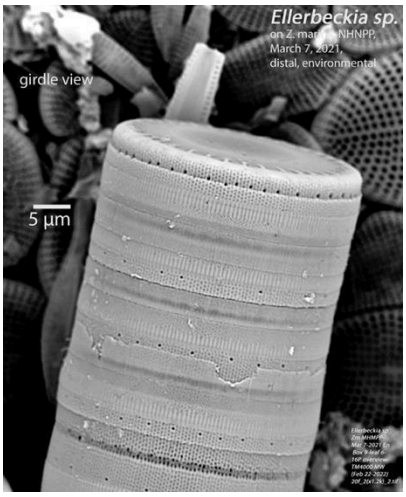

Ditylum brightwellii,
on Z. marina, MHMPP,
July 22, 2021,
cleaned
slide 1, distal, medial, proximal sections
HCl + hot H2O2
TE300 40x ELWD lens
July 31, 2021
10 µm

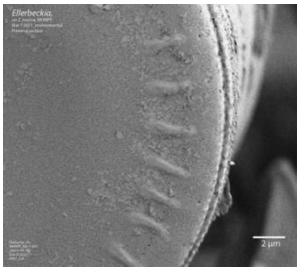

Ditylum brightwellii,
on Zm, MHMPP,
Mar. 7, 2021,
medial
Ditylum brightwellii
on Zm-Mar 7-2021-
leaf 1 T32 1Mb_c
SA#1b+ NA, E800-
MU2003-Mar 13a-2022-
slide 6-0002_2.tif
10 µm

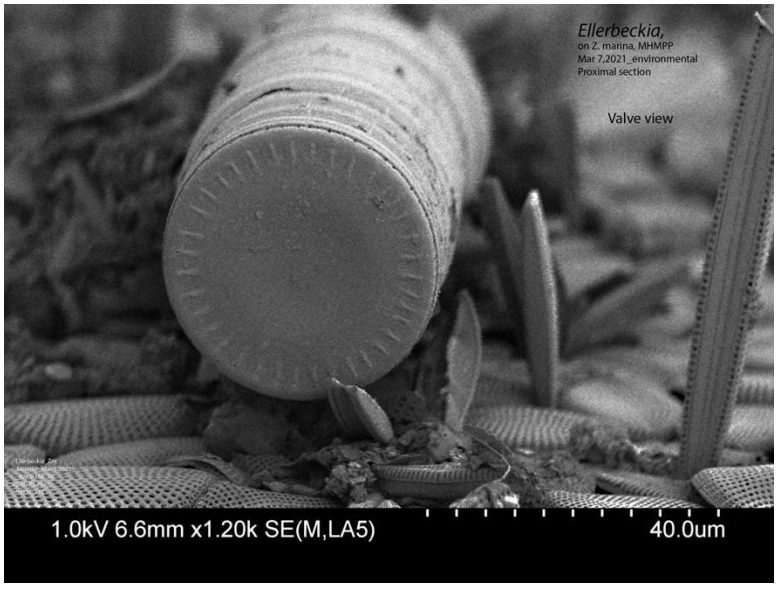
Ellerbeckia







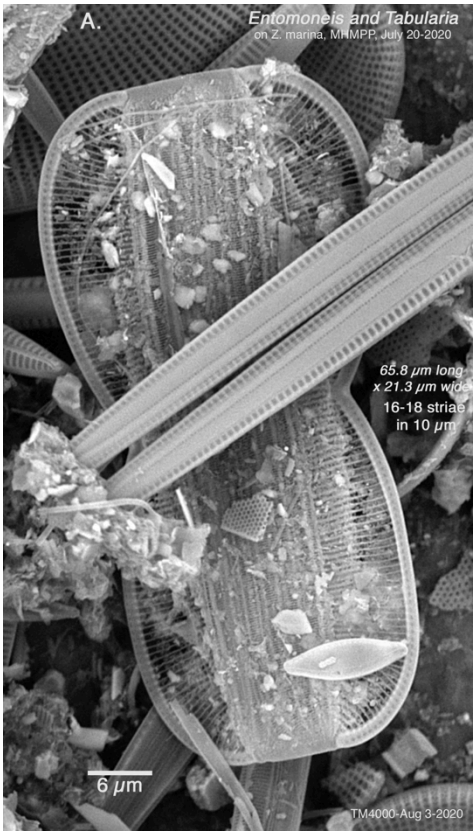


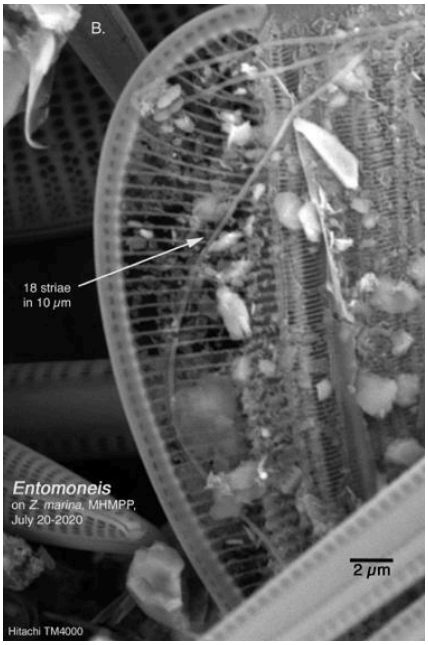


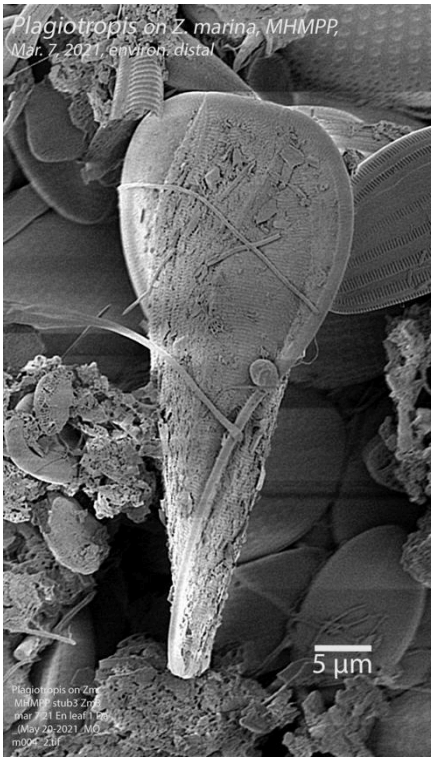
Encyonema

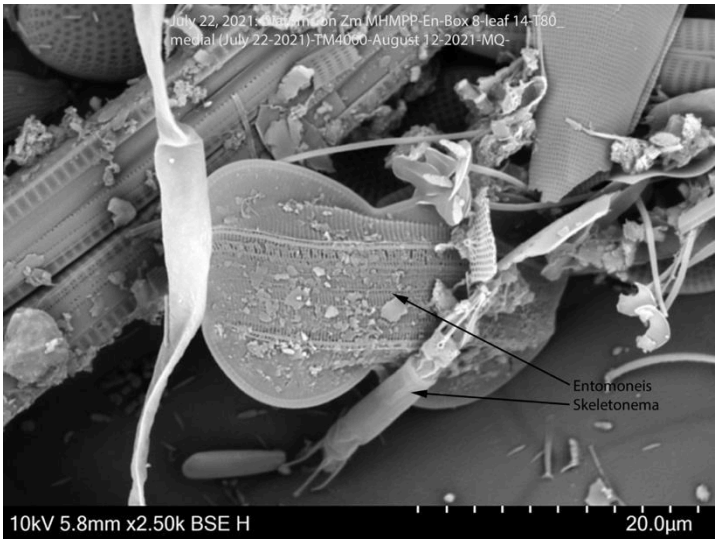

Encyonema or Cymbella?
on Z. marina,
MHMPP
Nov. 7, 2021
5 µm
Encyonema or Cymbella?
on leaf 20 Z marina
-Nov 7-2021-E800-
MU2003-Nov 11-2021
_0012_2.tif

Entomoneis

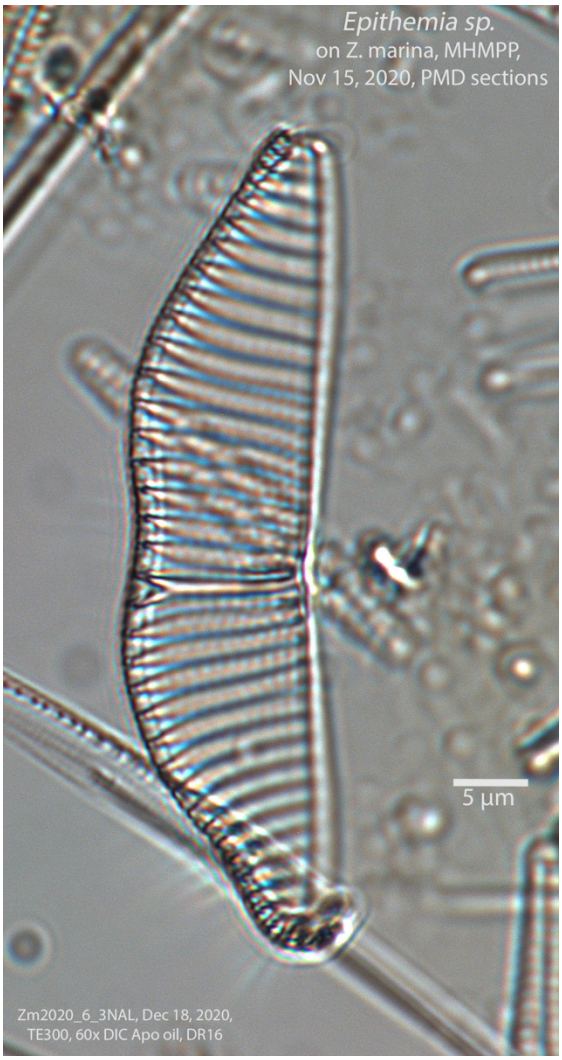

A.
Entomoneis and Tabularia
on Z. marina, MHMPP, July 20-2020
65.8 µm long
x 21.3 µm wide
16-18 striae
in 10 µm
6 µm
TM4000-Aug 3-2020

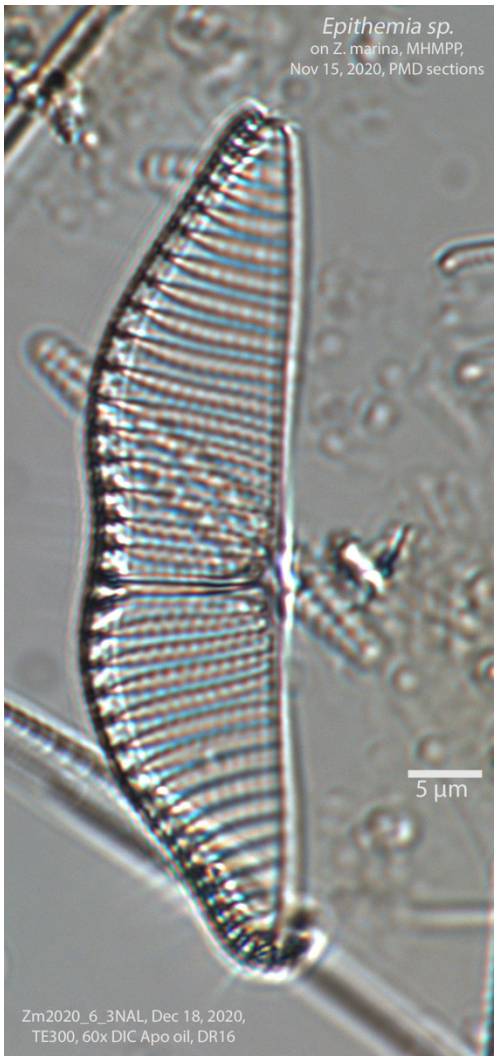

B.
18 striae
in 10 µm
Entomoneis
on Z. marina, MHMPP,
July 20-2020
2 µm
Hitachi TM4000


Plagiotropis on Z. marina, MHMPP,
Mar. 7, 2021, environ. distal
5 µm


Entomoneis
Skeletonema
10kV 5.8mm x2.50k BSE H
20.0µm

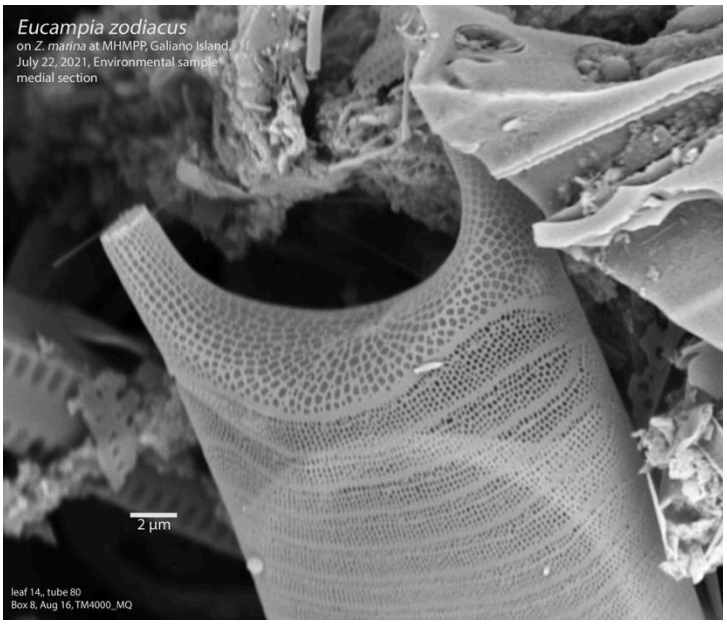
Epithemia


Epithemia sp.
on Z. marina, MHMPP,
Nov 15, 2020, PMD sections
5 µm
Zm2020_6_3NAL, Dec 18, 2020,
TE300, 60x DIC Apo oil, DR16

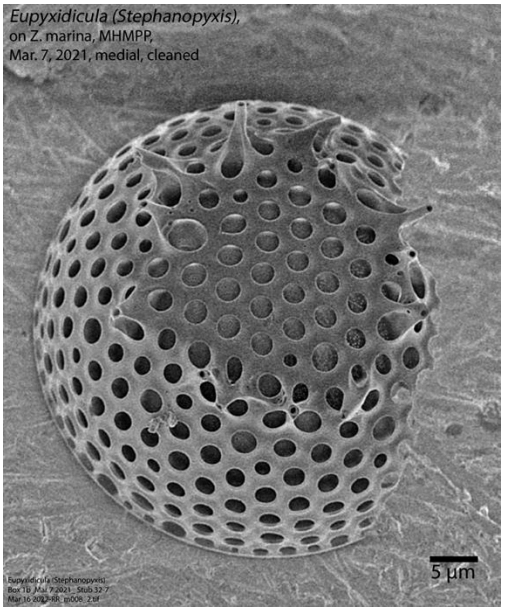

Epithemia sp.
on Z. marina, MHMPP,
Nov 15, 2020, PMD sections
5 µm
Zm2020_6_3NAL, Dec 18, 2020,
TE300, 60x DIC Apo oil, DR16

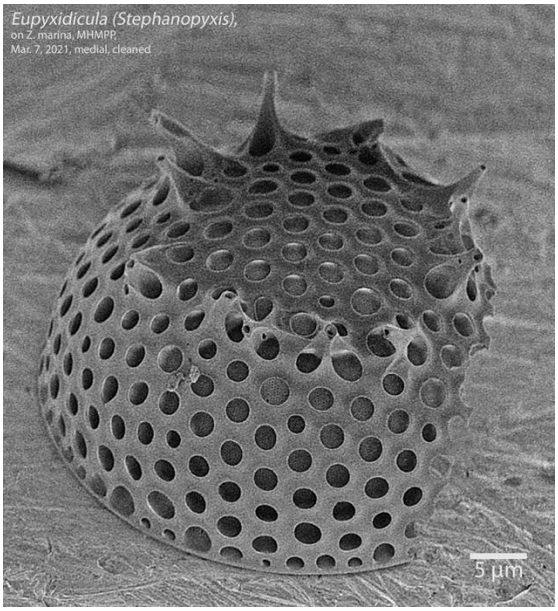
Eucampia

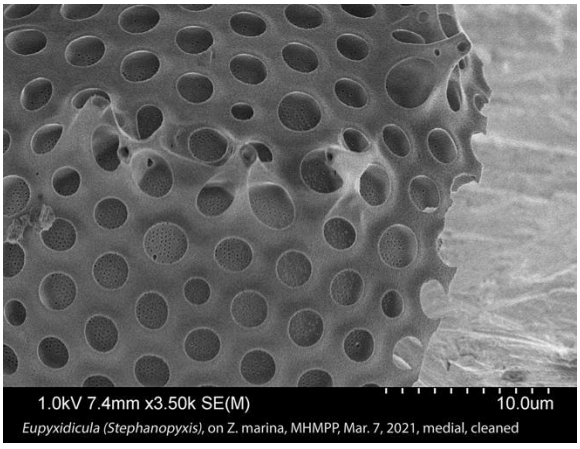

Eucampia zodiacus
on *Z. marina* at MHMPP, Galiano Island,
July 22, 2021, Environmental sample
medial section
4 µm
leaf 14,, tube 80
Box 8, Aug 16, TM4000_MQ

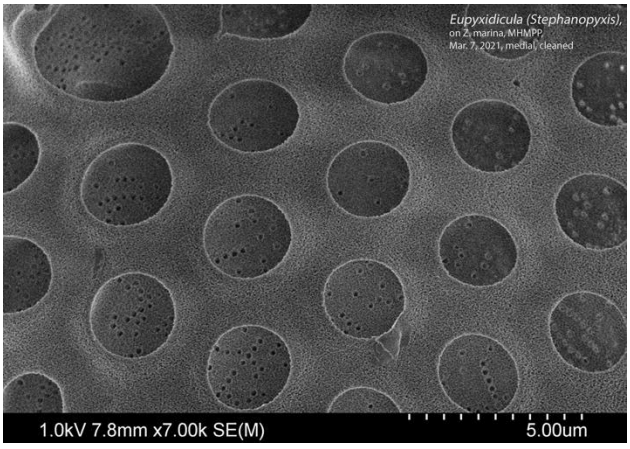

Eucampia zodiacus
on *Z. marina* at MHMPP, Galiano Island,
July 22, 2021, Environmental sample
medial section
2 µm
leaf 14,, tube 80
Box 8, Aug 16, TM4000_MQ

Eupyxidicula (Stephanopyxis)

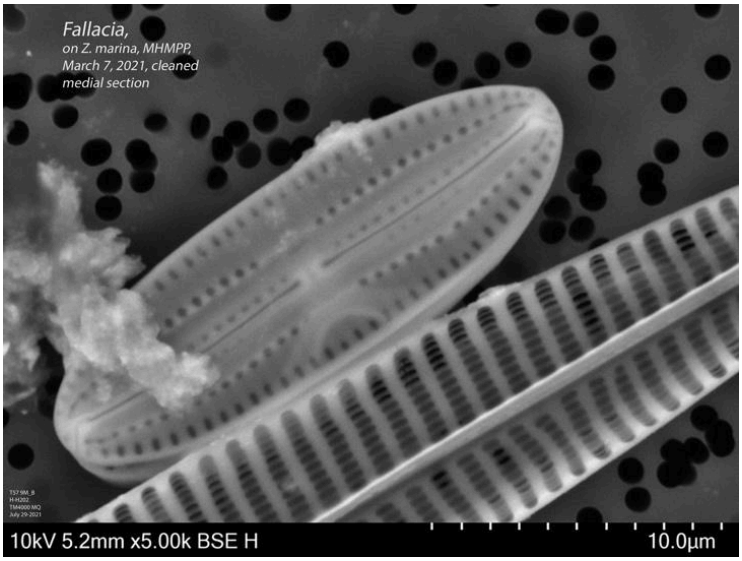




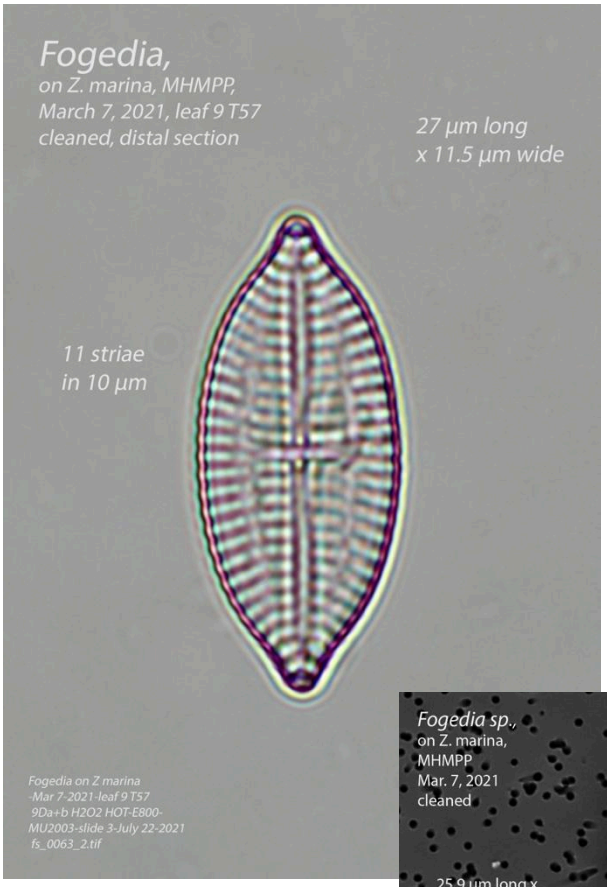


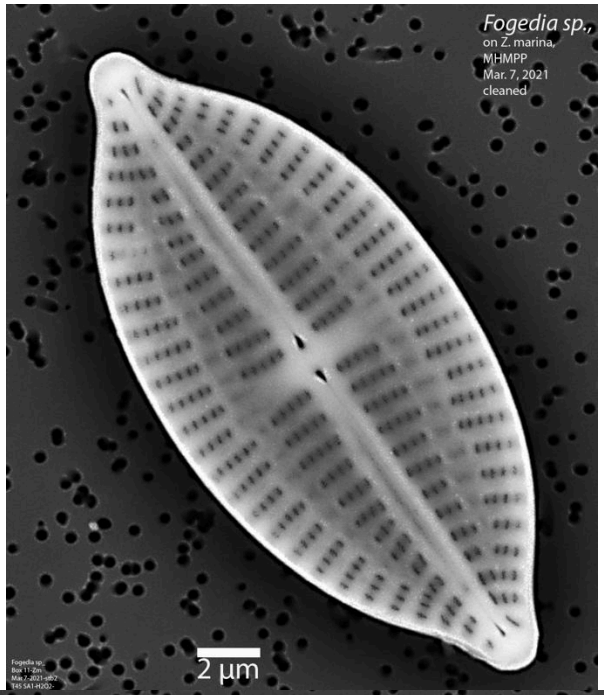


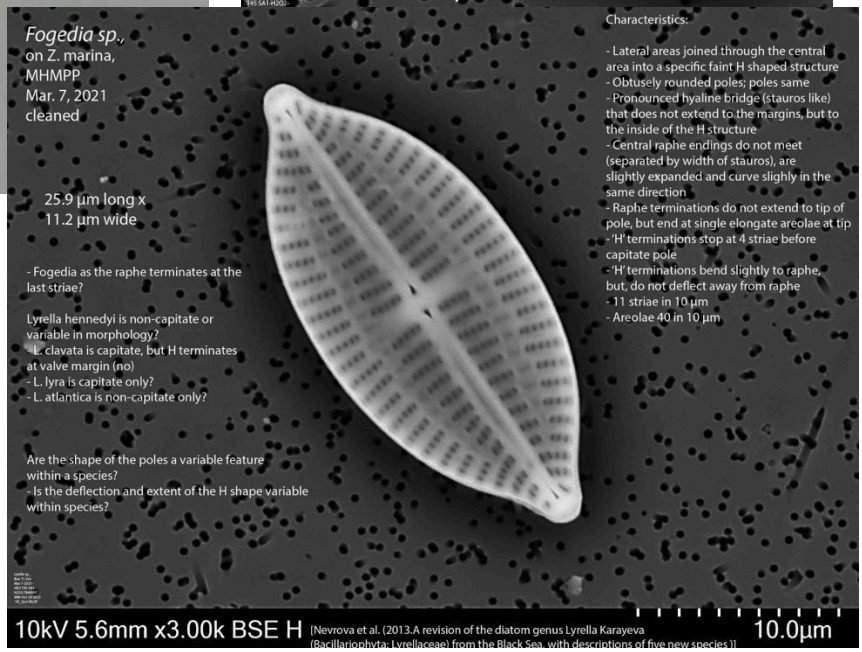
Fallacia


Fallacia,
on Z. marina, MHMPP,
March 7, 2021, cleaned
medial section
10kV 5.2mm x5.00k BSE H
10.0µm

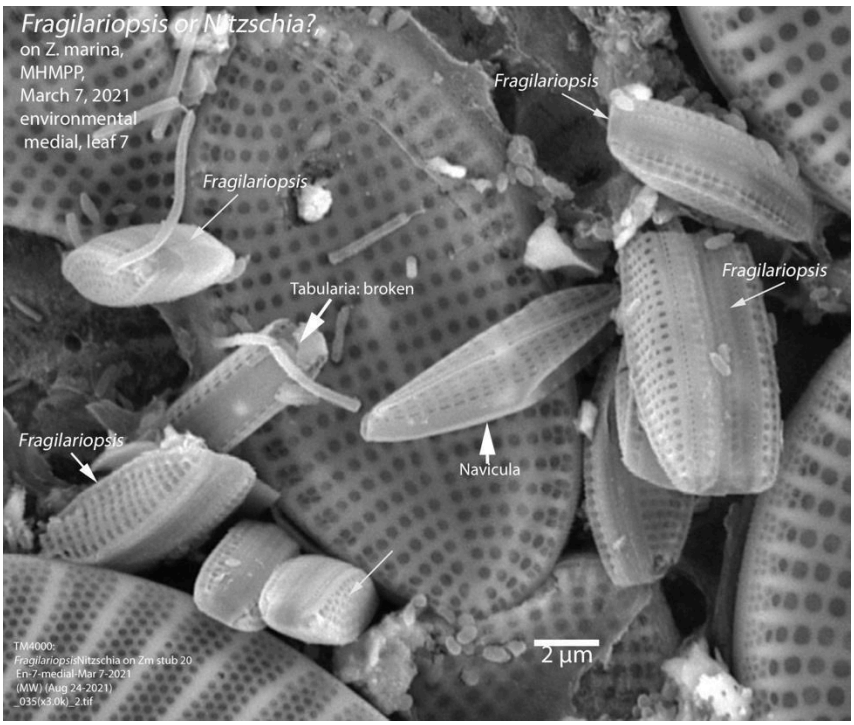
Fogedia

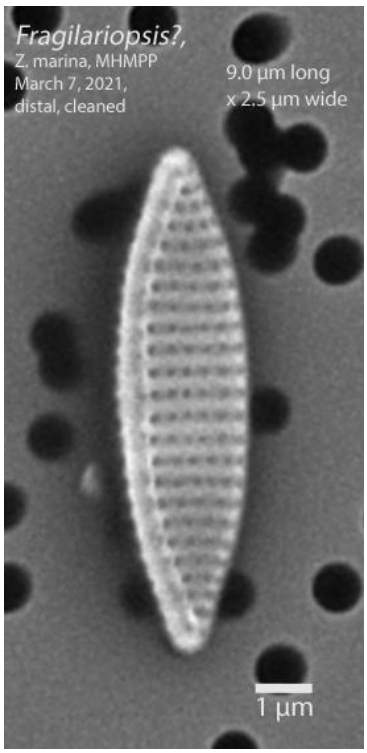

Fogedia,
on Z. marina, MHMPP,
March 7, 2021, leaf 9 T57
cleaned, distal section
27 µm long
x 11.5 µm wide
11 striae
in 10 µm
Fogedia on Z marina
-Mar 7-2021-leaf 9 T57
9Da+b H2O2 HOT-E800-
MU2003-slide 3-July 22-2021
fs_0063_2.tif


Fogedia sp.,
on Z. marina,
MHMPP
Mar. 7, 2021
cleaned
2 µm

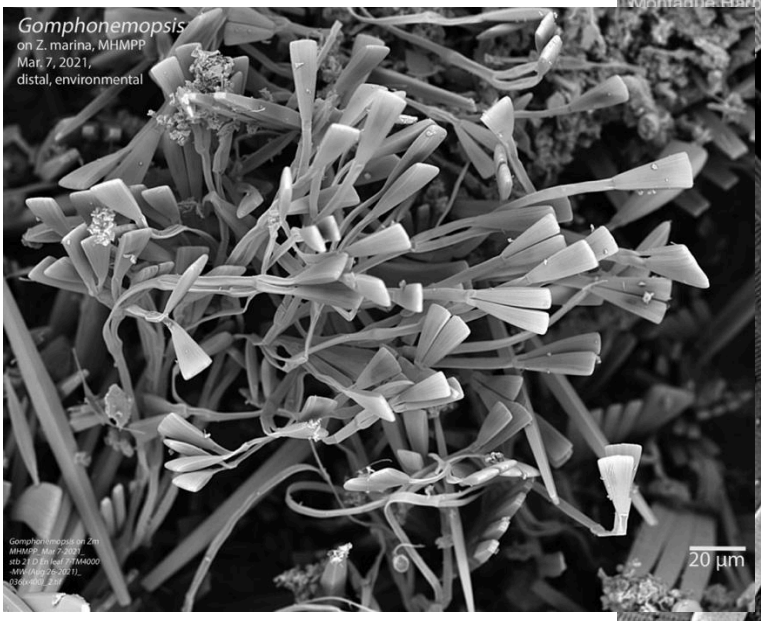

Fogedia sp.,
on Z. marina,
MHMPP
Mar. 7, 2021
cleaned
25.9 µm long x
11.2 µm wide
- Fogedia as the raphe terminates at the last striae?
Lyrella hennedyi is non-capitate or variable in morphology?
- L. clavata is capitate, but H terminates at valve margin (no)
- L. lyra is capitate only?
- L. atlantica is non-capitate only?
Are the shape of the poles a variable feature within a species?
- Is the deflection and extent of the H shape variable within species?
Characteristics:
- Lateral areas joined through the central area into a specific faint H shaped structure
- Obtusely rounded poles; poles same
- Pronounced hyaline bridge (stauros like) that does not extend to the margins, but to the inside of the H structure
- Central raphe endings do not meet (separated by width of stauros), are slightly expanded and curve slighly in the same direction
- Raphe terminations do not extend to tip of pole, but end at single elongate areolae at tip
- 'H' terminations stop at 4 striae before capitate pole
- 'H' terminations bend slightly to raphe, but, do not deflect away from raphe
- 11 striae in 10 µm
- Areolae 40 in 10 µm
10kV 5.6mm x3.00k BSE H
[Nevrova et al. (2013.A revision of the diatom genus Lyrella Karayeva (Bacillariophyta: Lyrellaceae) from the Black Sea, with descriptions of five new species.)]
10.0µm

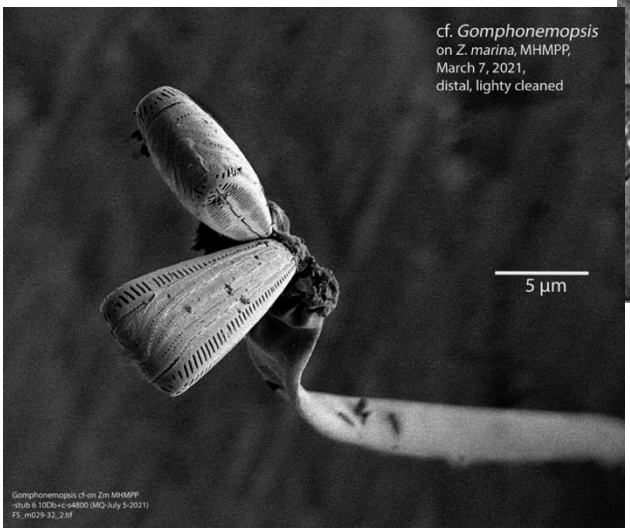
Fragilariopsis Hustedt, 1913

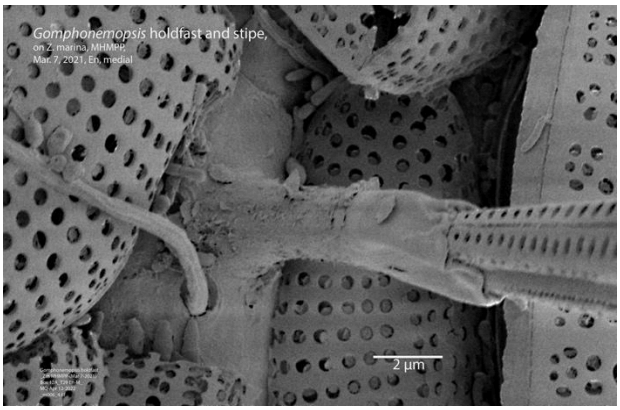


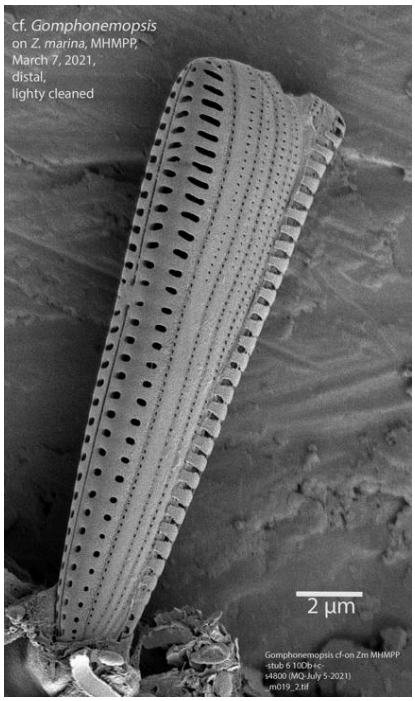


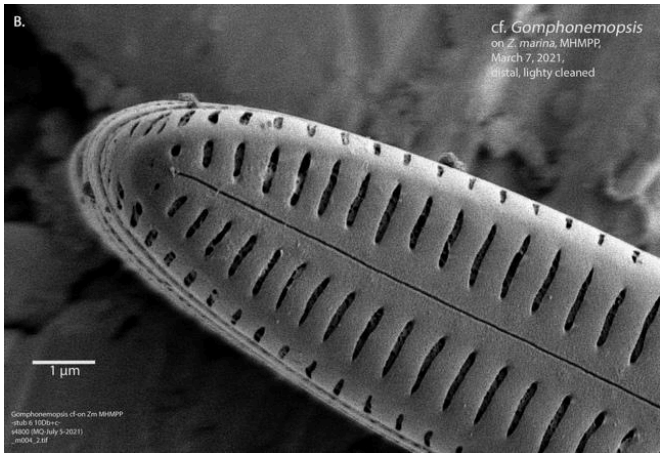
Gomphonemopsis

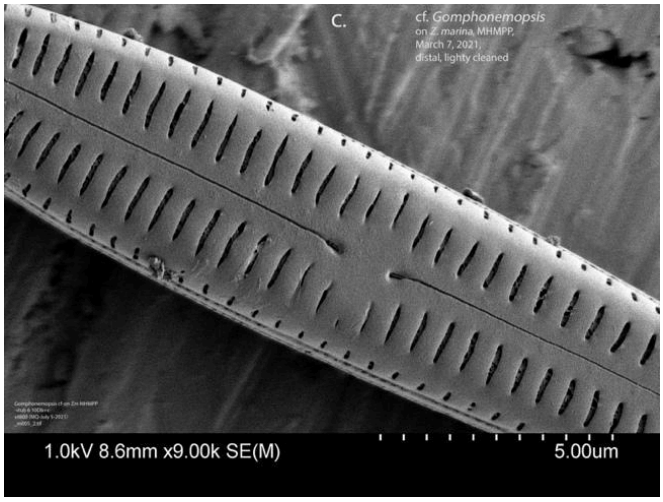


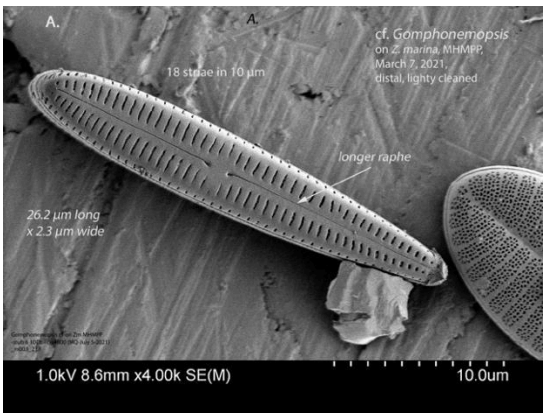


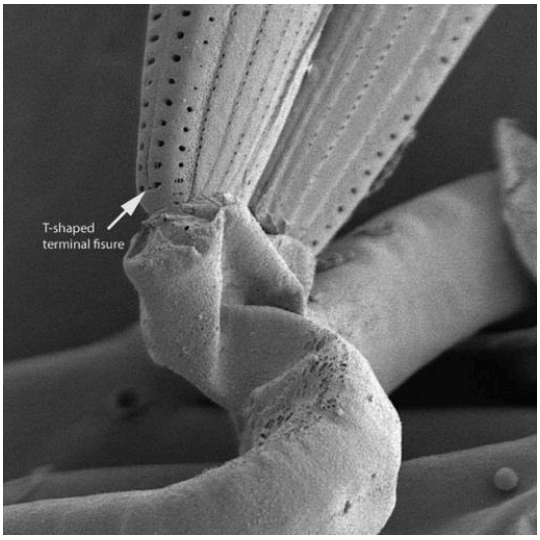


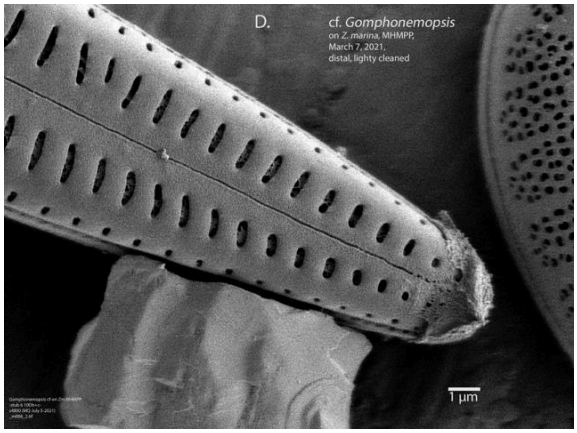

cf. Gomphonemopsis
on Z. marina, MHMPP,
March 7, 2021,
distal,
lighty cleaned
2 µm
Gomphonemopsis cf-on Zm MHMPP
-stub 6 10Db+c-
s4800 (MQ-July 5-2021)
_m019_2.tif


B.
cf. Gomphonemopsis
on Z. marina, MHMPP,
March 7, 2021,
distal, lighty cleaned
1 µm

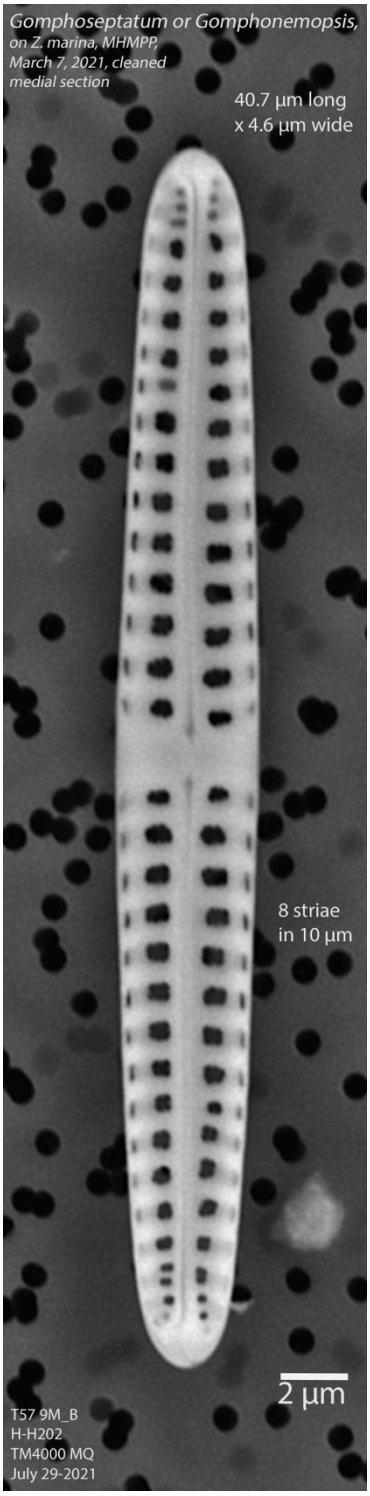

C.
cf. Gomphonemopsis
on Z. marina, MHMPP,
March 7, 2021,
distal, lighty cleaned
1.0kV 8.6mm x9.00k SE(M)
5.00um


A.
cf. Gomphonemopsis
on Z. marina, MHMPP,
March 7, 2021,
distal, lighty cleaned
18 striae in 10 µm
longer raphe
26.2 µm long
x 2.3 µm wide
1.0kV 8.6mm x4.00k SE(M)
10.0um

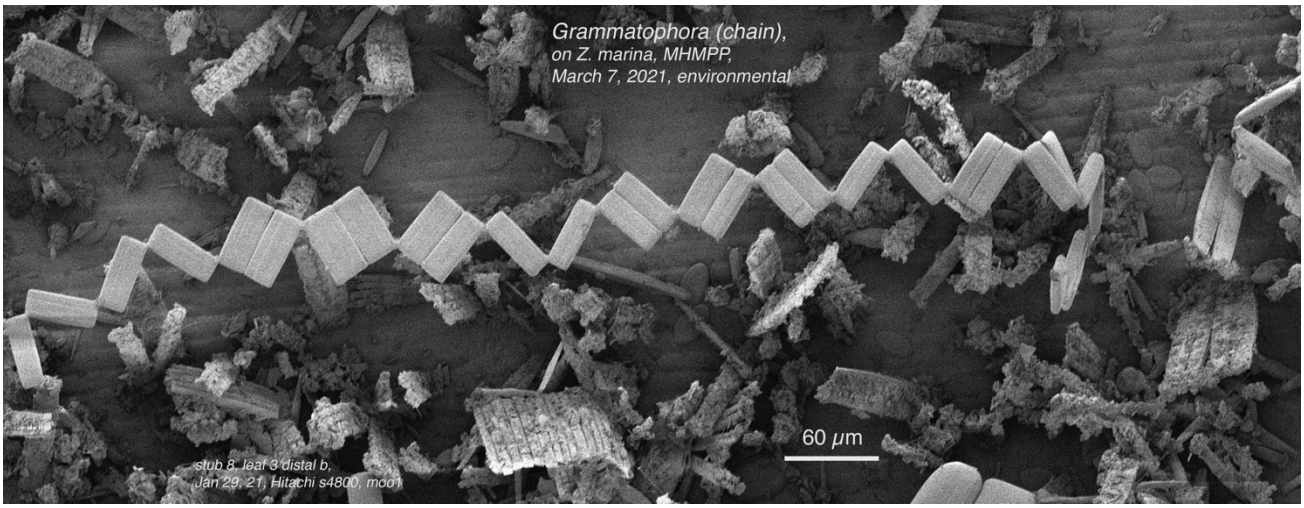

T-shaped
terminal fisure

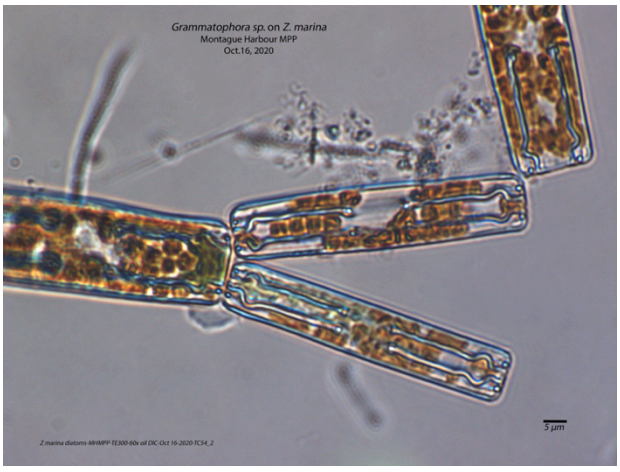

D.
cf. Gomphonemopsis
on Z. marina, MHMPP,
March 7, 2021,
distal, lighty cleaned
1 µm

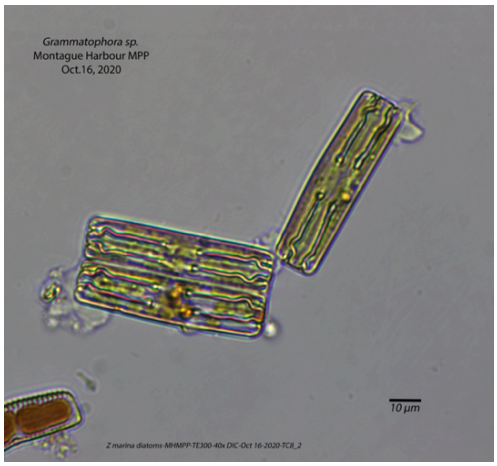
Gomphoseptatum (possible)

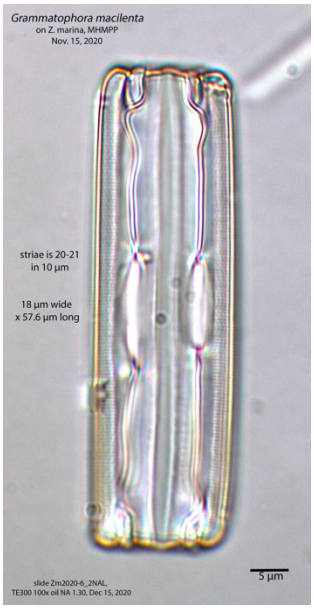


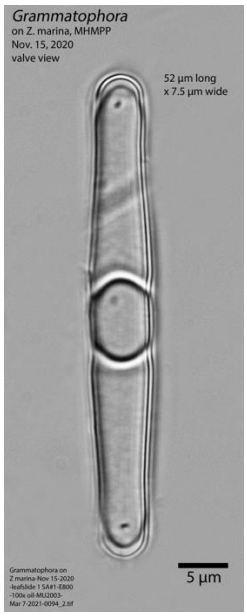
Grammatophora

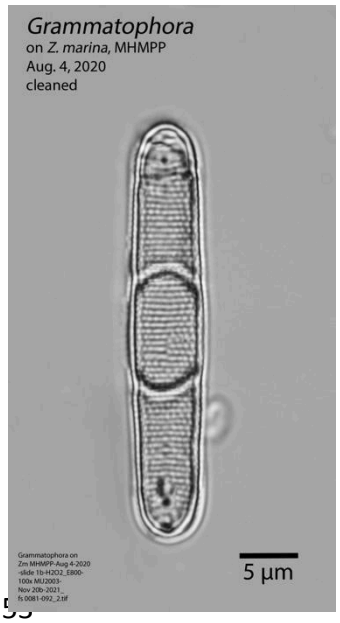


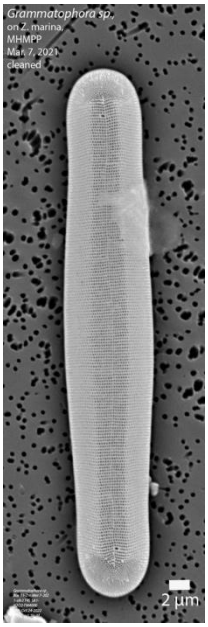




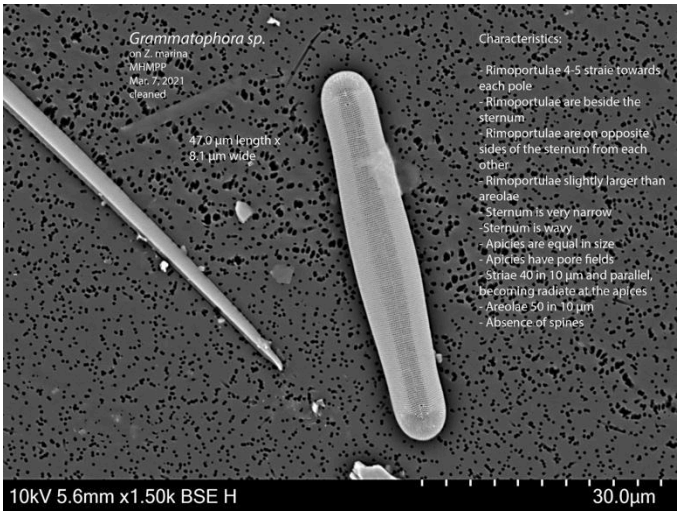




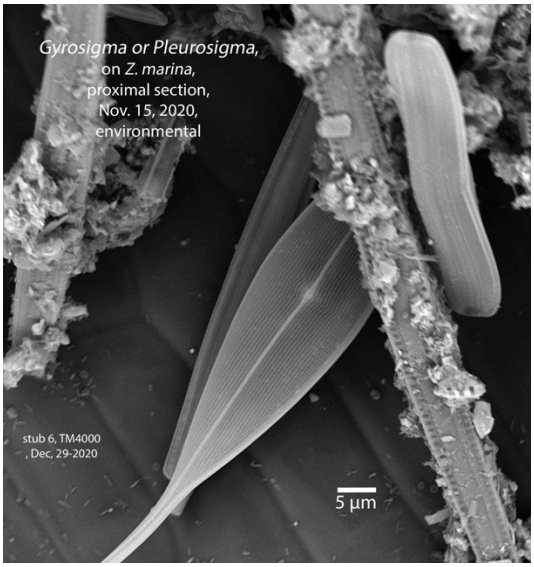


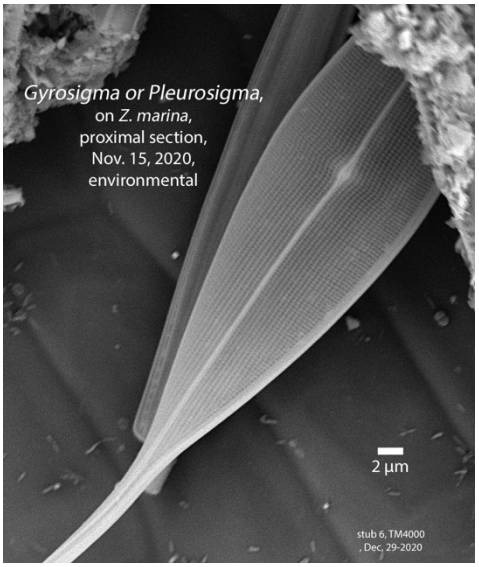


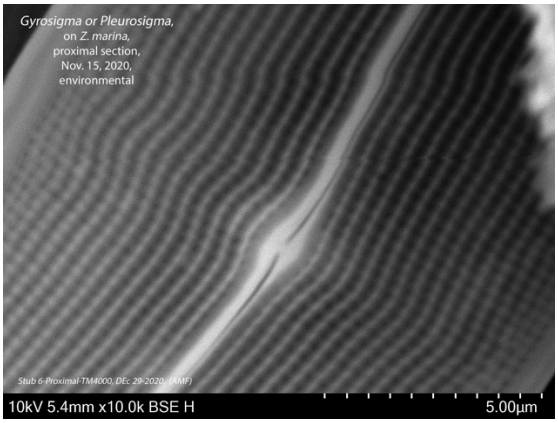

Grammatophora and *Tabularia*
on *Z. marina*, MHMPP, March 7, 2021, live
medial section
10 µm


Grammatophora sp.
on Z. marina
MHMPP
Mar. 7, 2021
cleaned
47.0 µm length x
8.1 µm wide
Characteristics:
- Rimoportulae 4-5 striae towards each pole
- Rimoportulae are beside the sternum
- Rimoportulae are on opposite sides of the sternum from each other
- Rimoportulae slightly larger than areolae
- Sternum is very narrow
- Sternum is wavy
- Apicies are equal in size
- Apicies have pore fields
- Striae 40 in 10 µm and parallel, becoming radiate at the apices
- Areolae 50 in 10 µm
- Absence of spines
10kV 5.6mm x1.50k BSE H
30.0µm

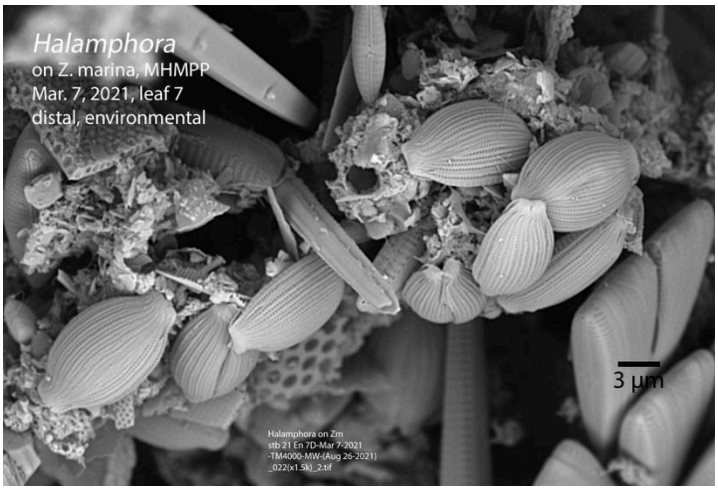
Gyrosigma

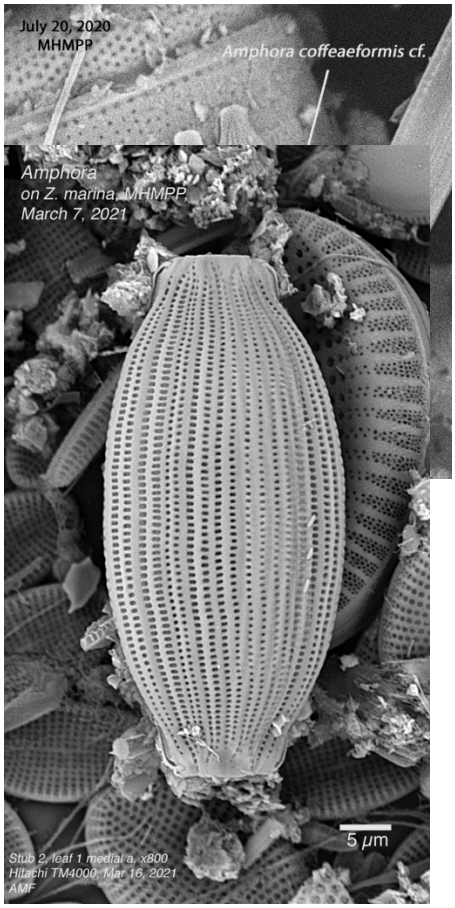

Gyrosigma or Pleurosigma,
on *Z. marina*,
proximal section,
Nov. 15, 2020,
environmental
stub 6, TM4000
, Dec, 29-2020
5 µm

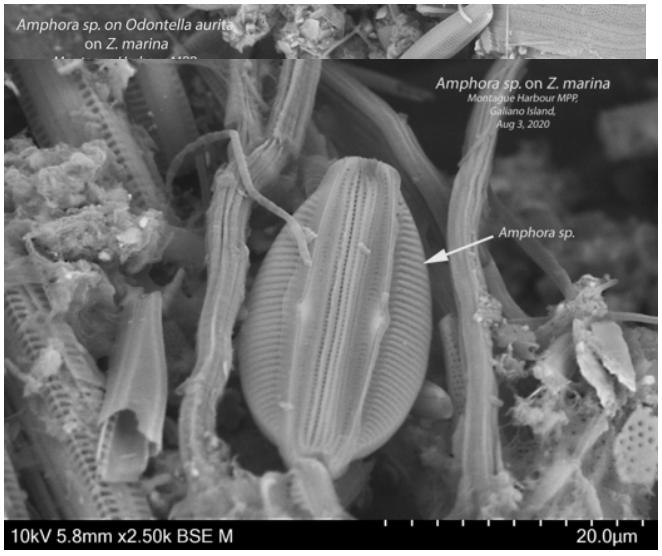

Gyrosigma or Pleurosigma,
on *Z. marina*,
proximal section,
Nov. 15, 2020,
environmental
2 µm
stub 6, TM4000
, Dec, 29-2020


Gyrosigma or Pleurosigma,
on *Z. marina*,
proximal section,
Nov. 15, 2020,
environmental
Stub 6-Proximal-TM4000, DEc 29-2020 (MF)
10kV 5.4mm x10.0k BSE H
5.00µm

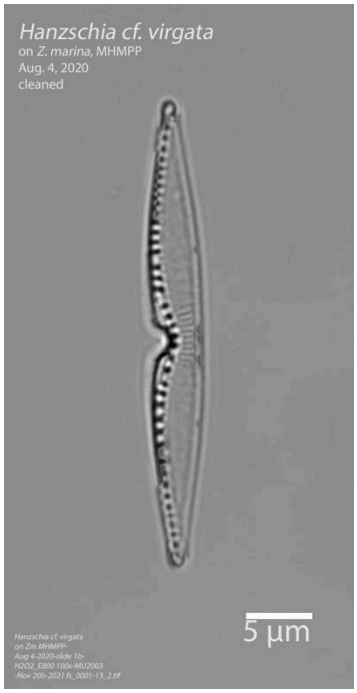
Halamphora


Halamphora
on Z. marina, MHMPP
Mar. 7, 2021, leaf 7
distal, environmental
3 µm
Halamphora on Zm
stb 21 En 7D-Mar 7-2021
-TM4000-MW-(Aug 26-2021)
_022(x1.5k)_2.tif

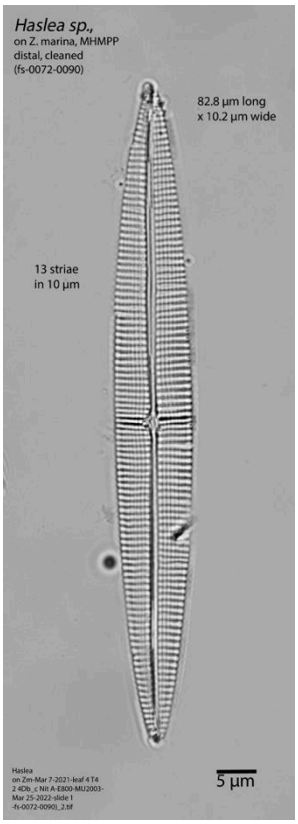

July 20, 2020
MHMPP
Amphora coffeaeformis cf.
Amphora
on Z. marina, MHMPP
March 7, 2021
5 µm
Stub 2, leaf 1 medial a, x800
Hitachi TM4000, Mar 16, 2021
AMF

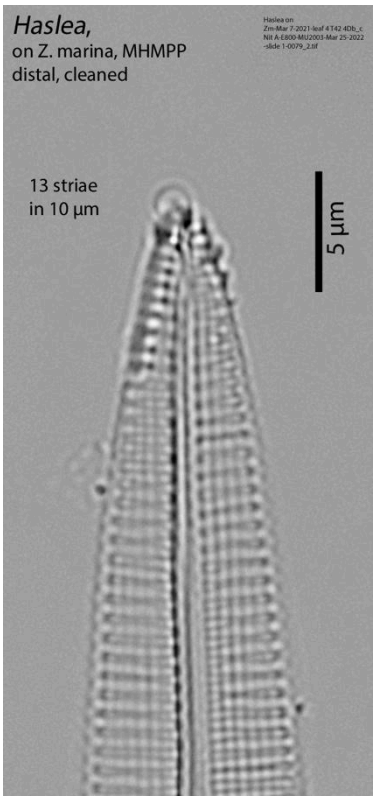

Amphora sp. on Odontella aurita
on Z. marina
Amphora sp. on Z. marina
Montague Harbour MPP,
Galiano Island,
Aug 3, 2020
Amphora sp.
10kV 5.8mm x2.50k BSE M
20.0µm

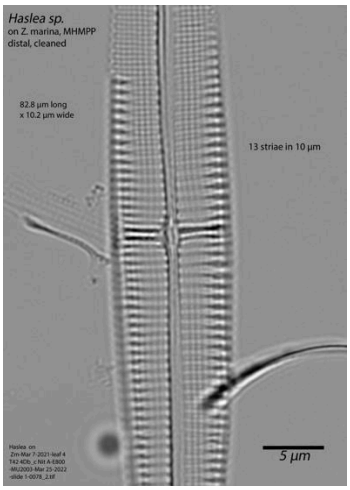
Hanzschia

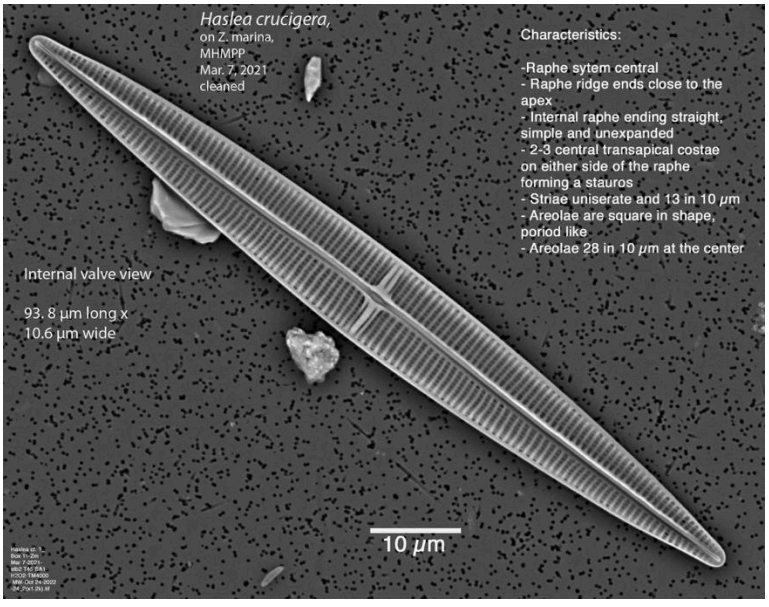

Hanzschia cf. virgata
on Z. marina, MHMPP
Aug. 4, 2020
cleaned
5 µm
Hanzschia cf. virgata
on Zm MHMPP-
Aug 4-2020-slide 1b-
H2O2_E800 100x-MU2003
-Nov 20th-2021 fs_0001-13_2.tif

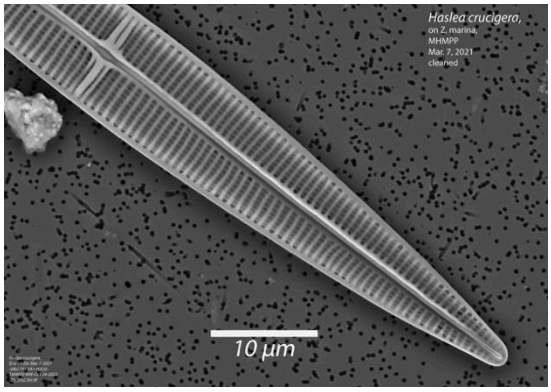
Haslea Simonsen, 1974





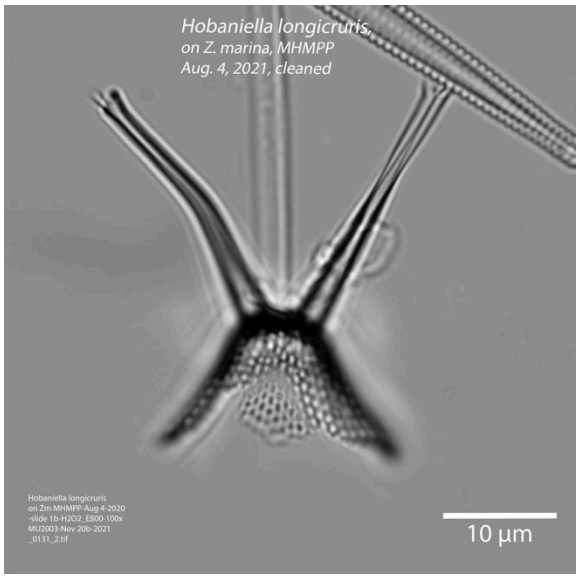




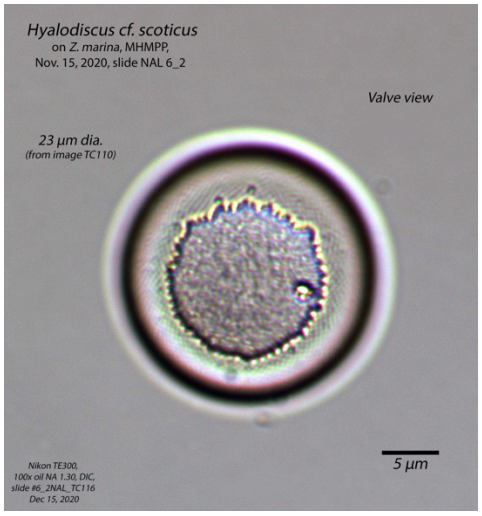


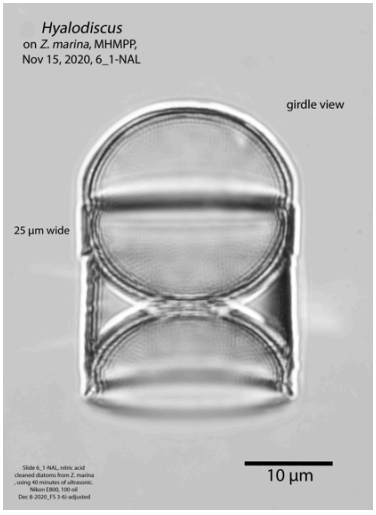
Hobaniella

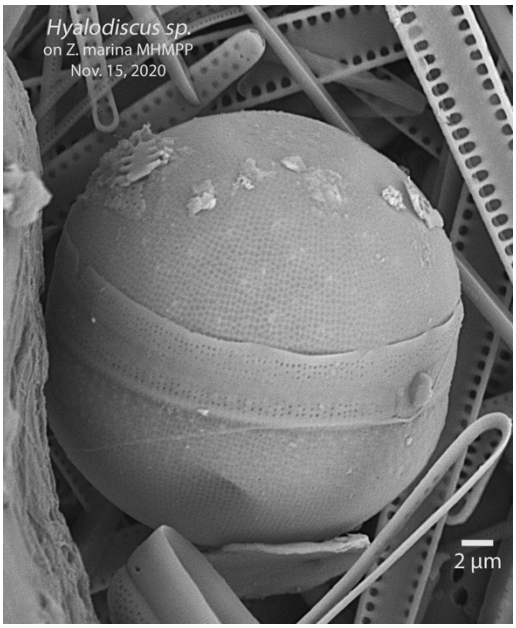

Hobaniella longicruris,
on Z. marina, MHMPP
Aug. 4, 2021, cleaned
52 stacked images
Hobaniella longicruris
on Zm MHMPP-Aug 4-2020
-slide 1b-H2O2_E800-100x
MU2003-Nov 20b-2021
_fs 0240-291_2.tif
10 µm

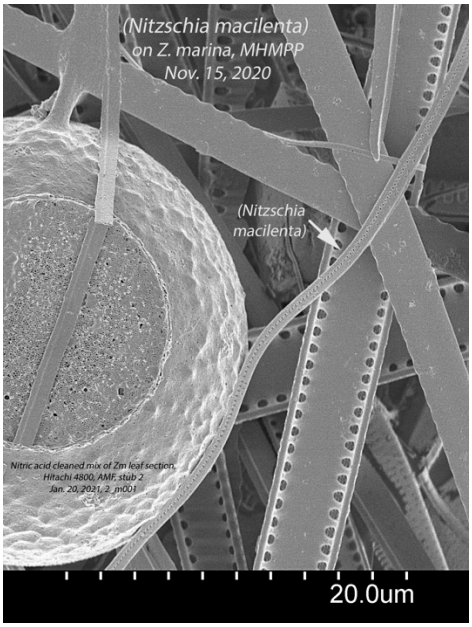

Hobaniella longicruris,
on Z. marina, MHMPP
Aug. 4, 2021, cleaned
Hobaniella longicruris
on Zm MHMPP-Aug 4-2020
-slide 1b-H2O2_E800-100x
MU2003-Nov 20b-2021
_0131_2.tif
10 µm

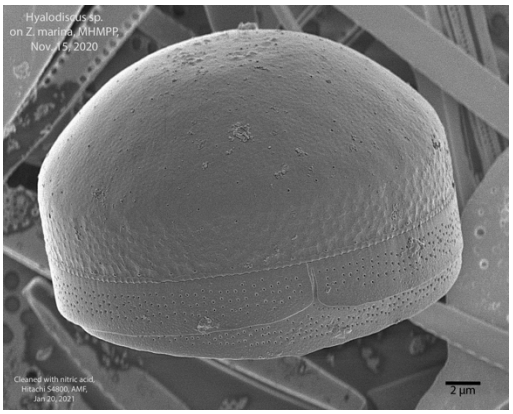
Hyalodiscus

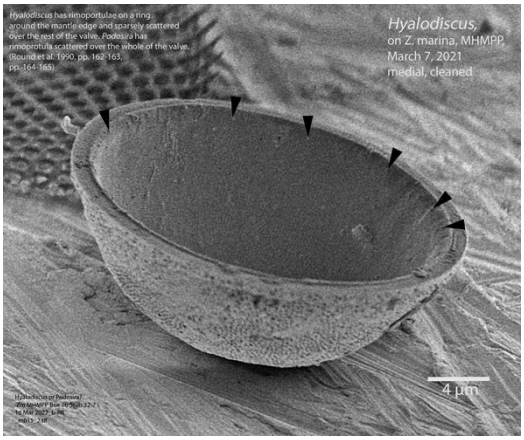


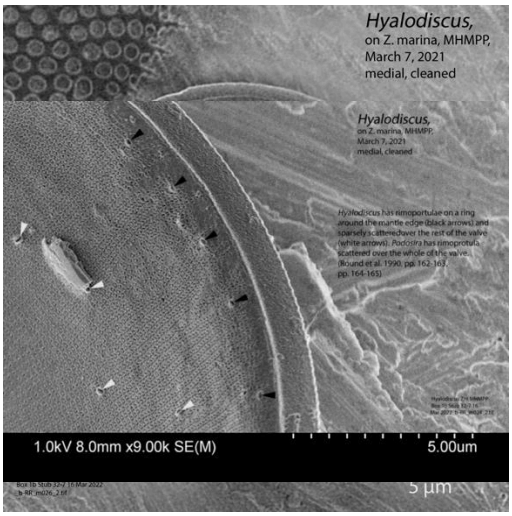


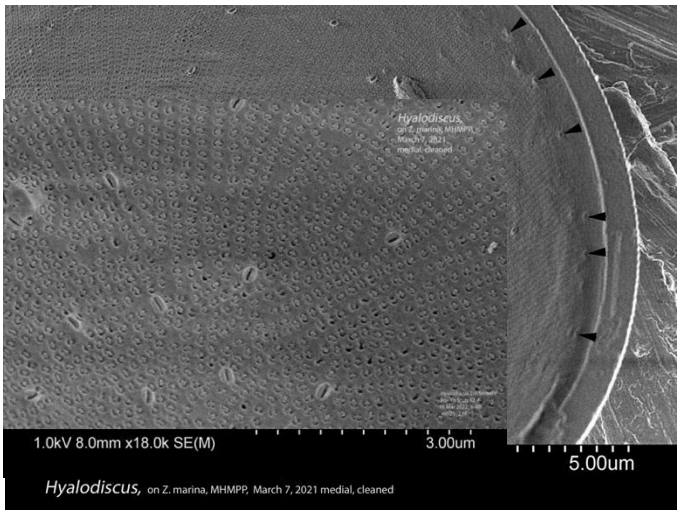


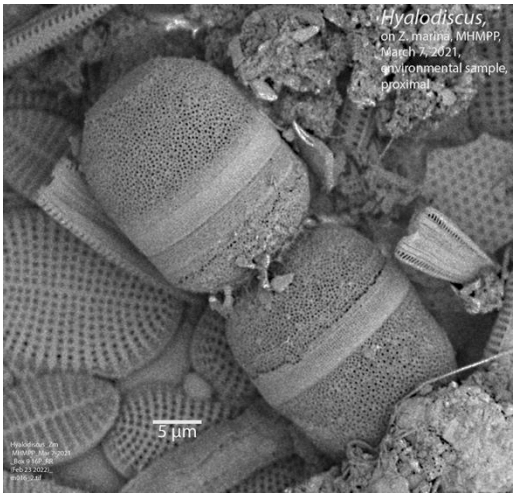


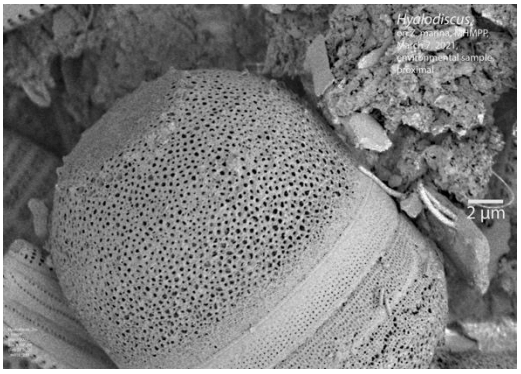




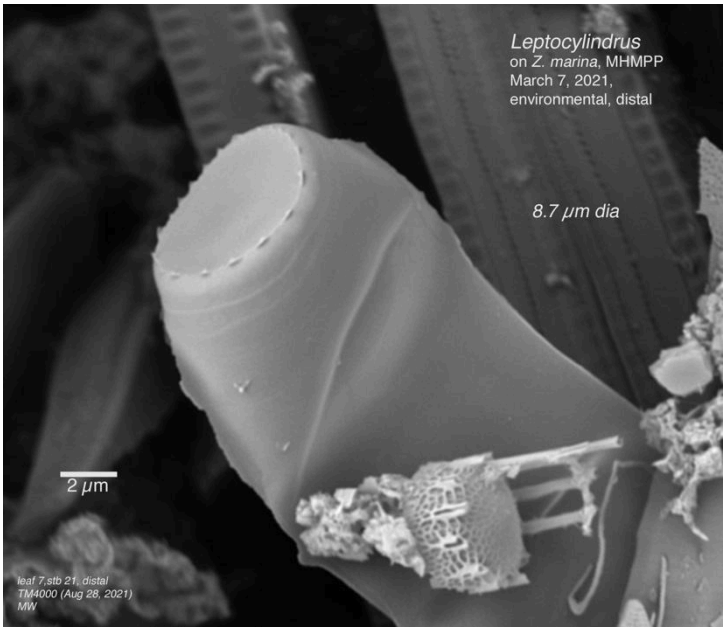

Hyalodiscus,
on Z. marina, MHMPP,
March 7, 2021
medial, cleaned
Hyalodiscus,
on Z. marina, MHMPP,
March 7, 2021
medial, cleaned
Hyalodiscus has rimoportulae on a ring around the mantle edge (black arrows) and sparsely scattered over the rest of the valve (white arrows). *Podosira* has rimoportula scattered over the whole of the valve. (Round et al. 1990 pp. 162-167, pp. 164-165)
1.0kV 8.0mm x9.00k SE(M)
5.00um
5 µm


Hyalodiscus,
on Z. marina, MHMPP,
March 7, 2021
medial, cleaned
1.0kV 8.0mm x18.0k SE(M)
3.00um
5.00um
Hyalodiscus, on Z. marina, MHMPP, March 7, 2021 medial, cleaned


Hyalodiscus,
on Z. marina, MHMPP,
March 7, 2021,
environmental sample,
proximal
5 µm


Hyalodiscus,
2 µm

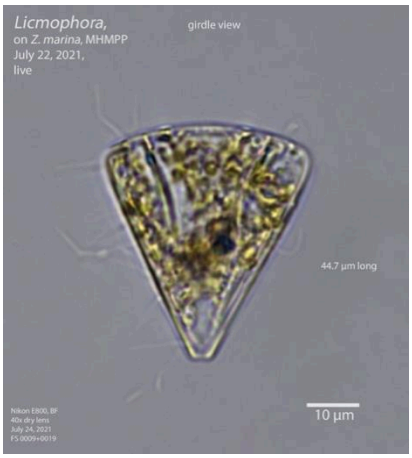
Leptocylindrus

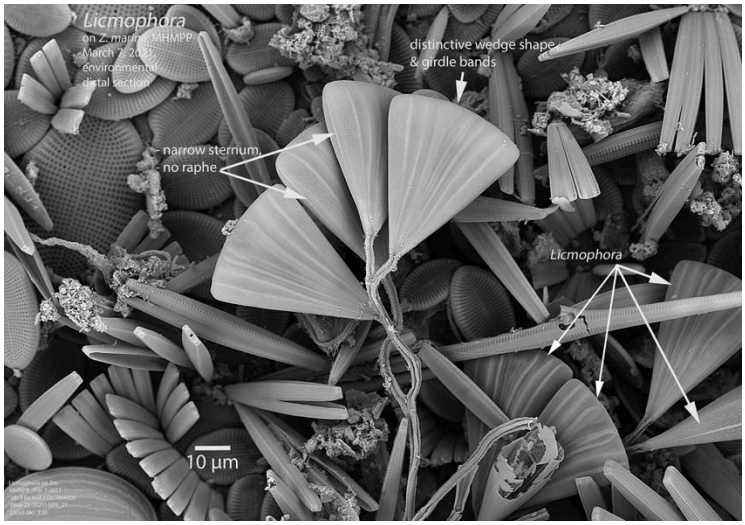


Licmophora

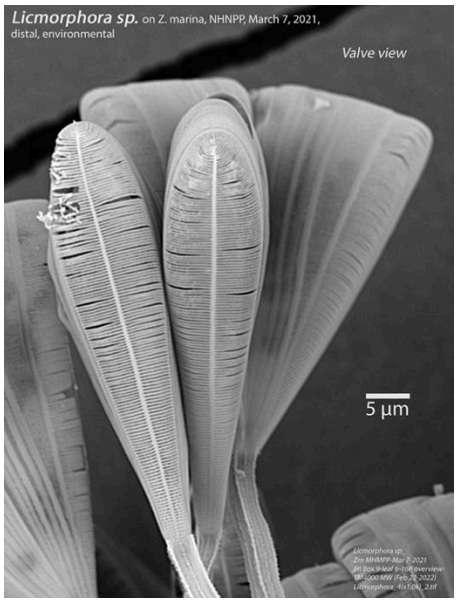

Licmophora
on Z. marina,
MHMPP
Nov. 7, 2021
20 µm

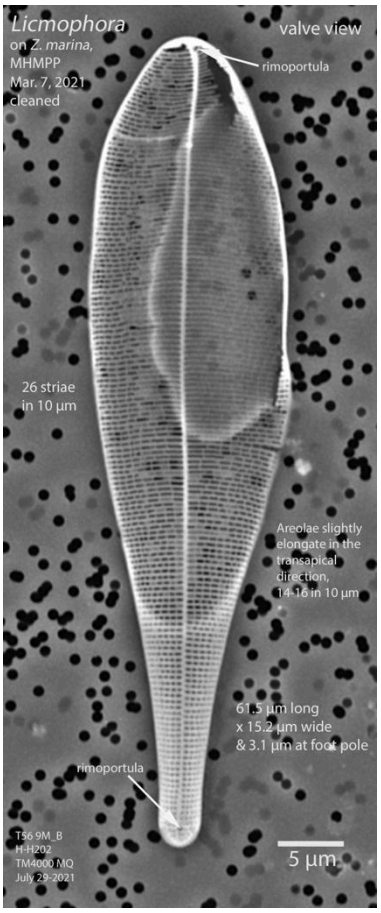

Licmophora,
on Z. marina, MHMPP
July 22, 2021,
live
girdle view
46.5 µm long
10 µm

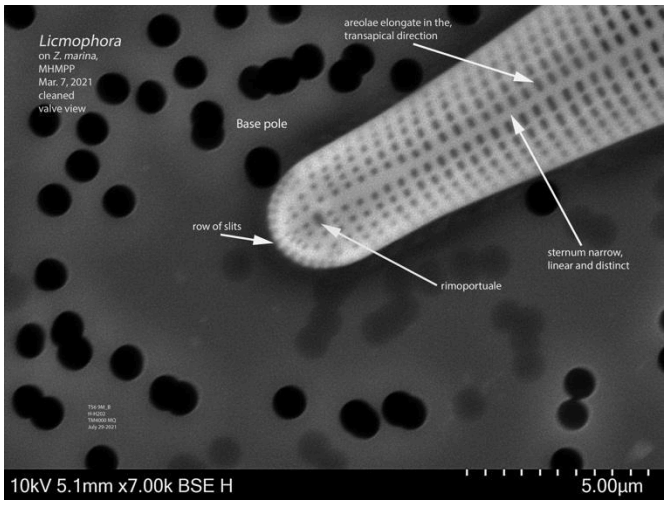

Licmophora,
on Z. marina, MHMPP
July 22, 2021,
live
girdle view
44.7 µm long
10 µm


Licmophora
distinctive wedge shape
& girdle bands
narrow sternum
no raphe
Licmophora
10 µm


Licmorphora sp.
on Z. marina, NHNPP,
March 7, 2021,
distal, environmental
20 µm

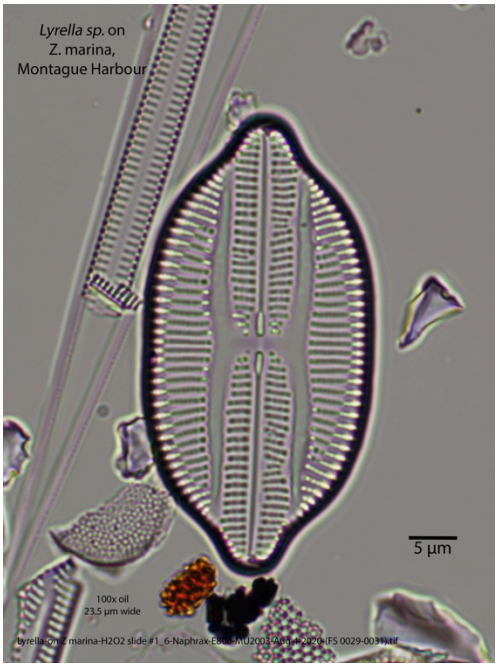

Licmorphora sp. on Z. marina, NHNPP, March 7, 2021,
distal, environmental
Valve view
5 µm

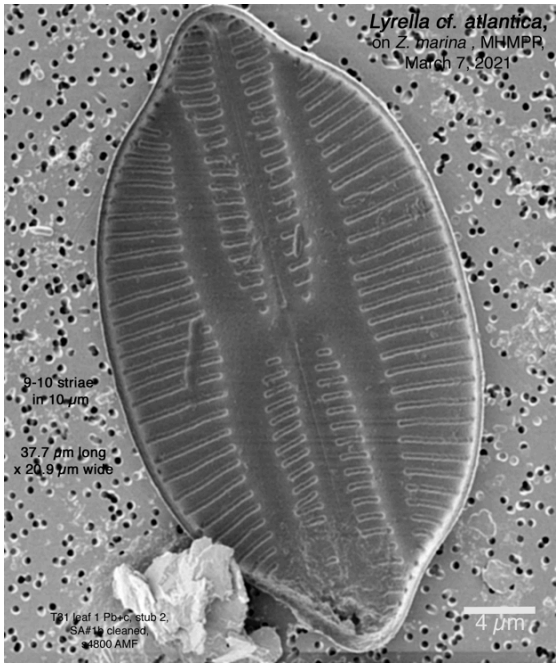

Licmophora
on Z. marina,
MHMPP
Mar. 7, 2021
cleaned
valve view
rimoportula
26 striae
in 10 µm
Areolae slightly
elongate in the
transapical
direction,
14-16 in 10 µm
61.5 µm long
x 15.2 µm wide
& 3.1 µm at foot pole
rimoportula
T56 9M_B
H-H202
TM4000 MQ
July 29-2021
5 µm


Licmophora
on Z. marina,
MHMPP
Mar. 7, 2021
cleaned
valve view
areolae elongate in the,
transapical direction
Base pole
row of slits
sternum narrow,
linear and distinct
rimoportuale
10kV 5.1mm x7.00k BSE H
5.00µm

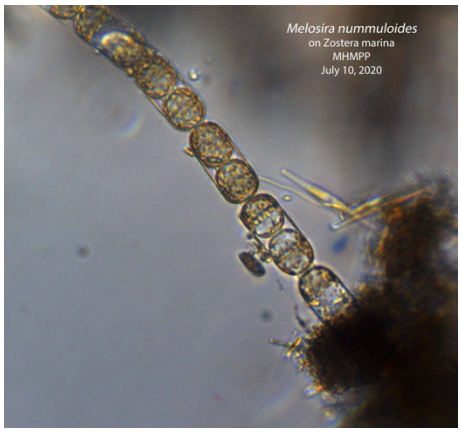

Licmophora on Z. marina,
MHMPP, Nov. 7, 2021
10 µm

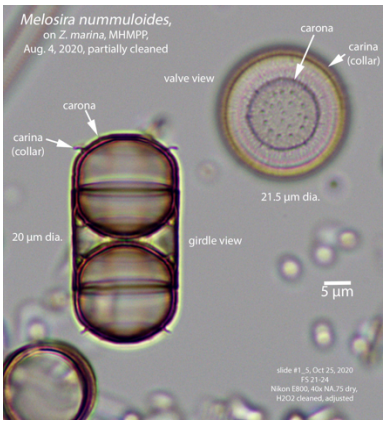
Lyrella

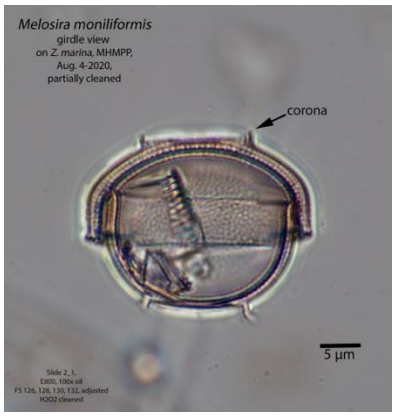

Lyrella sp. on
Z. marina,
Montague Harbour
5 µm
100x oil
23.5 µm wide

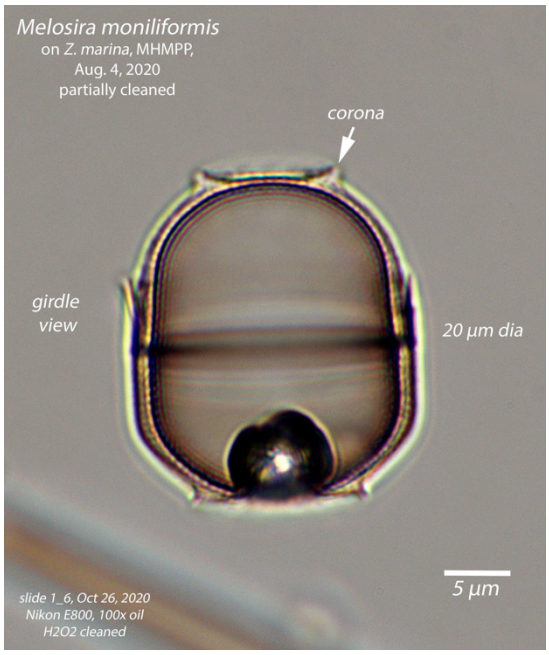

Lyrella cf. atlantica,
on *Z. marina* , MHMPR,
March 7, 2021
9-10 striae
in 10 µm
37.7 µm long
x 20.9 µm wide
4 µm

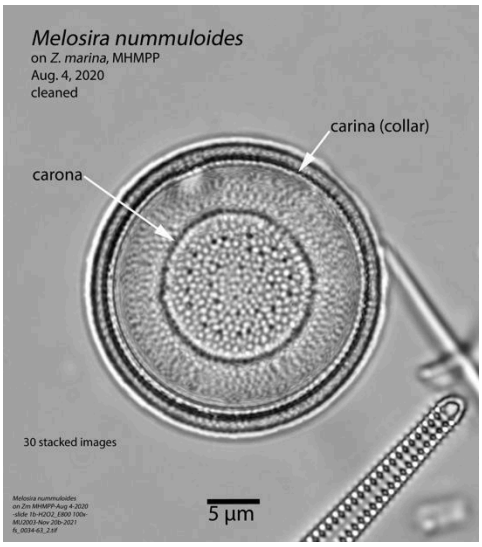
Melosira


Melosira nummuloides
on Zostera marina
MHMPP
July 10, 2020

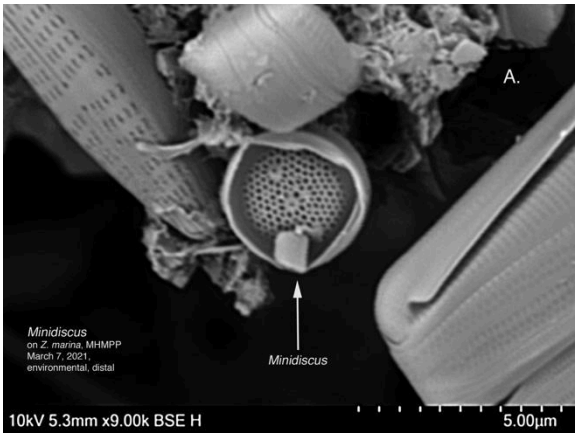

Melosira nummuloides,
on Z. marina, MHMPP,
Aug. 4, 2020, partially cleaned
carona
carina
(collar)
valve view
carona
carina
(collar)
21.5 µm dia.
20 µm dia.
girdle view
5 µm
slide #1_5, Oct 25, 2020
FS 21-24
Nikon E800, 40x NA.75 dry,
H2O2 cleaned, adjusted

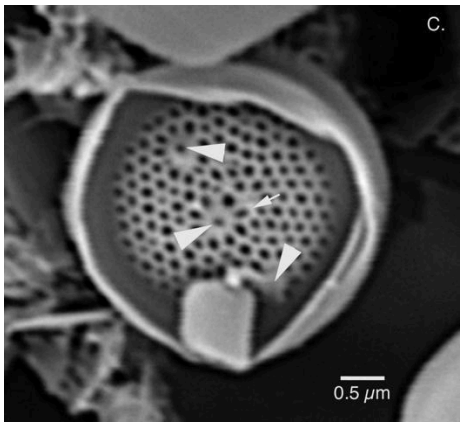

Melosira moniliformis
girdle view
on Z. marina, MHMPP,
Aug. 4-2020,
partially cleaned
corona
5 µm
Slide 2_1,
E800, 100x oil
FS 126, 128, 130, 132, adjusted
H2O2 cleaned

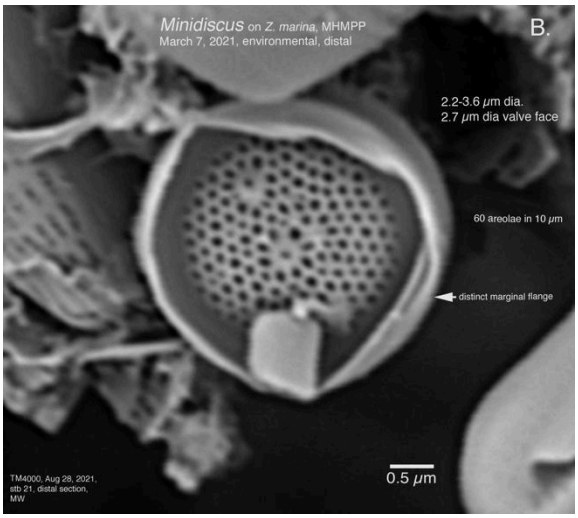

Melosira moniliformis
on Z. marina, MHMPP,
Aug. 4, 2020
partially cleaned
corona
girdle
view
20 µm dia
5 µm
slide 1_6, Oct 26, 2020
Nikon E800, 100x oil
H2O2 cleaned


Melosira nummuloides
on Z. marina, MHMPP
Aug. 4, 2020
cleaned
carina (collar)
carona
30 stacked images
5 µm

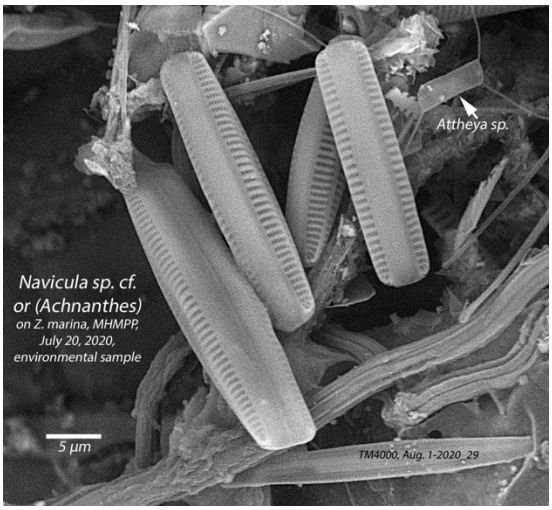
Minidiscus

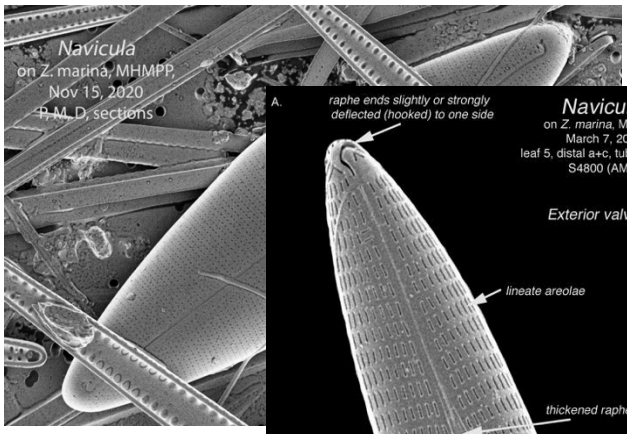

A.
Minidiscus
on Z. marina, MHMPP
March 7, 2021,
environmental, distal
Minidiscus
10kV 5.3mm x9.00k BSE H
5.00µm

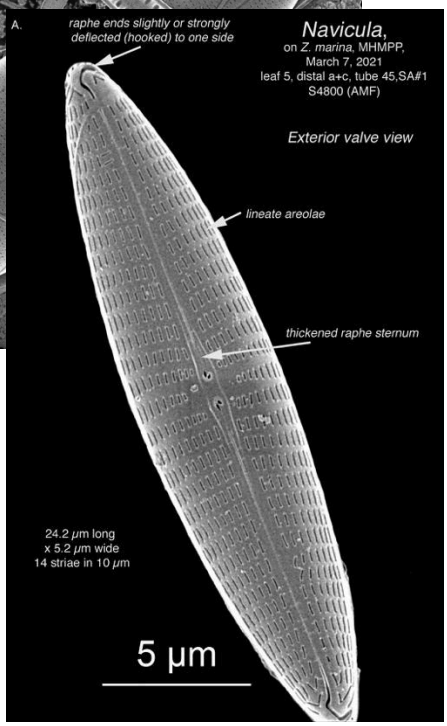

C.
0.5 µm

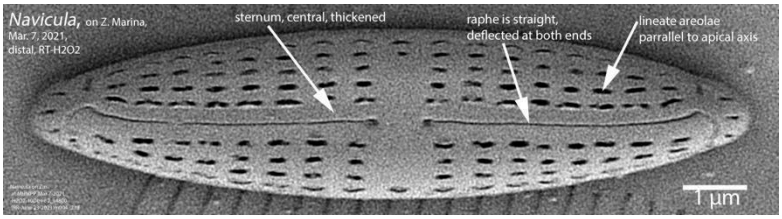

Minidiscus on Z. marina, MHMPP
March 7, 2021, environmental, distal
B.
2.2-3.6 µm dia.
2.7 µm dia valve face
60 areolae in 10 µm
distinct marginal flange
TM4000, Aug 28, 2021,
stb 21, distal section,
MW
0.5 µm

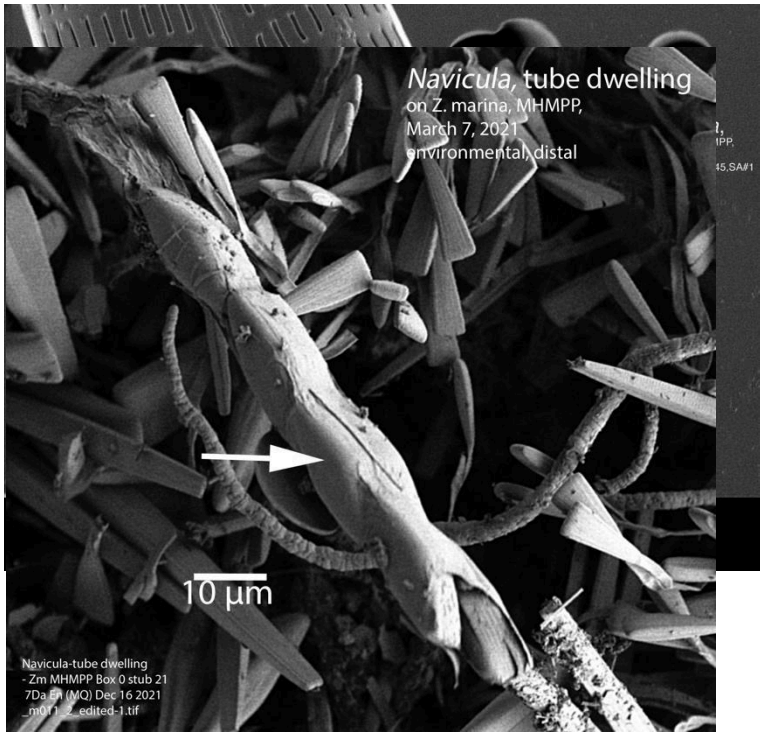
Navicula

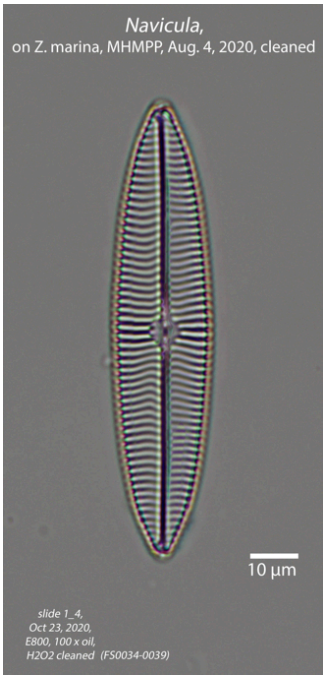

Attheya sp.
Navicula sp. cf.
or (Achnanthes)
on Z. marina, MHMPP,
July 20, 2020,
environmental sample
5 µm
TM4000, Aug. 1-2020_29

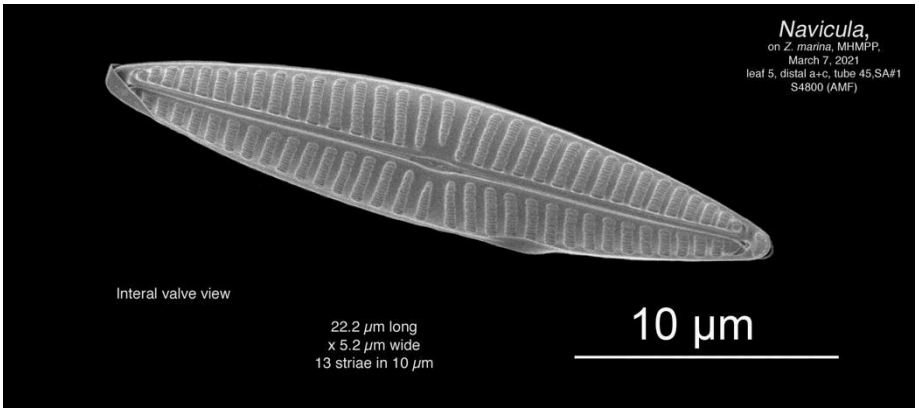

Navicula
on Z. marina, MHMPP,
Nov 15, 2020
P, M, D, sections

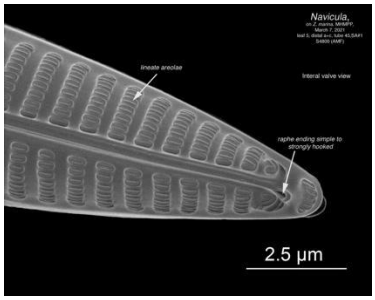

A.
raphe ends slightly or strongly
deflected (hooked) to one side
Navicula,
on Z. marina, MHMPP,
March 7, 2021
leaf 5, distal a+c, tube 45,SA#1
S4800 (AMF)
Exterior valve view
lineate areolae
thickened raphe sternum
24.2 µm long
x 5.2 µm wide
14 striae in 10 µm
5 µm


Navicula, on Z. Marina,
Mar. 7, 2021,
distal, RT-H2O2
sternum, central, thickened
raphe is straight,
deflected at both ends
lineate areolae
parrallel to apical axis
1 µm

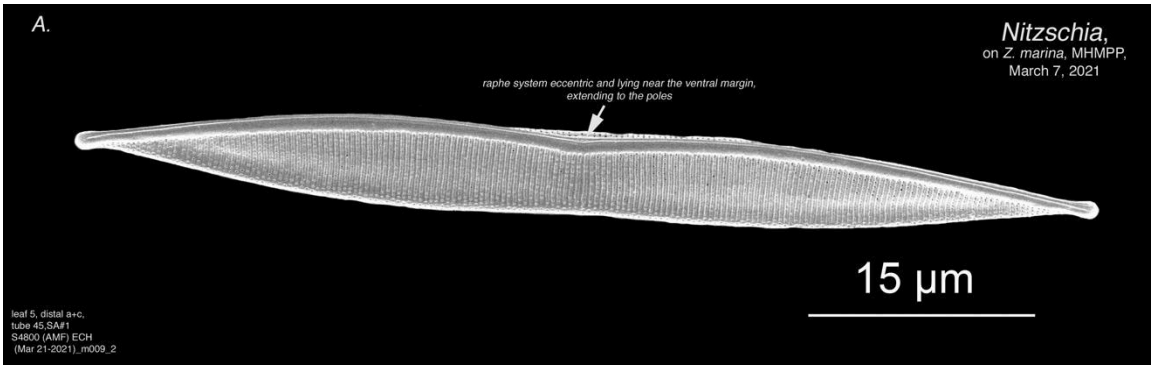

Navicula, tube dwelling
on Z. marina, MHMPP,
March 7, 2021
environmental, distal
10 µm
Navicula-tube dwelling
- Zm MHMPP Box 0 stub 21
7Da E1 (MQ) Dec 16 2021
_m011_2_edited-1.tif

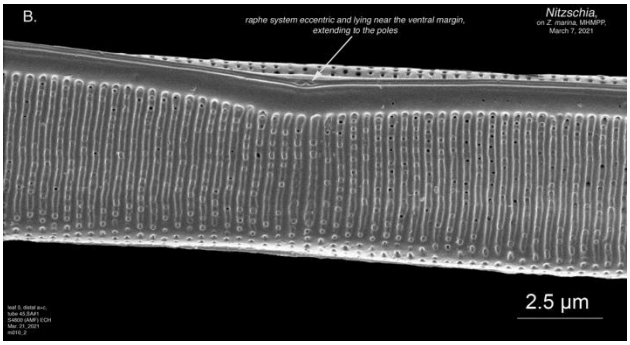

Navicula,
on Z. marina, MHMPP, Aug. 4, 2020, cleaned
10 µm
slide 1_4,
Oct 23, 2020,
E800, 100 x oil,
H2O2 cleaned (FS0034-0039)

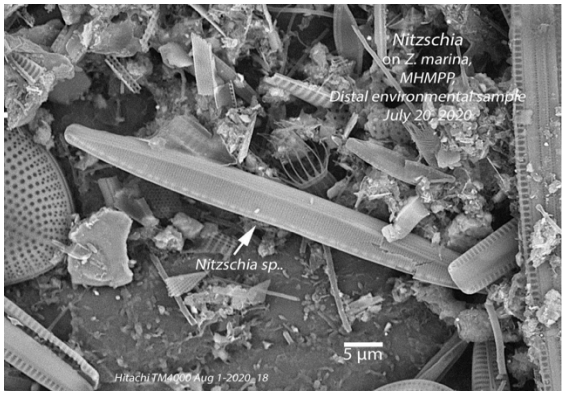

Navicula,
on Z. marina, MHMPP,
March 7, 2021
leaf 5, distal a-c, tube 45,SA#1
S4800 (AMF)
Interal valve view
22.2 µm long
x 5.2 µm wide
13 striae in 10 µm
10 µm

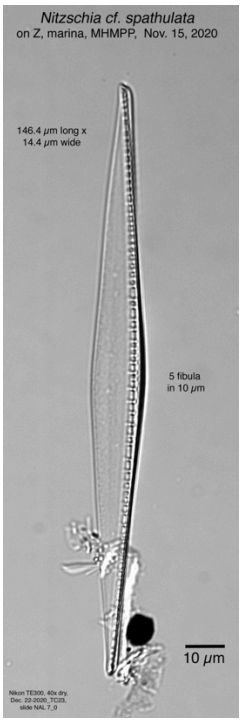

lineate areolae
raphe ending simple to strongly hooked
2.5 µm

Nitzschia

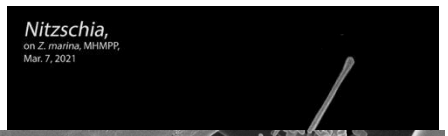

A.
Nitzschia,
on Z. marina, MHMPP,
March 7, 2021
raphe system eccentric and lying near the ventral margin,
extending to the poles
15 µm
leaf 5, distal a+c,
tube 45,SA#1
S4800 (AMF) ECH
(Mar 21-2021)_m009_2

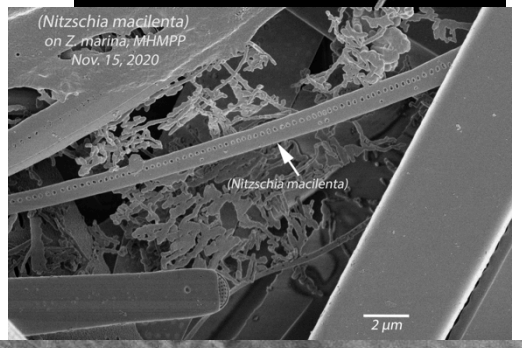

B.
raphe system eccentric and lying near the ventral margin,
extending to the poles
Nitzschia,
on Z. marina, MHMPP,
March 7, 2021
2.5 µm


Nitzschia
on Z. marina,
MHMPP,
Distal environmental sample
July 20, 2020
Nitzschia sp..
5 µm
Hitachi TM4000 Aug 1-2020_18

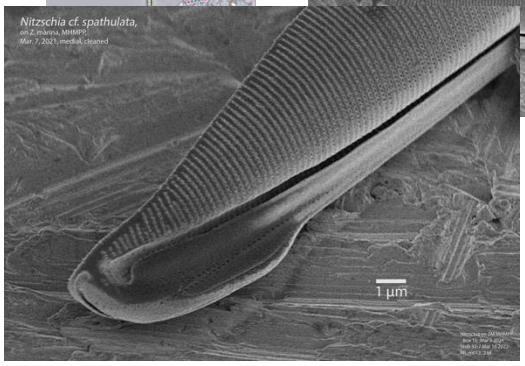

Nitzschia cf. spathulata
on Z, marina, MHMPP, Nov. 15, 2020
146.4 µm long x
14.4 µm wide
5 fibula
in 10 µm
10 µm
Nikon TE300, 40x dry,
Dec. 22-2020_TC22,
slide NAL 7_9

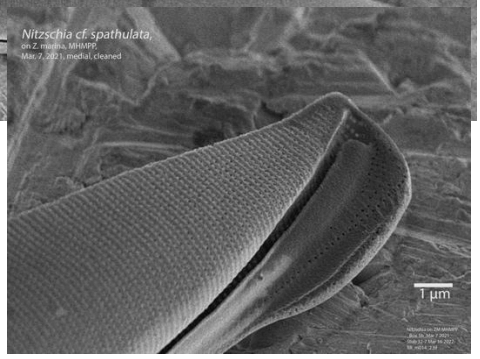

Nitzchia (longissima)
on Z. marina,
MHMPP, Nov 15, 2020
5-NAL
9 µm wide
x 247 µm long

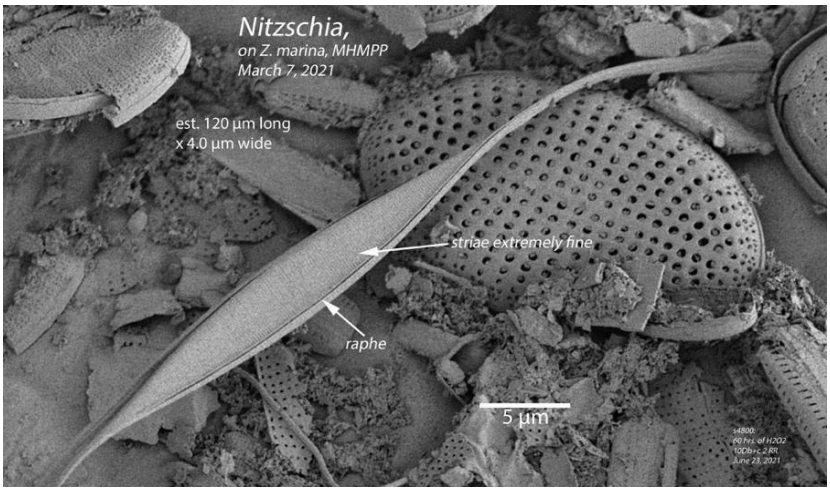

Nitzschia,
on Z. marina, MHMPP,
Mar. 7, 2021


(Nitzschia macilenta)
on Z. marina, MHMPP
Nov. 15, 2020
(Nitzschia macilenta)
2 µm


Nitzschia cf. spathulata,
on Z. marina, MHMPP,
Mar. 7, 2021, medial, cleaned
44.1 µm long


Nitzschia cf. spathulata,
on Z. marina, MHMPP,
Mar. 7, 2021, medial, cleaned
1 µm


Nitzschia cf. spathulata,
on Z. marina, MHMPP,
Mar. 7, 2021, medial, cleaned
1 µm


Nitzschia,
on Z. marina, MHMPP
March 7, 2021
est. 120 µm long
x 4.0 µm wide
striae extremely fine
raphe
5 µm
s4800
60 hrs. @H2O2
10Db+c 2 RR
June 23, 2021

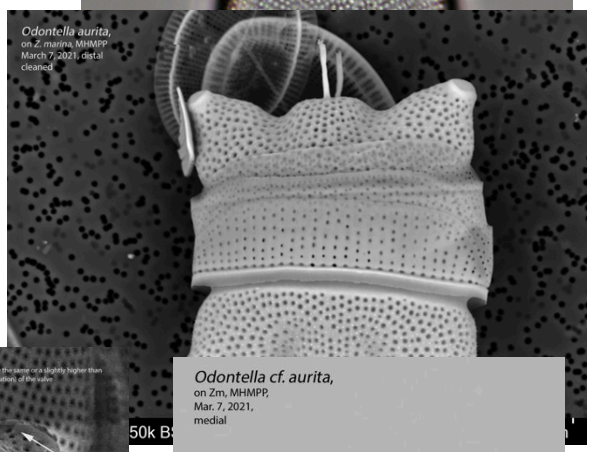
Odontella

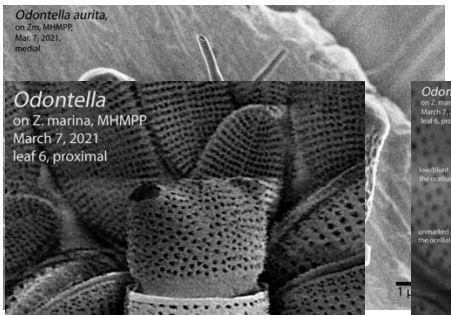

Odontella & Tabularia
on *Z. marina*, MHMPP,
March 7, 2021, live
medial section


Odontella aurita,
on Z. marina, MHMPP
collected Nov. 15, 2020
10 µm

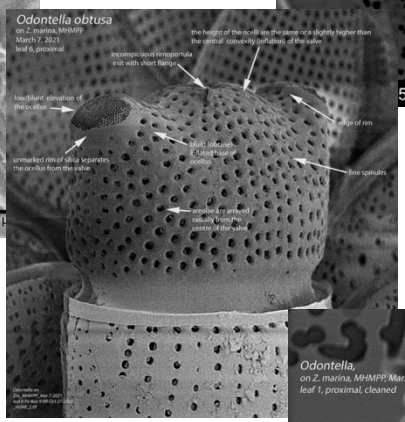

Odontella aurita
on *Z. marina*, MHMPP,
collected Nov. 15, 2020
environmental sample
Hitachi TM4000 UVIC, Dec. 29, 2020,
Stub 6, leaf #3 Proximal slice c (3Pc)
10kV 5.2mm x1.00k BSE H
50.0µm


Odontella aurita or obtusa
exteral valve, on Z. marina,MHMPP,Aug. 4, 2020, cleaned

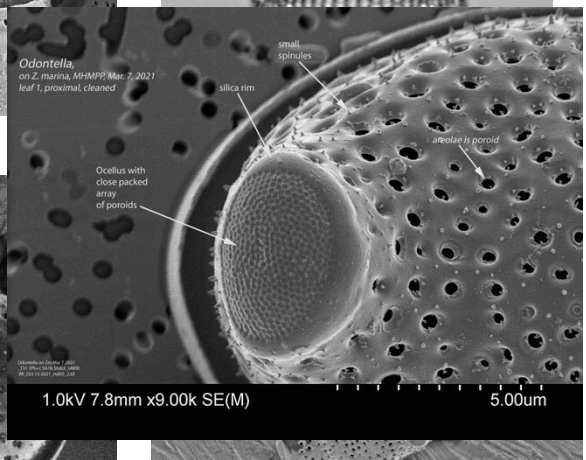

Odontella aurita,
on *Z. marina*, MHMPP,
March 7, 2021, distal
cleaned


Odontella aurita,
on Zm, MHMPP,
Mar. 7, 2021,
medial

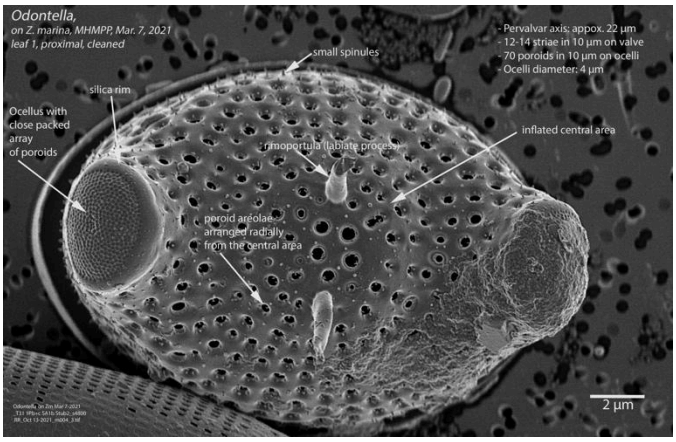
Odontella
on Z. marina, MHMPP
March 7, 2021
leaf 6, proximal
5 µm


Odontella obtusa
on *Z. marina*, MHMPP
March 7, 2021
leaf 6, proximal
the height of the ocelli are the same or a slightly higher than the central convexity (inflation) of the valve
inconspicuous rimoportula exit with short flange
low/blunt elevation of the ocellus
flange of rim
unmarked rim of silica separates the ocellus from the valve
fine spinules
areolae are arranged radially from the centre of the valve

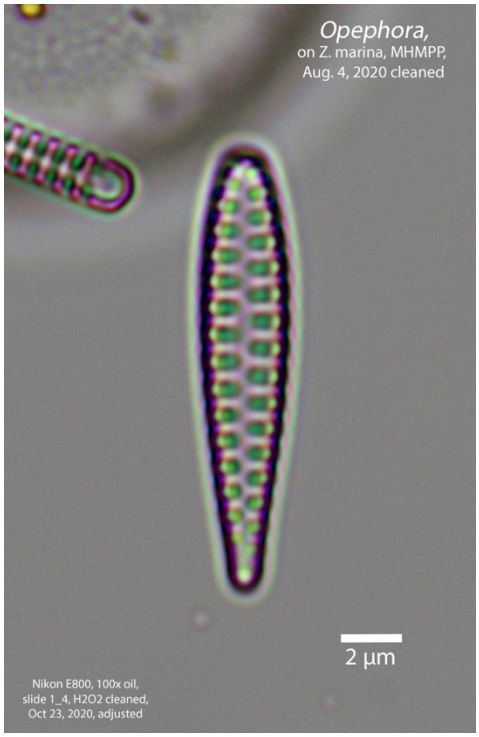

Odontella cf. aurita,
on Zm, MHMPP,
Mar. 7, 2021,
medial

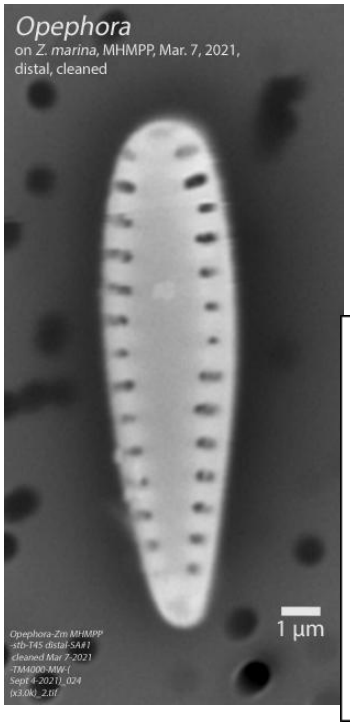

Odontella,
on *Z. marina*, MHMPP, Mar. 7, 2021
leaf 1, proximal, cleaned
small spinules
silica rim
areolae is poroid
Ocellus with close packed array of poroids
1.0kV 7.8mm x9.00k SE(M)
5.00um


Odontella cf. obtusa,
on Zm, MHMPP, Mar. 7, 2021,
medial


Odontella,
on Z. marina, MHMPP, Mar. 7, 2021
leaf 1, proximal, cleaned
- Pervalvar axis; appox. 22 µm
- 12-14 striae in 10 µm on valve
- 70 poroids in 10 µm on ocelli
- Ocelli diameter: 4 µm
small spinules
silica rim
Ocellus with close packed array of poroids
rimoportula (labiate process)
inflated central area
poroid areolae arranged radially from the central area
2 µm

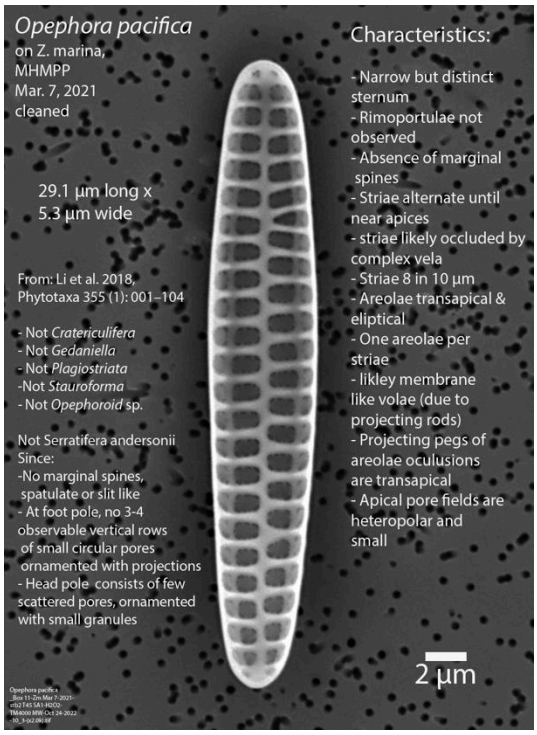
Opephora and some possible Serratifera or Gedaniella



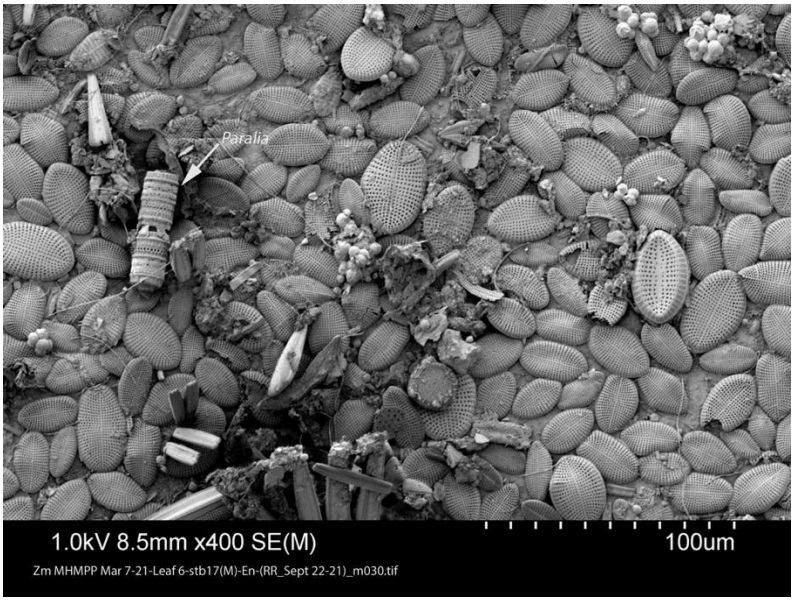


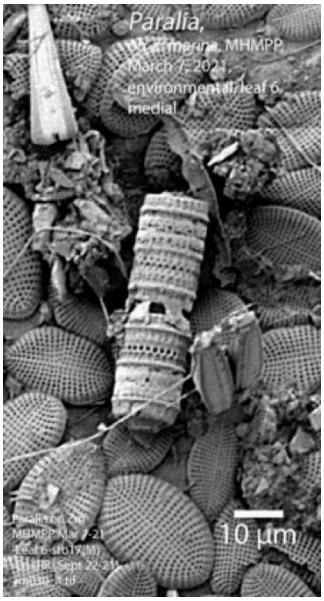
The bars in the areolae, the frustule outline, and apical pore fields with rows of vertical areolae point to *Gedaniella mutabilis*. However, the wide sternum is so far not typical of *Gedaniella mutabilis* (Li et al. 2018). *Gedaniella* has not been reported in the Salish Sea, and North American Pacific waters. However, it shows up in the eelgrass Mar. 7, 2021 molecular data.

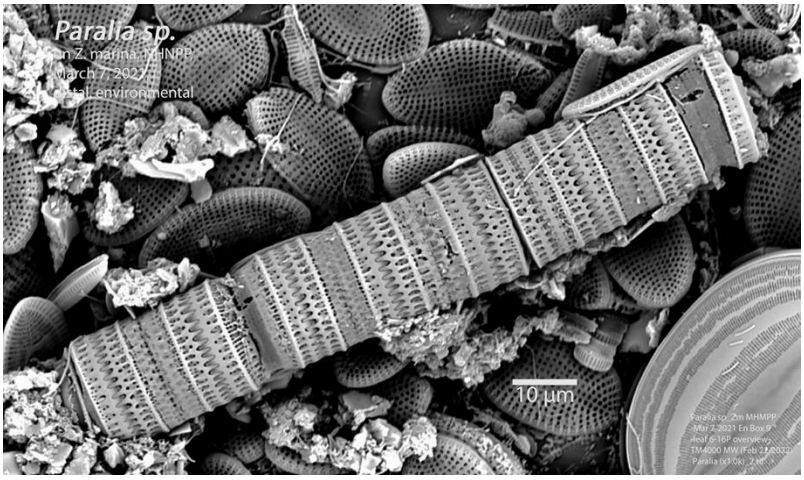
Possibly the genus *Serratifera*. Although *Opephora* has a narrower sternum than *Serratifera* species, the bright distal edges of each areolae maybe spatulate marginal spines typical of *Serratifera andersonii* (Li et el. 2018). *Serratifera* has not been reported in the Salish Sea, and North American Pacific waters. However, it shows up in the eelgrass Mar. 7, 2021 molecular data.

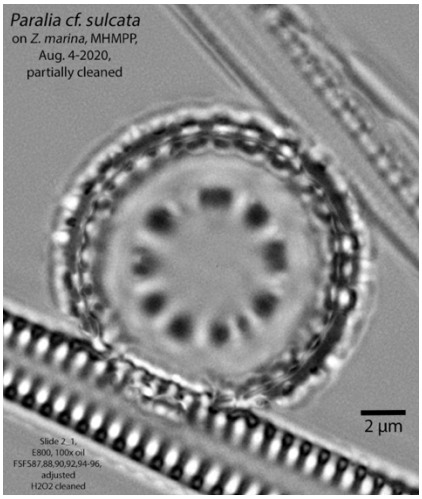


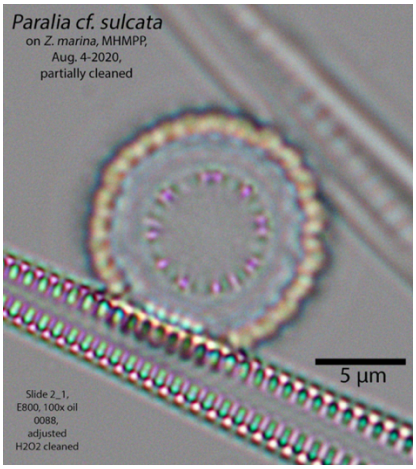
Paralia

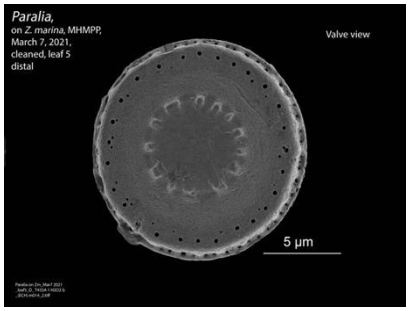

Paralia
1.0kV 8.5mm x400 SE(M)
100um
Zm MHMPP Mar 7-21-Leaf 6-stb17(M)-En-(RR_Sept 22-21)_m030.tif

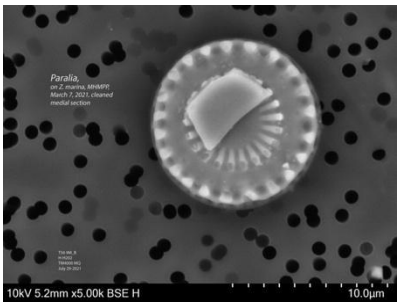

Paralia,
on Z. marina, MHMPP,
March 7, 2021,
environmental, leaf 6,
medial
10 µm


Paralia sp.
on Z. marina, MHMPP,
March 7, 2021,
distal, environmental
10 µm

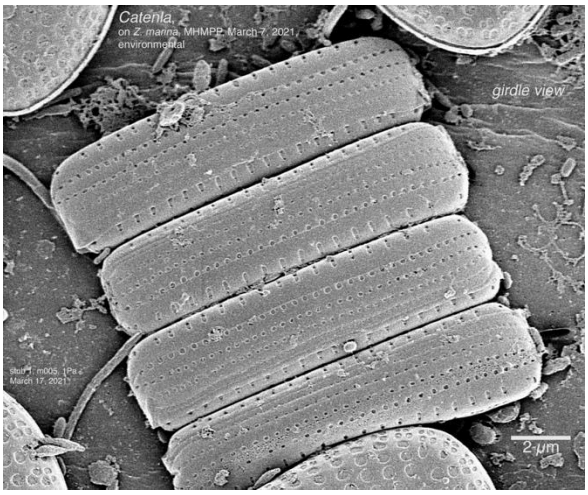

Paralia cf. sulcata
on Z. marina, MHMPP,
Aug. 4-2020,
partially cleaned
2 µm
Slide 2_1,
E800, 100x oil
FSF587,88,90,92,94-96,
adjusted
H2O2 cleaned

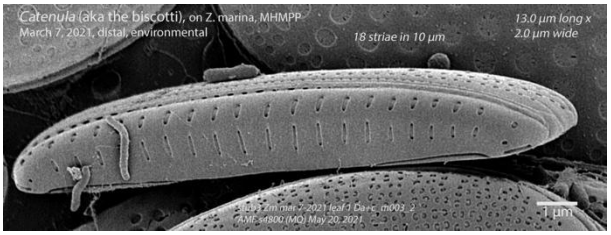

Paralia cf. sulcata
on Z. marina, MHMPP,
Aug. 4-2020,
partially cleaned
5 µm
Slide 2_1,
E800, 100x oil
0088,
adjusted
H2O2 cleaned

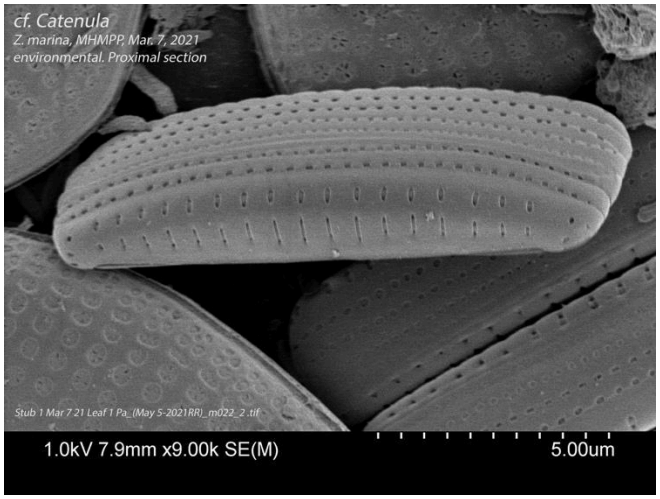

Paralia,
on Z. marina, MHMPP,
March 7, 2021,
cleaned, leaf 5
distal
Valve view
5 µm

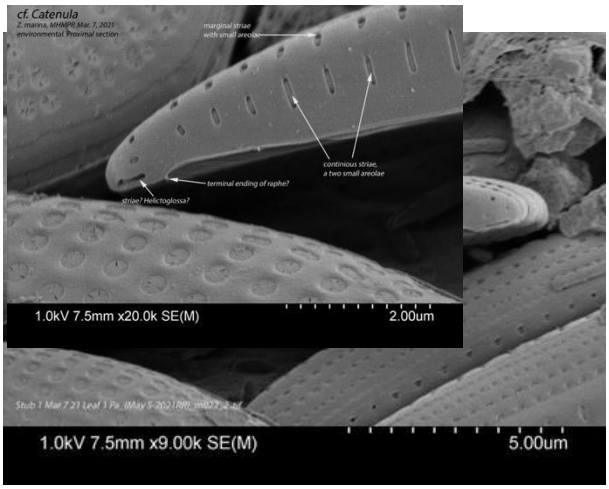

Paralia,
10kV 5.2mm x5.00k BSE H
10.0µm

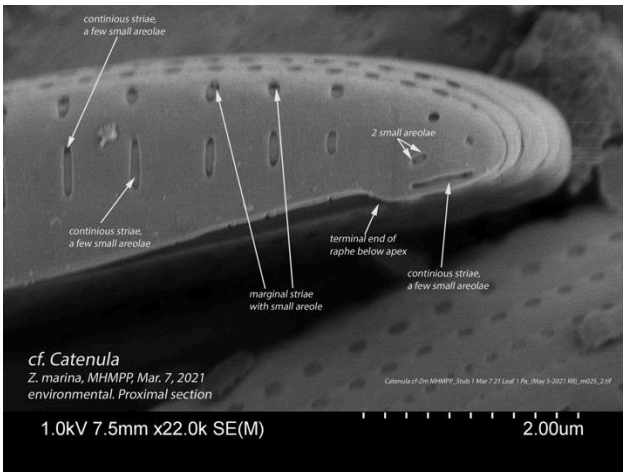
Pariraphis like *(aka 'biscotti')*

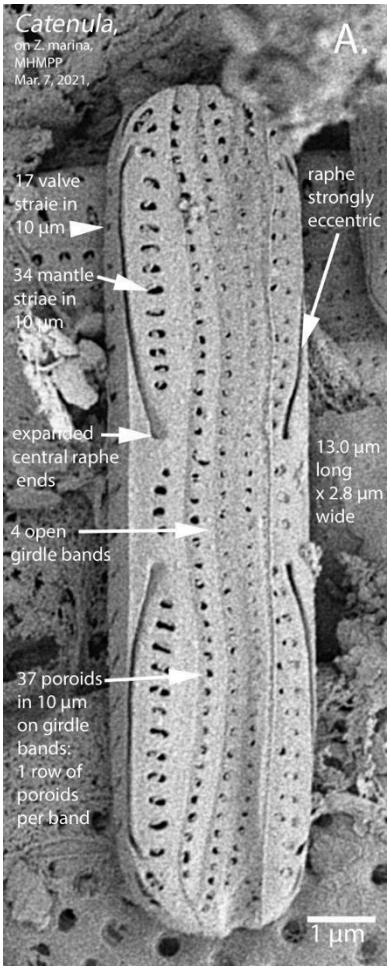


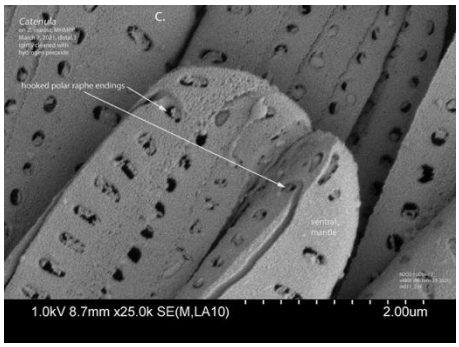


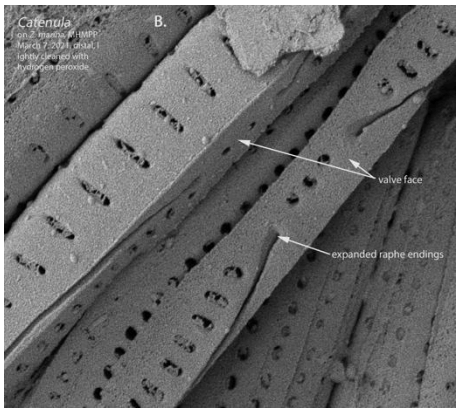


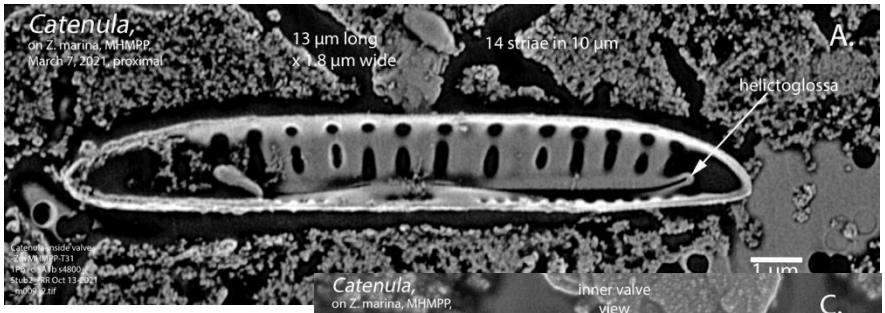


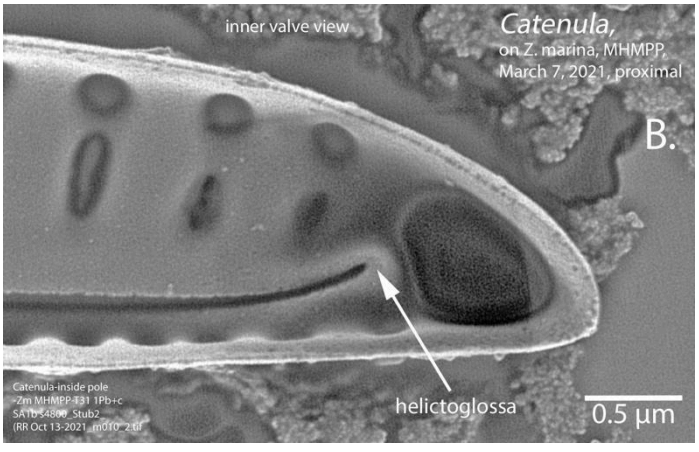


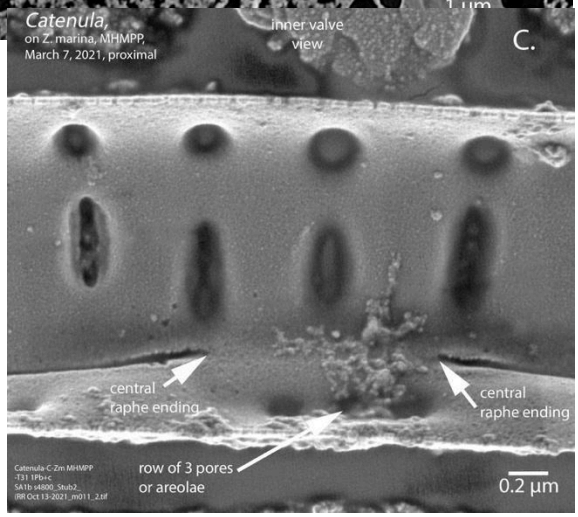

Catenula,
on Z. marina,
MHMPP
Mar. 7, 2021,
A.
17 valve
striae in
10 µm
34 mantle
striae in
10 µm
raphe
strongly
eccentric
expanded
central raphe
ends
13.0 µm
long
x 2.8 µm
wide
4 open
girdle bands
37 poroids
in 10 µm
on girdle
bands:
1 row of
poroids
per band
1 µm

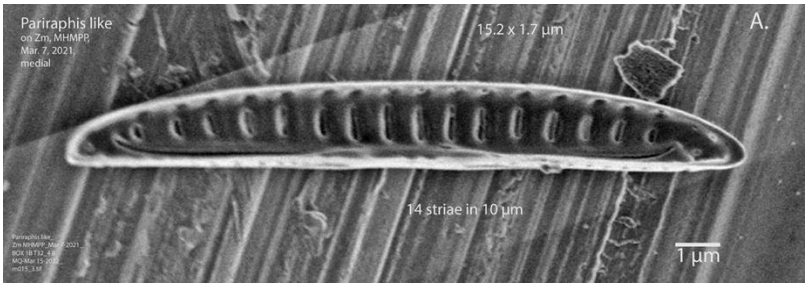

C.
hooked polar raphe endings
ventral
mantle
1.0kV 8.7mm x25.0k SE(M,LA10)
2.00um

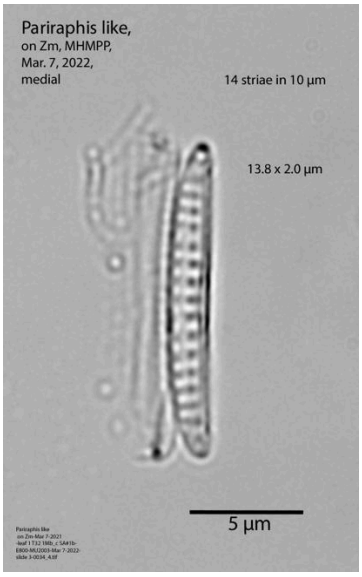

B.
valve face
expanded raphe endings

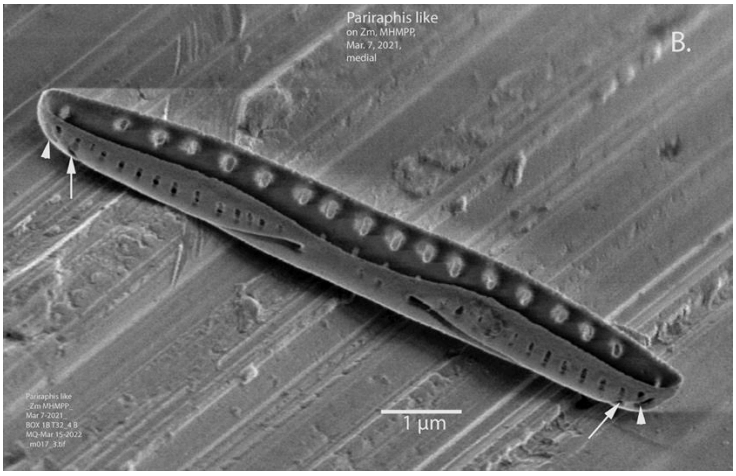

Catenula,
on Z. marina, MHMPP
March 7, 2021, proximal
13 µm long
x 1.8 µm wide
14 striae in 10 µm
A.
helictoglossa
1 µm

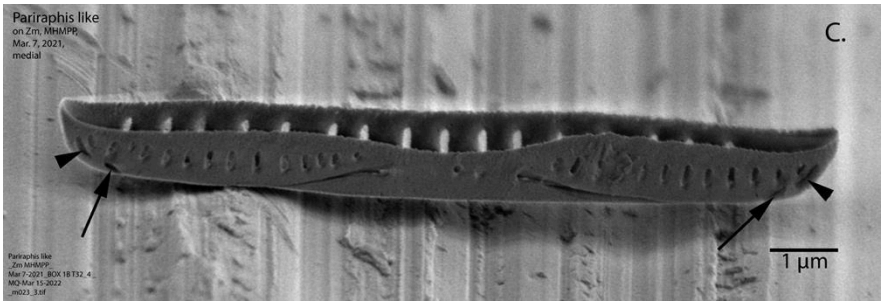

inner valve view
Catenula,
on Z. marina, MHMPP
March 7, 2021, proximal
B.
helictoglossa
0.5 µm

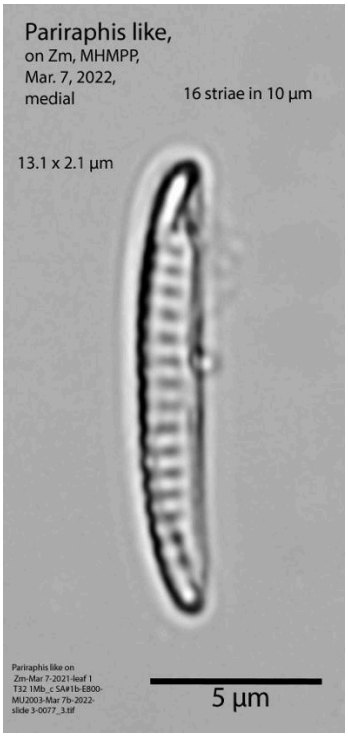

Catenula,
on Z. marina, MHMPP
March 7, 2021, proximal
inner valve
view
C.
central
raphe ending
central
raphe ending
row of 3 pores
or areolae
0.2 µm

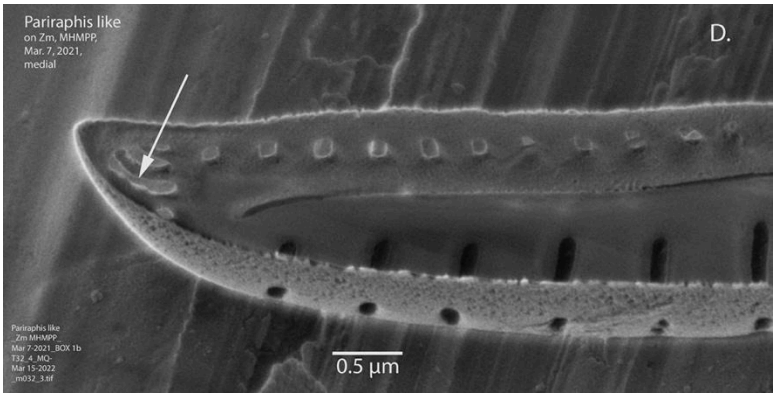

Pariraphis like
on Zm, MHMPP,
Mar. 7, 2021,
medial
15.2 x 1.7 µm
A.
14 striae in 10 µm
1 µm


Pariraphis like,
on Zm, MHMPP,
Mar. 7, 2022,
medial
14 striae in 10 µm
13.8 x 2.0 µm
5 µm

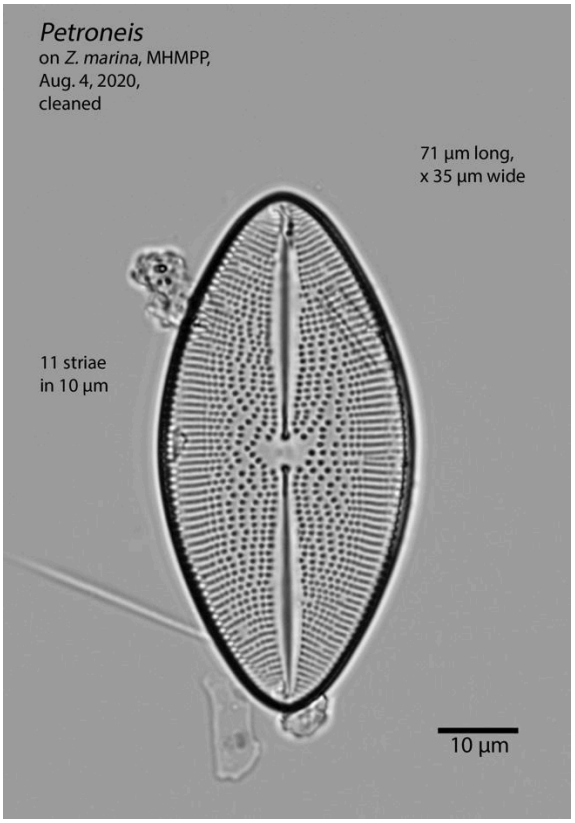

Pariraphis like
on Zm, MHMPP,
Mar. 7, 2021,
medial
B.
1 µm

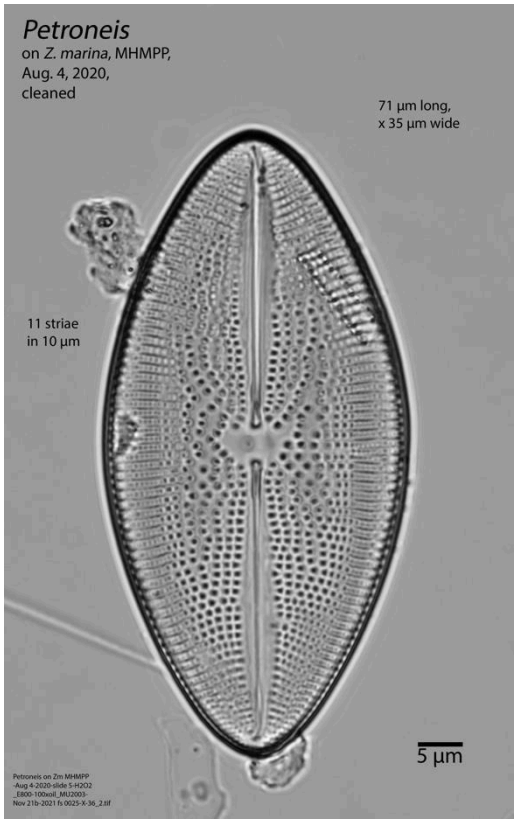

Pariraphis like
on Zm, MHMPP,
Mar. 7, 2021,
medial
C.
1 µm

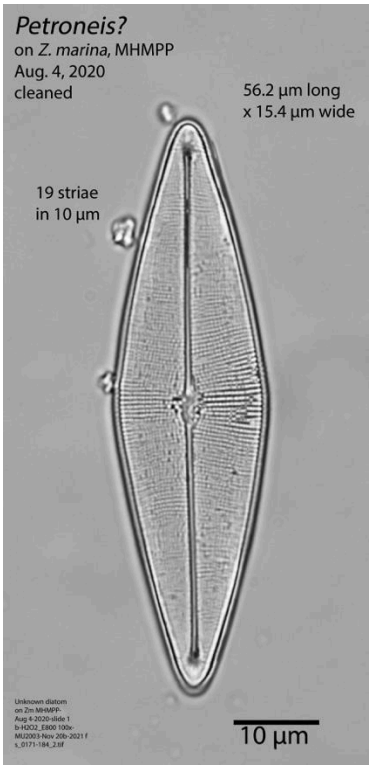

Pariraphis like,
on Zm, MHMPP,
Mar. 7, 2022,
medial
16 striae in 10 µm
13.1 x 2.1 µm
5 µm

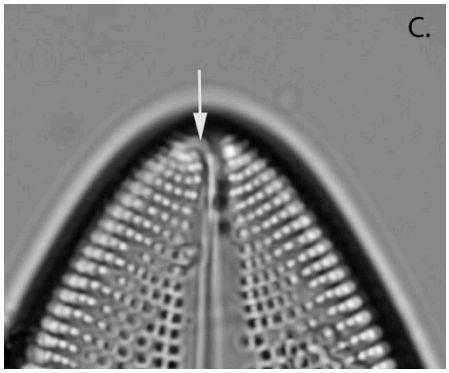

Pariraphis like
on Zm, MHMPP,
Mar. 7, 2021,
medial
D.
0.5 µm

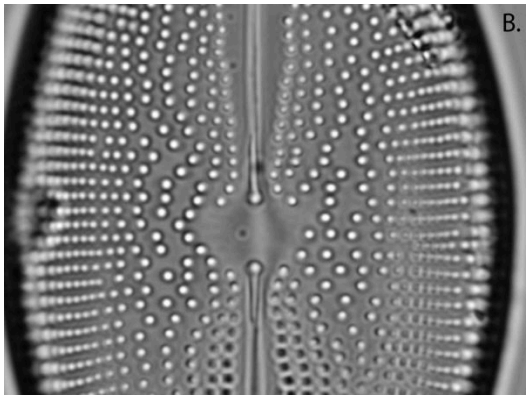
Petroneis


Petroneis
on *Z. marina*, MHMPP,
Aug. 4, 2020,
cleaned
71 µm long,
x 35 µm wide
11 striae
in 10 µm
10 µm

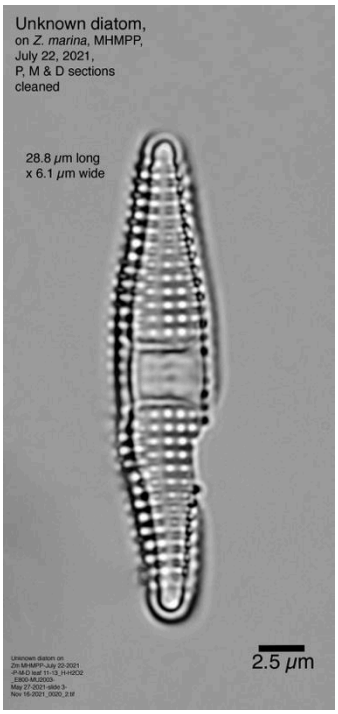

Petroneis
on *Z. marina*, MHMPP,
Aug. 4, 2020,
cleaned
71 µm long,
x 35 µm wide
11 striae
in 10 µm
5 µm

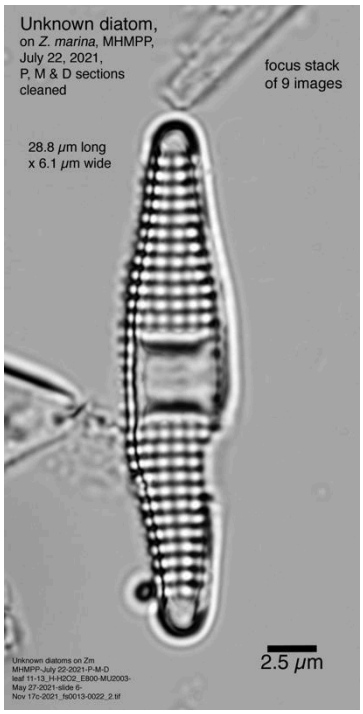

Petroneis?
on *Z. marina*, MHMPP
Aug. 4, 2020
cleaned
56.2 µm long
x 15.4 µm wide
19 striae
in 10 µm
10 µm

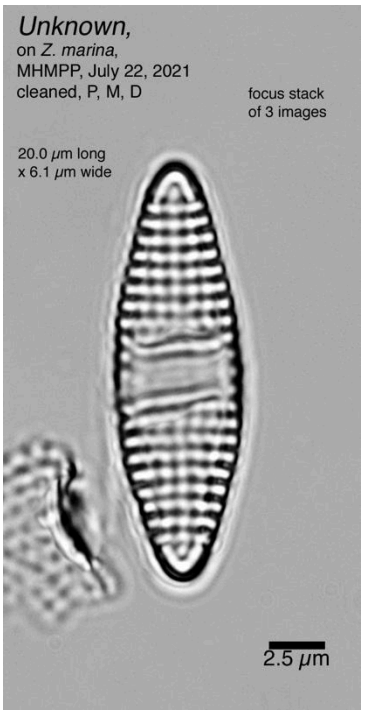

C.

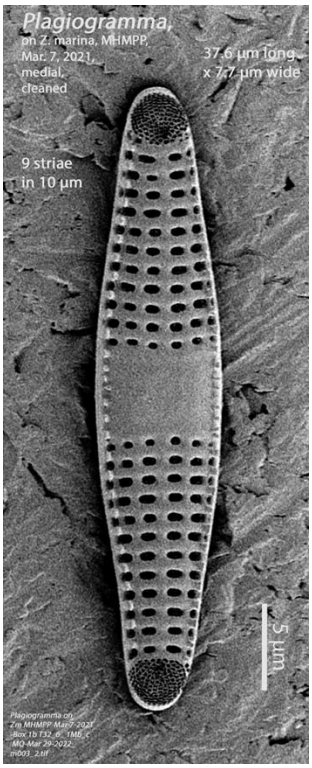

B.

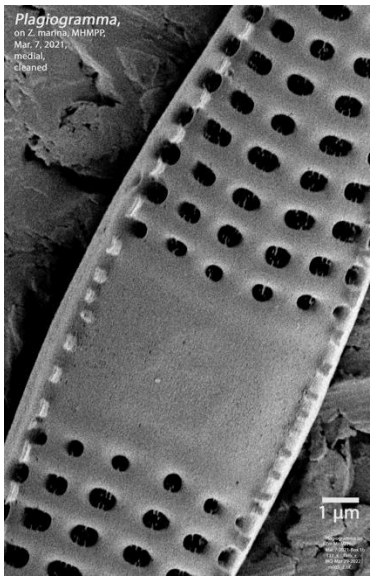
Plagiogramma

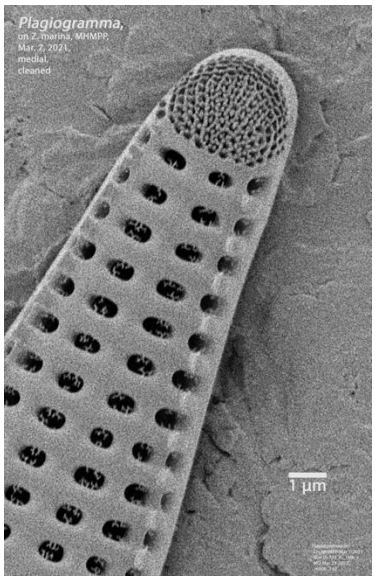




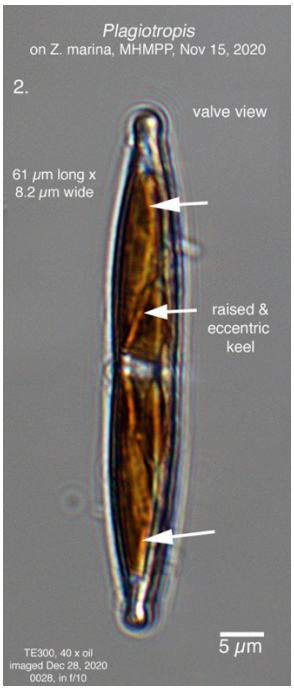


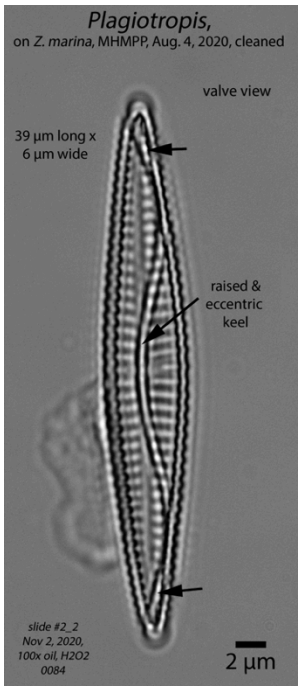


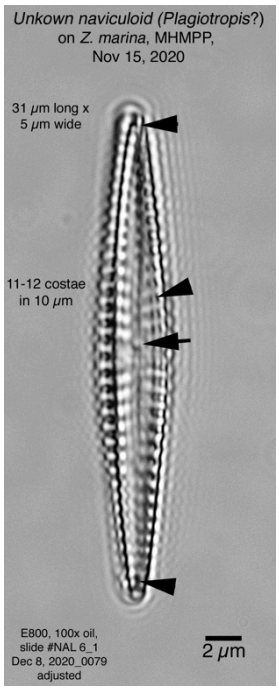


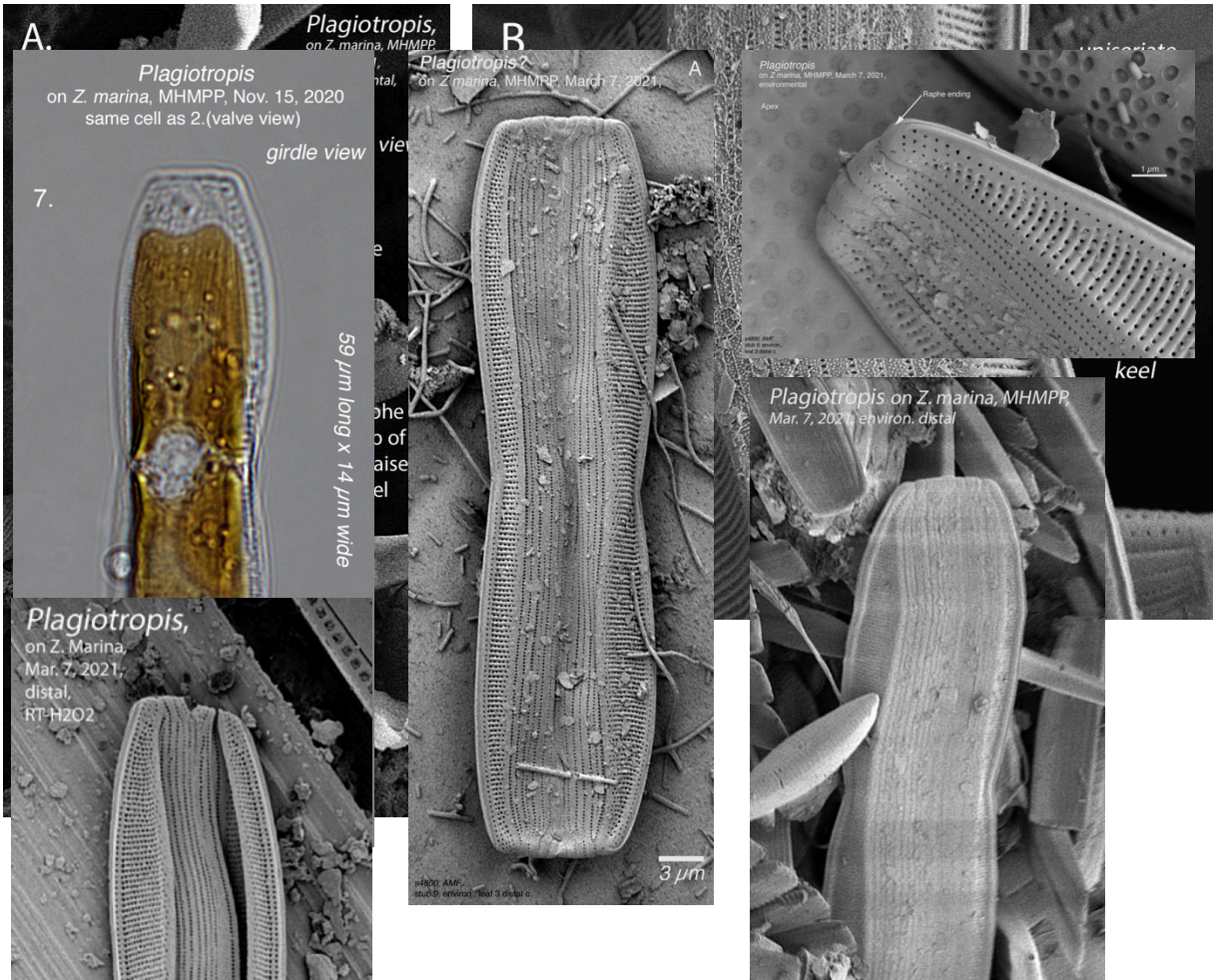


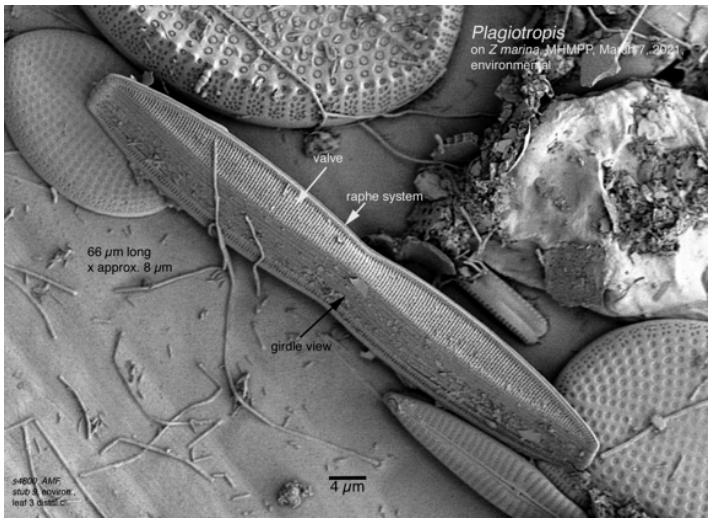
Plagiotropis



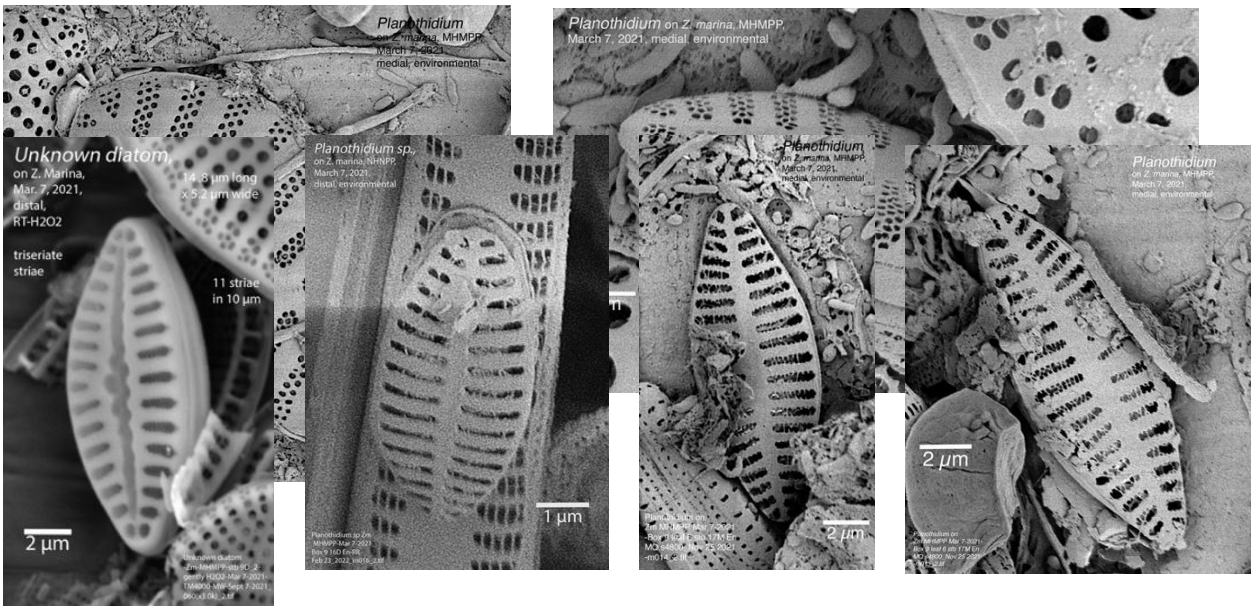


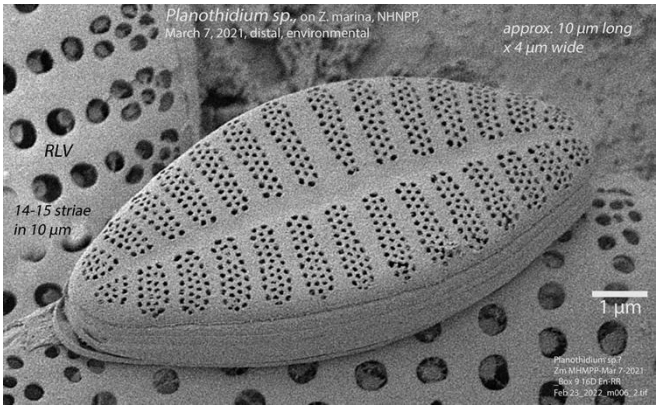


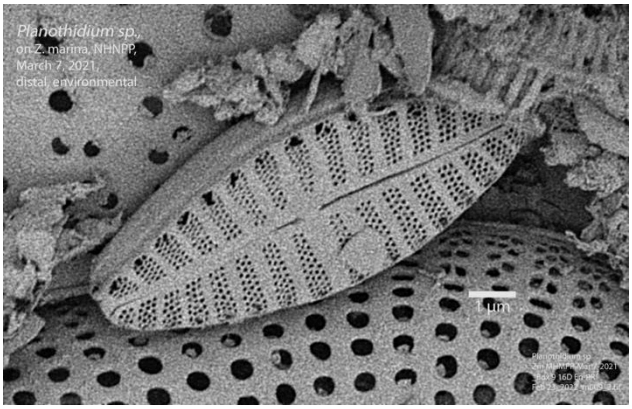



Plagiotropis
on Z marina, MHMPP, March 7, 2021
environmental
valve
raphe system
66 µm long
x approx. 8 µm
girdle view
4 µm

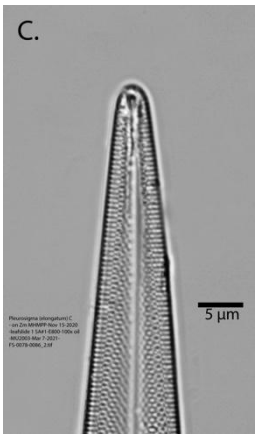
Planothidium

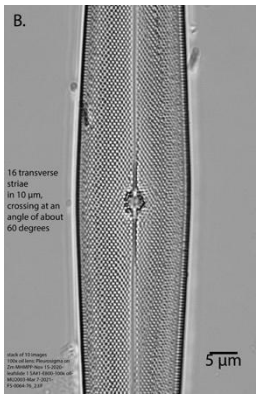


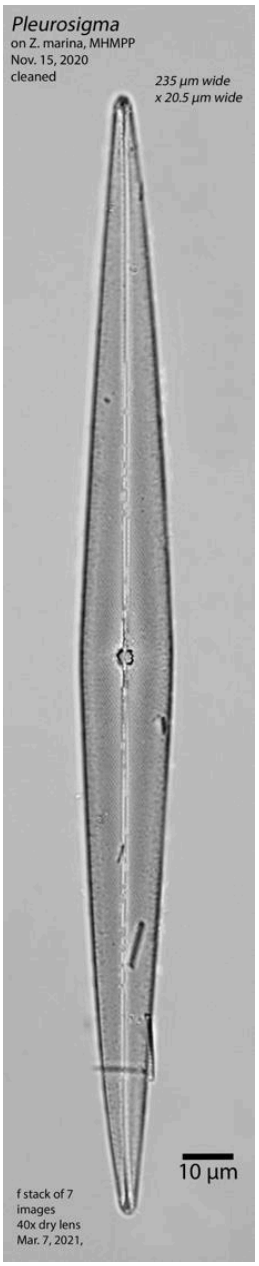


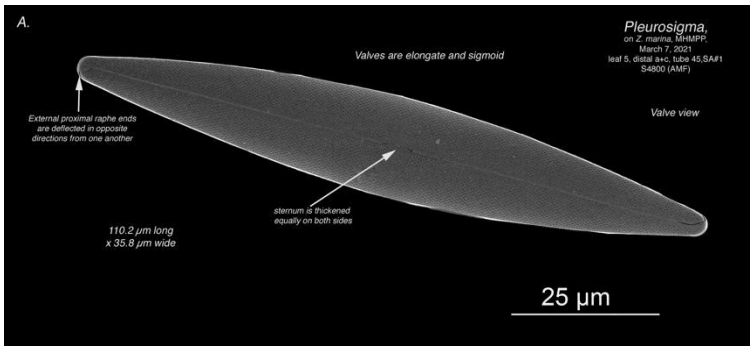


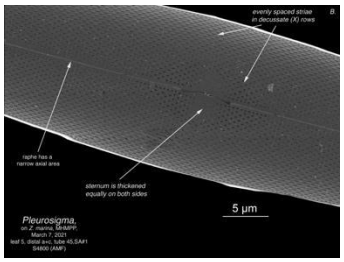
Pleurosigma

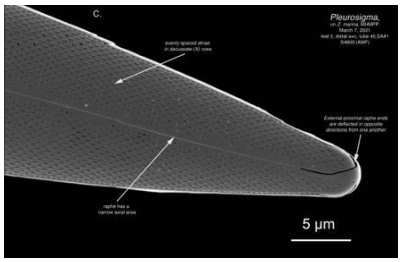


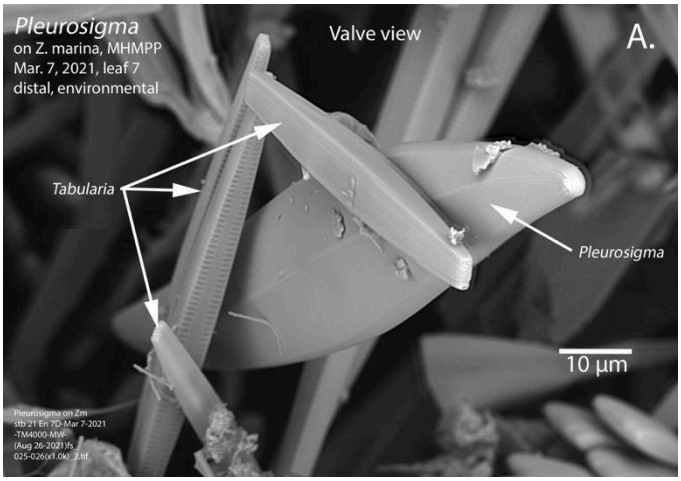


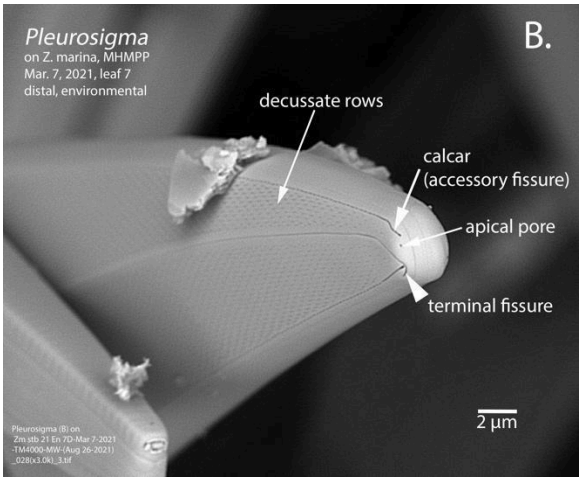




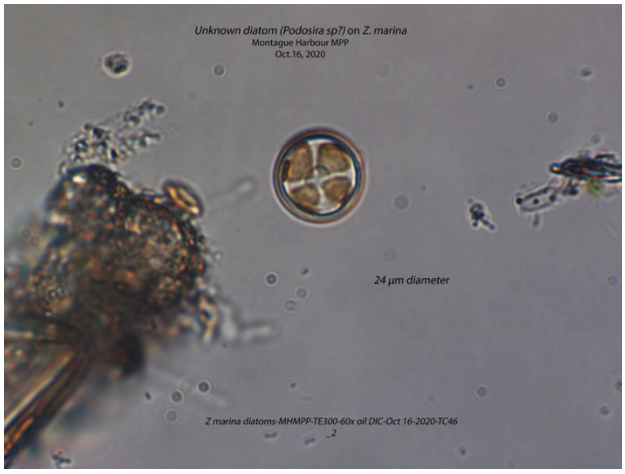


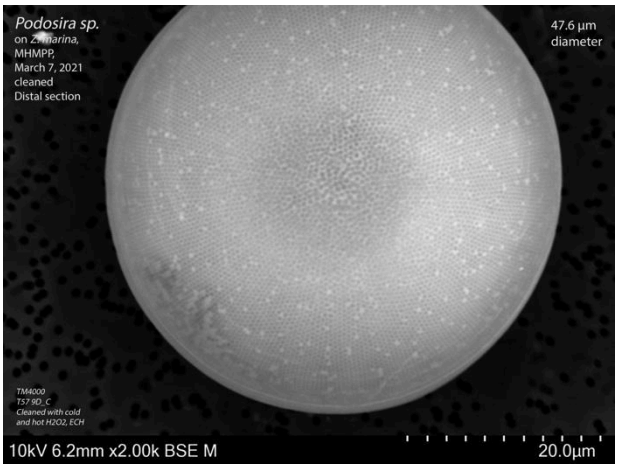


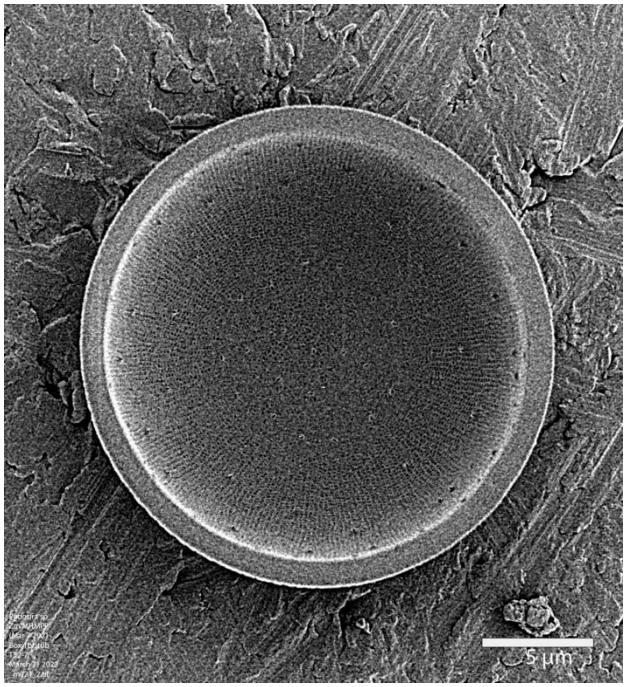

Pleurosigma
on Z. marina, MHMPP
Mar. 7, 2021, leaf 7
distal, environmental
Valve view
A.
Tabularia
Pleurosigma
10 µm


Pleurosigma
on Z. marina, MHMPP
Mar. 7, 2021, leaf 7
distal, environmental
B.
decussate rows
calcar
(accessory fissure)
apical pore
terminal fissure
2 µm

Podosira

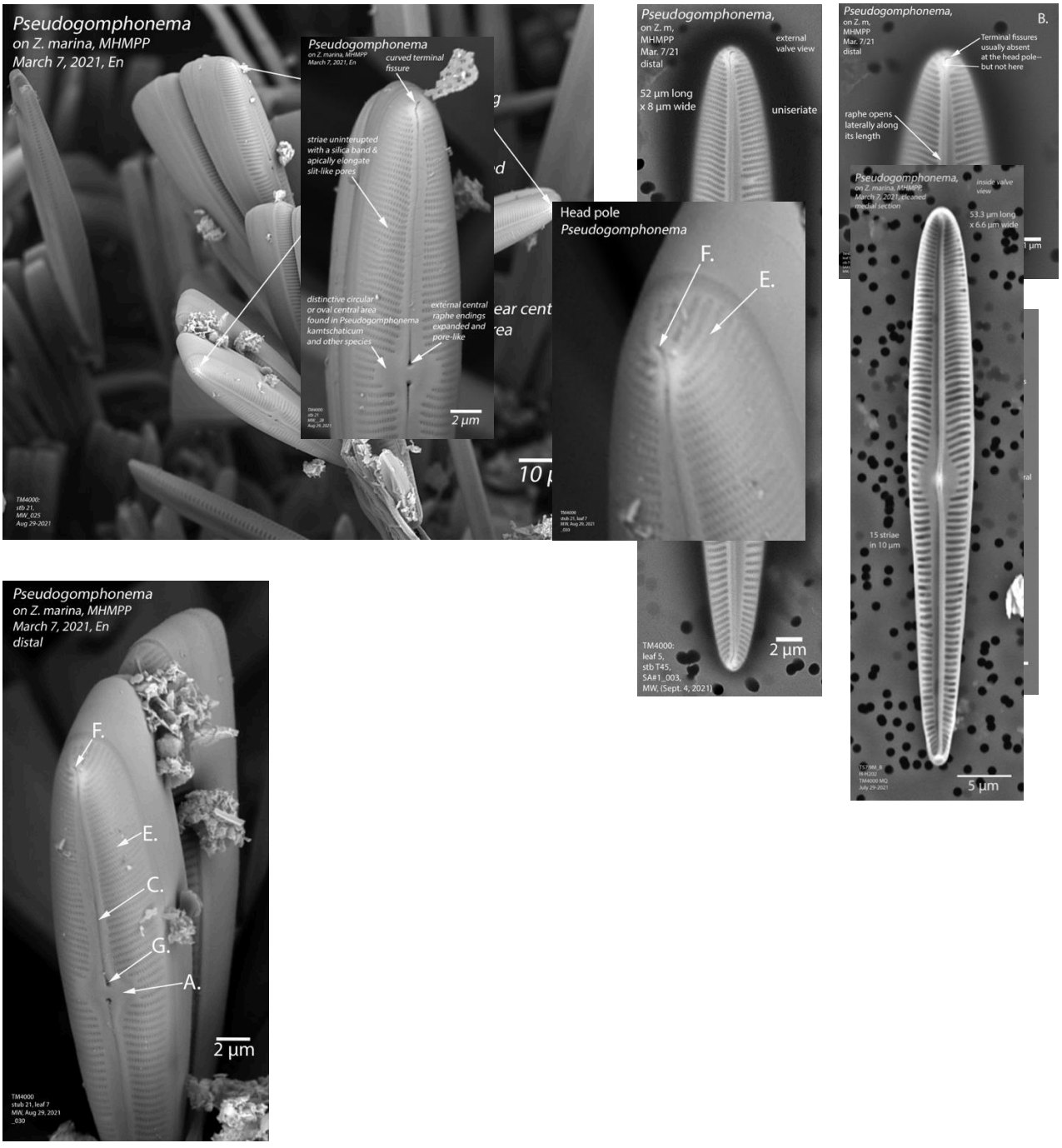

Unknown diatom (Podosira sp?) on Z. marina
Montague Harbour MPP
Oct.16, 2020
24 µm diameter
Z marina diatoms-MHMPP-TE300-60x oil DIC-Oct 16-2020-TC46
_2


Podosira sp.
on Z. marina,
MHMPP,
March 7, 2021
cleaned
Distal section
47.6 µm
diameter
TM4000
T57 9D_C
Cleaned with cold
and hot H2O2, ECH
10kV 6.2mm x2.00k BSE M
20.0µm

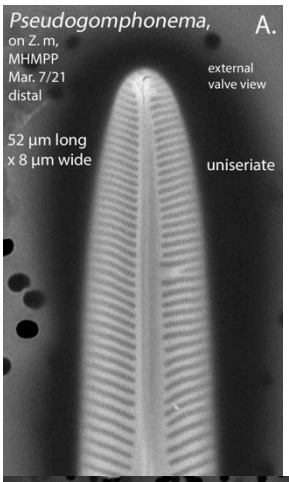

5 µm

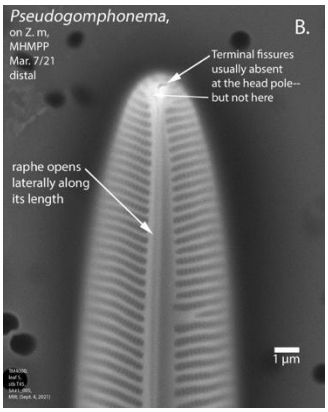
Psammodictyon

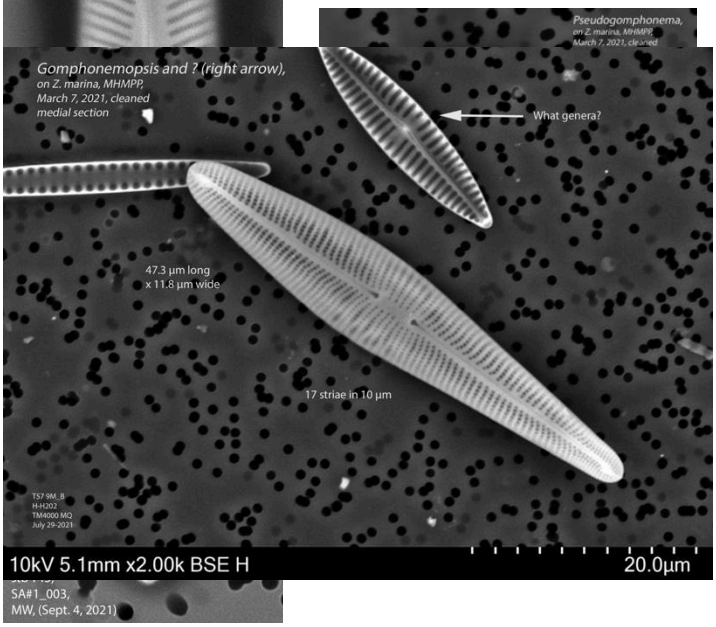
Pseudogomphonema

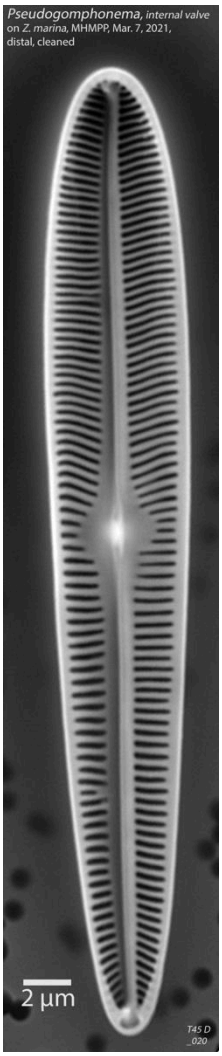


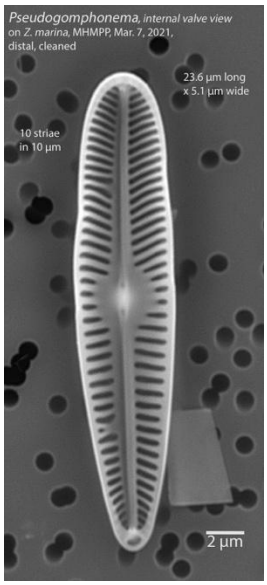
Pseudogomphonema continued



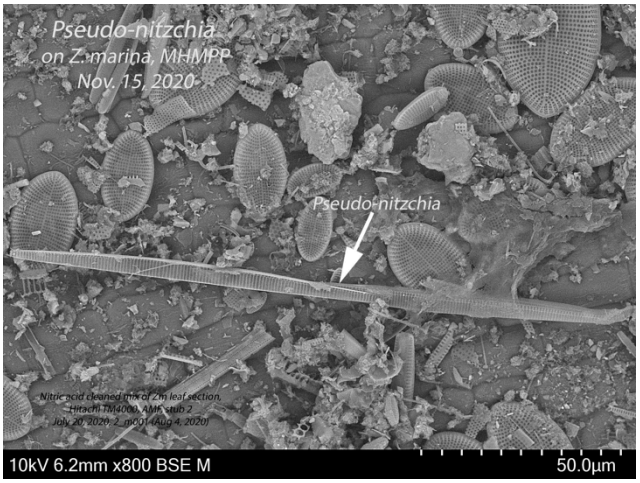


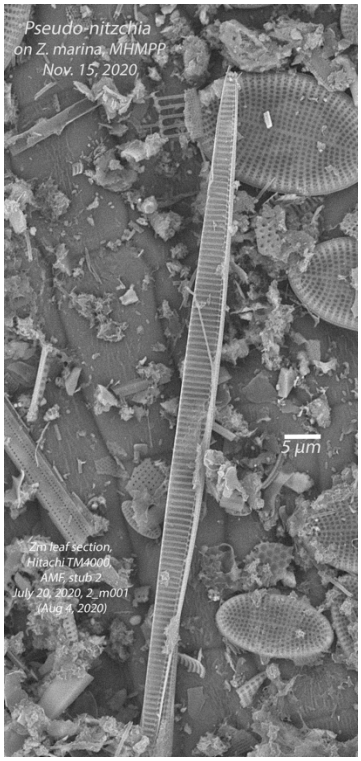




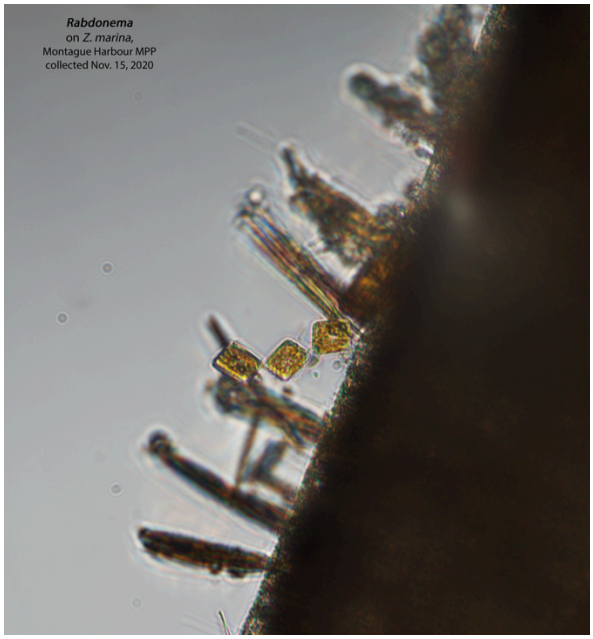


Pseudo-nitzschia

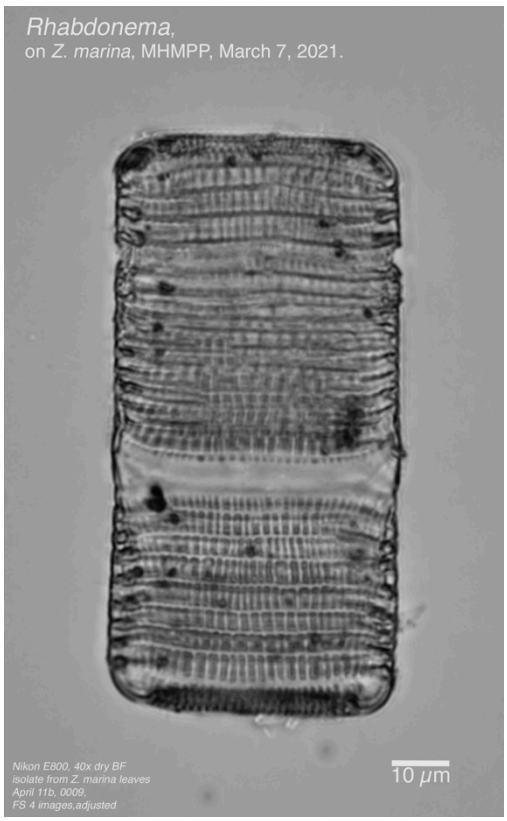




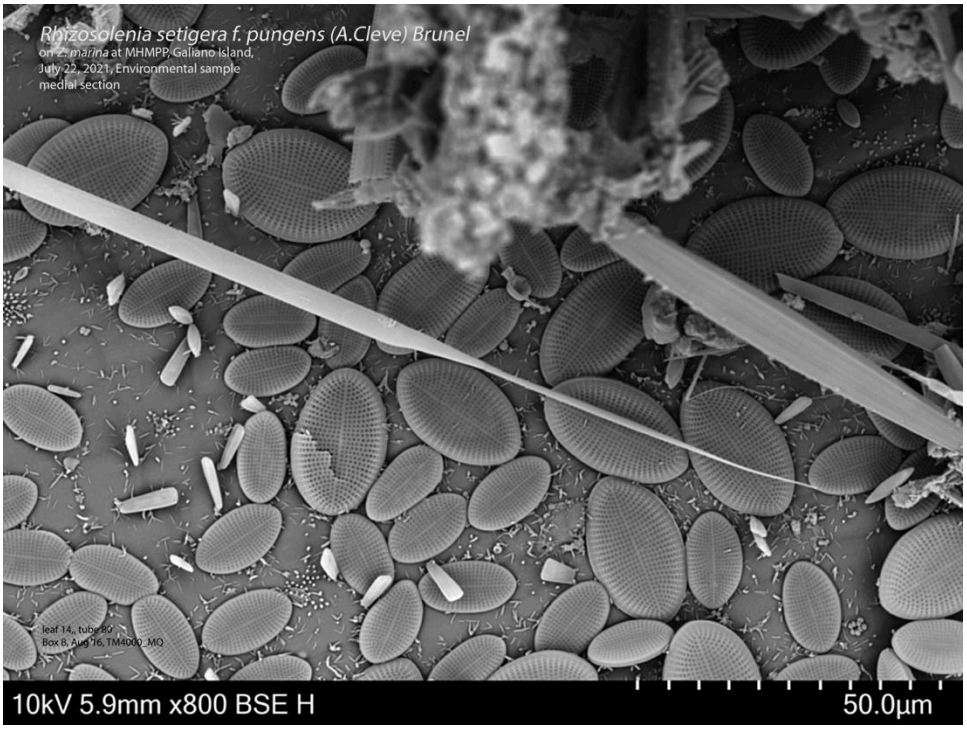
Rhabdonema


Rabdonema
on *Z. marina*,
Montague Harbour MPP
collected Nov. 15, 2020

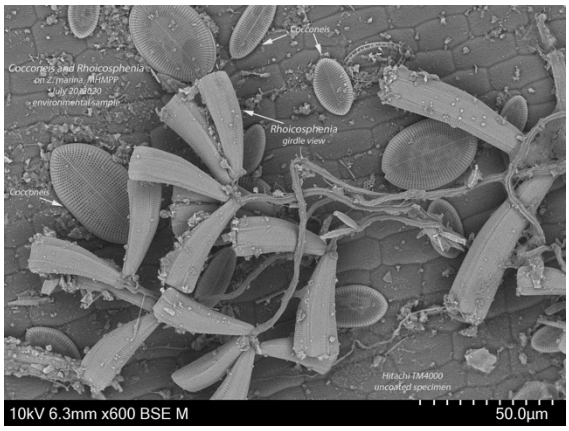

Rhabdonema
on Zm, MHMPP,
Nov. 3, 2020
TE300, ultsonic cleaner

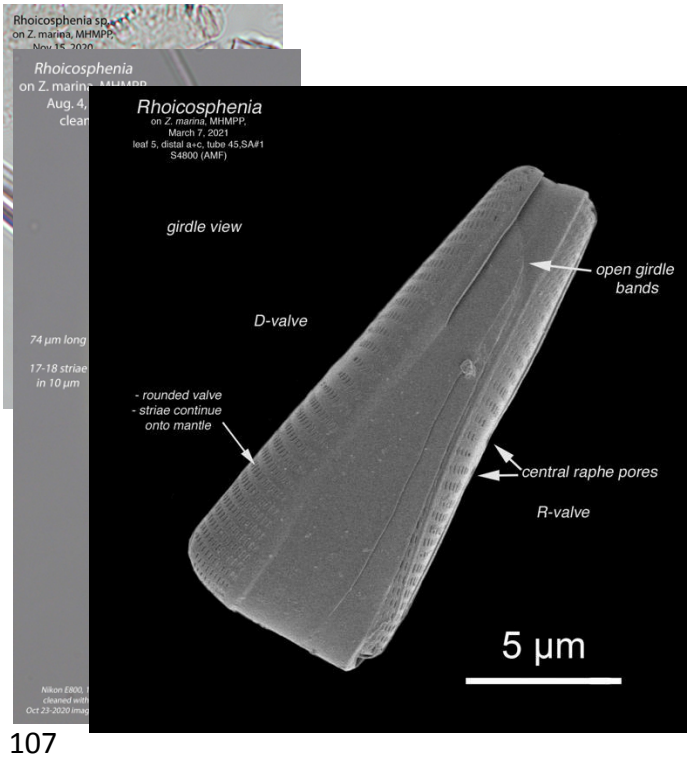

Rhabdonema,
on *Z. marina*, MHMPP, March 7, 2021.
Nikon E800, 40x dry BF
isolate from Z. marina leaves
April 11b, 0009,
FS 4 images,adjusted
10 µm

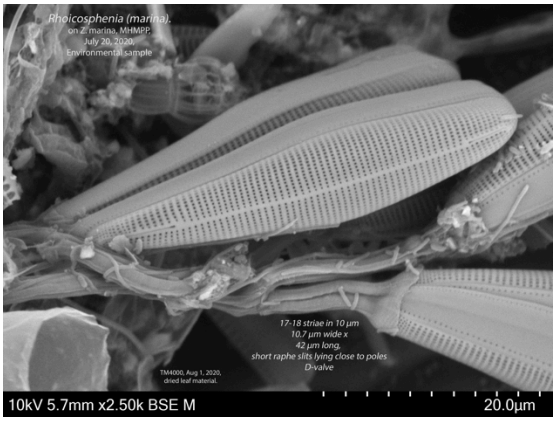
Rhizosolenia

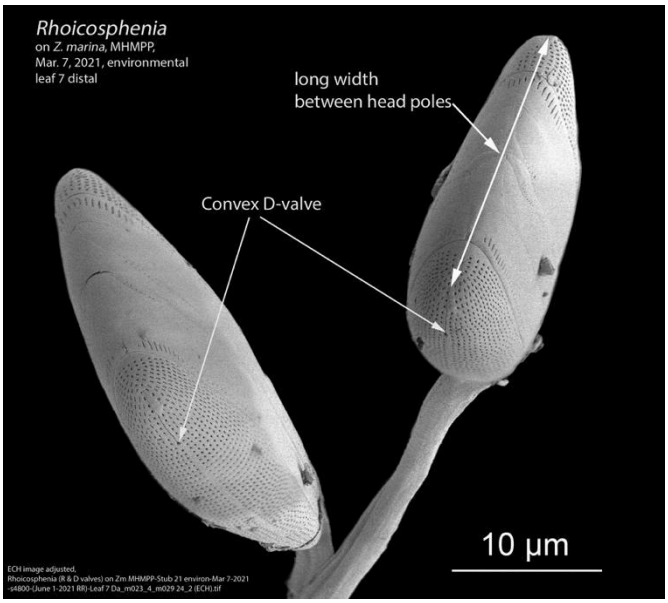


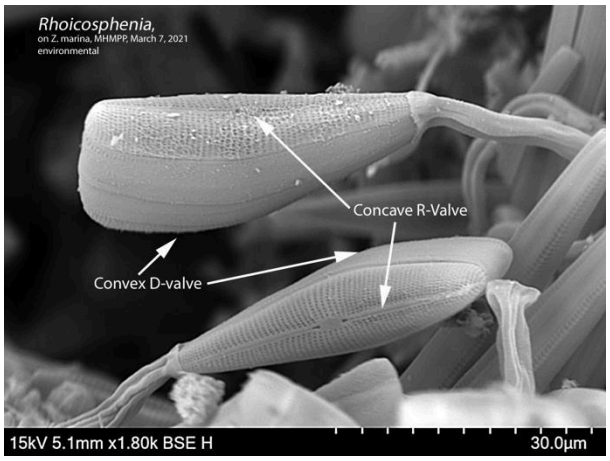
Rhoicosphenia

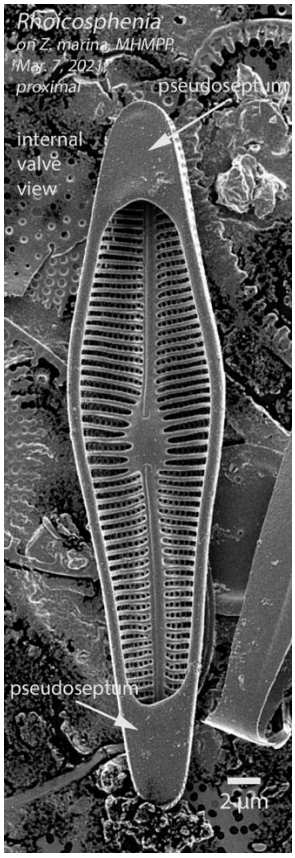




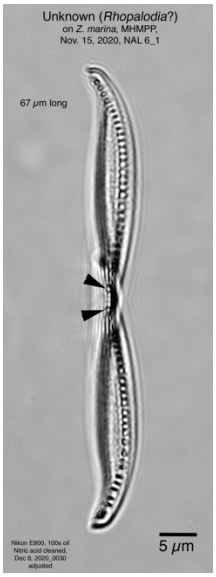



Rhoicosphenia
on *Z. marina*, MHMPP,
Mar. 7, 2021, environmental
leaf 7 distal
long width
between head poles
Convex D-valve
10 µm
ECH image adjusted.
Rhoicosphenia (R & D valves) on Zm MHMPP-Stub 21 environ-Mar 7-2021
-s4800-(June 1-2021 RR)-Leaf 7 Da_m023_4_m029 24_2 (ECH).tif

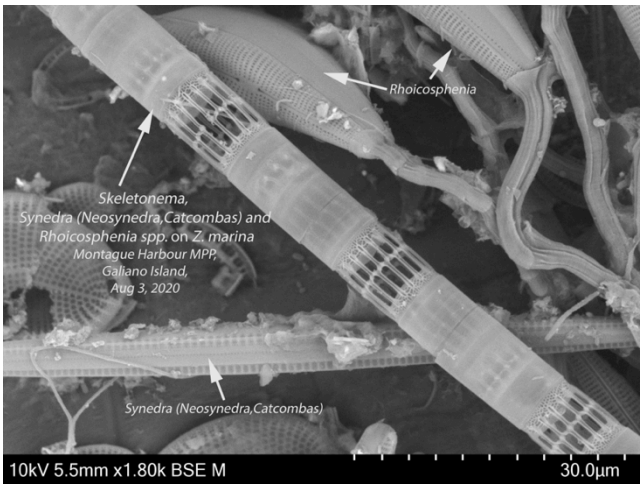

Rhoicosphenia,
on Z. marina, MHMPP, March 7, 2021
environmental
Concave R-Valve
Convex D-valve
15kV 5.1mm x1.80k BSE H
30.0µm

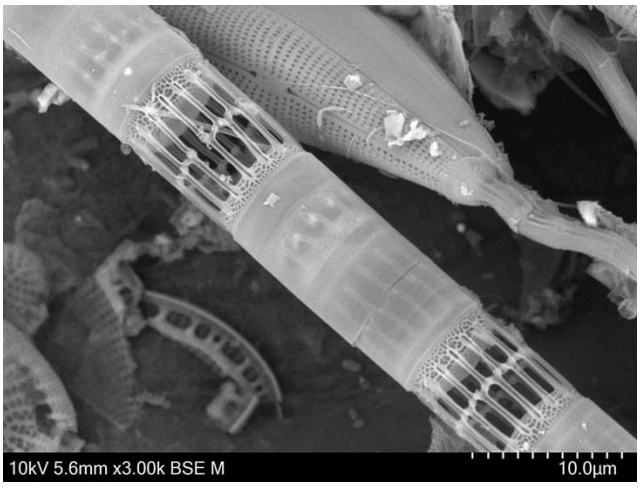

Rhoicosphenia
on Z. marina, MHMPP,
May. 7, 2021
proximal
pseudosepturm
internal
valve
view
pseudosepturm
2 µm

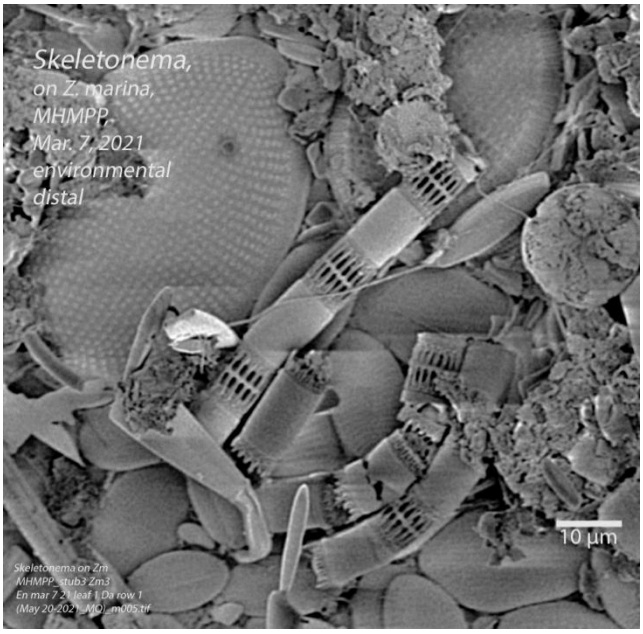
Rhopalodia? (*unconfirmed)*

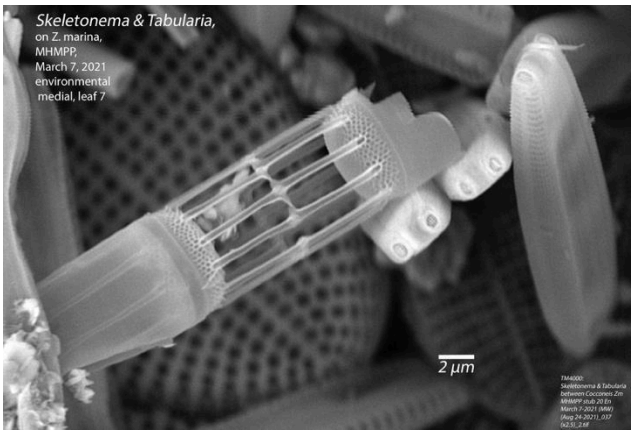


Skeletonema





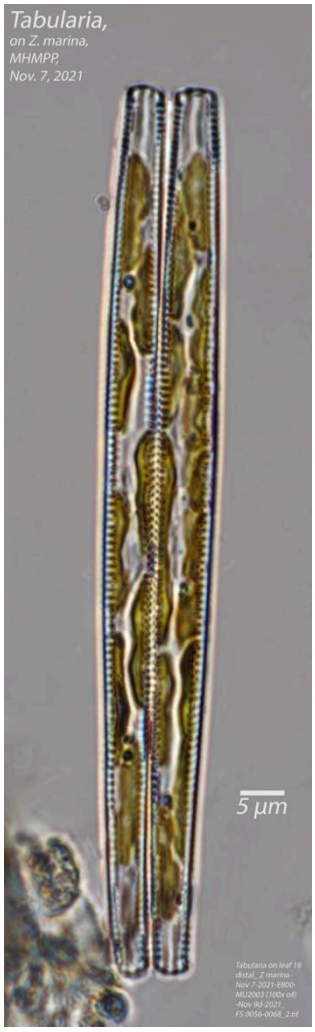




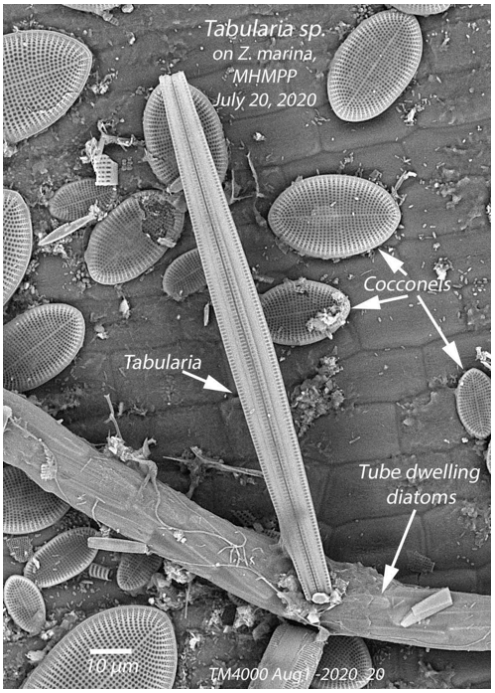
Tabularia

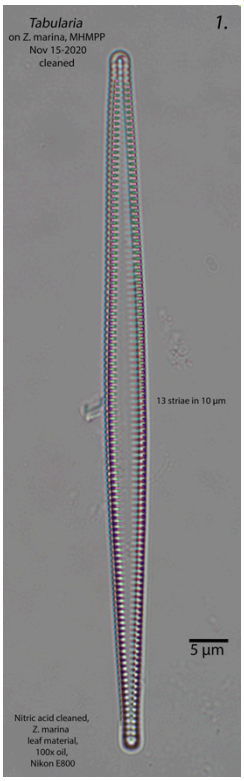

Tabularia
on Z. marina, MHMPP,
March 7, 2021, medial section
live
50 µm
E800, 20x apo lens
0017
MW

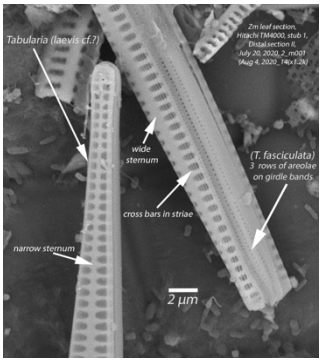

Tabularia
on Z. marina,
MHMPP
Nov. 15, 2020
10 µm
Nikon TE300,
60x DIC oil,
Dec, 28, 2020

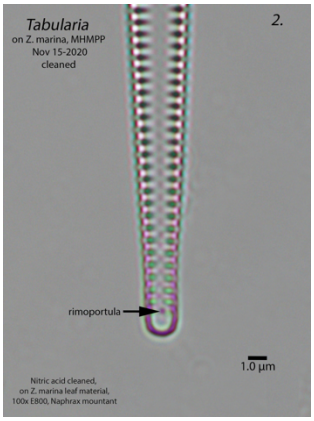

Tabularia,
on Z. marina,
MHMPP,
Nov. 7, 2021
5 µm
Tabularia on leaf 18 distal_ Z marina- Nov 7-2021-E800- MU2003 (100x oil) -Nov 9d-2021_ FS 0056-0068_2.tif

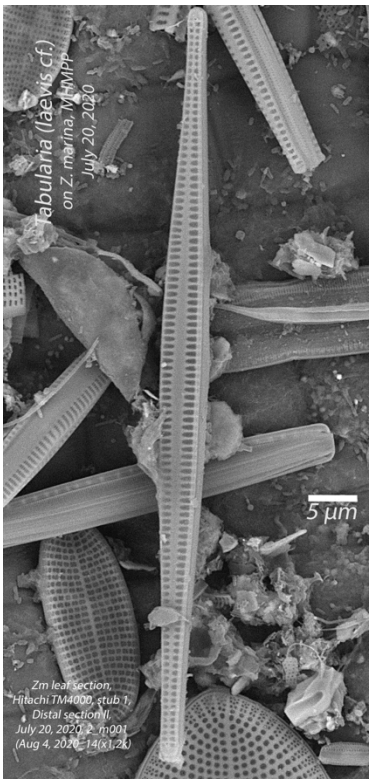

Tabularia,
on Z. marina,
MHMPP,
Nov. 7, 2021
Tabularia on leaf 18 distal_ Z marina -Nov 7-2021-E800- MU2003 (100x oil)- Nov 9d-2021_ FS 0081-82_2.tif
5 µm

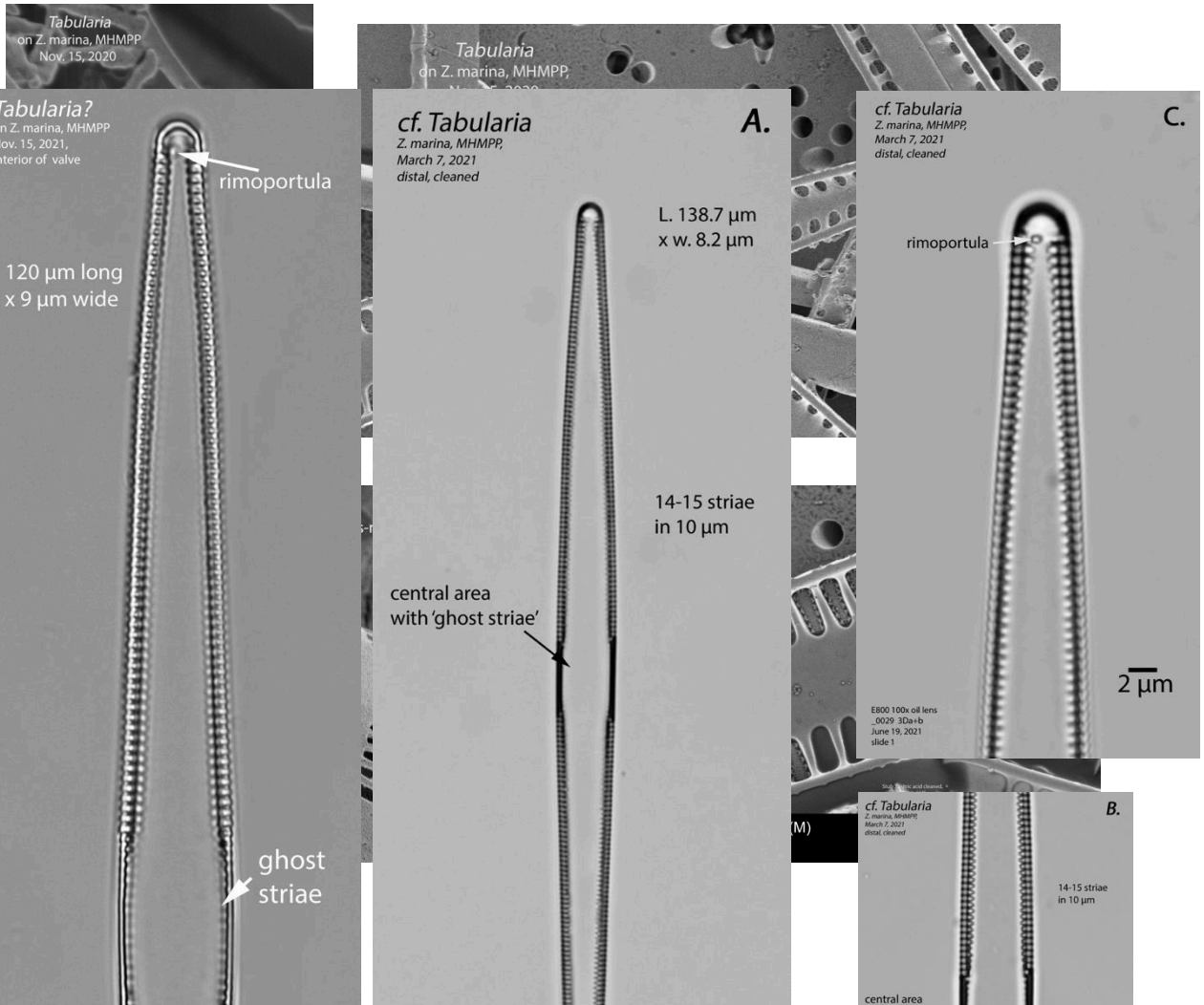

Tabularia sp.
on Z. marina,
MHMPP
July 20, 2020
Cocconeis
Tabularia
Tube dwelling diatoms
10 µm
TM4000 Aug 1 -2020_20

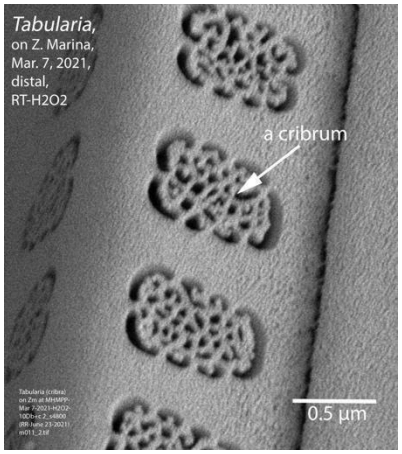

Tabularia
on Z. marina, MHMPP
Nov 15-2020
cleaned
1.
13 striae in 10 µm
5 µm
Nitric acid cleaned,
Z. marina
leaf material,
100x oil,
Nikon E800


Tabularia (laevis cf.?)
wide sternum
cross bars in striae
narrow sternum
(T. fasciculata)
3 rows of areolae on girdle bands
2 µm

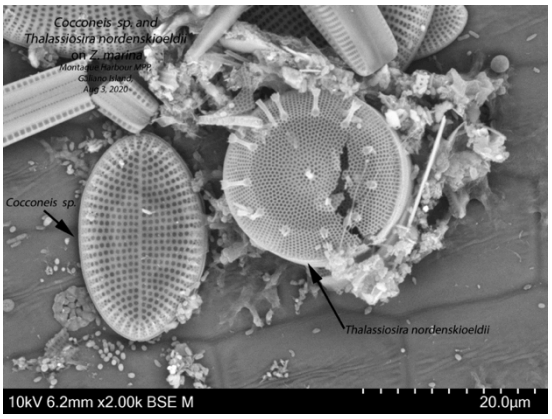

Tabularia
on Z. marina, MHMPP
Nov 15-2020
cleaned
2.
rimoportula
1.0 µm
Nitric acid cleaned,
on Z. marina leaf material,
100x E800, Naphrax mountant

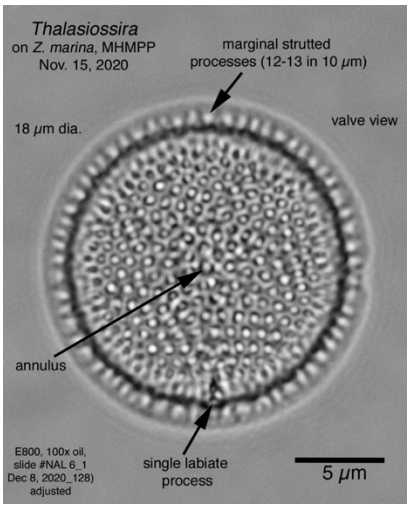

Tabularia (laevis cf.)
on Z. marina, MHMPP
July 20, 2020
5 µm
Zm leaf section,
Hitachi TM4000, stub 1,
Distal section II,
July 20, 2020_2_m001
(Aug 4, 2020 - 14(x1.2k)

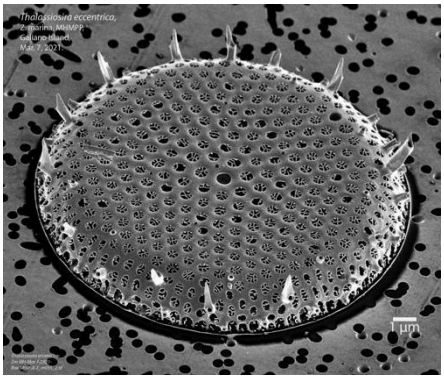

Tabularia
on Z. marina, MHMPP
Nov. 15, 2020
Tabularia?
on Z. marina, MHMPP
Nov. 15, 2021,
interior of valve
rimoportula
120 µm long
x 9 µm wide
ghost
striae
cf. Tabularia
Z. marina, MHMPP,
March 7, 2021
distal, cleaned
A.
L. 138.7 µm
x w. 8.2 µm
14-15 striae
in 10 µm
central area
with 'ghost striae'
cf. Tabularia
Z. marina, MHMPP,
March 7, 2021
distal, cleaned
C.
rimoportula
2 µm
E800 100x oil lens
_0029 3Da+b
June 19, 2021
slide 1
cf. Tabularia
B.
14-15 striae
in 10 µm
central area

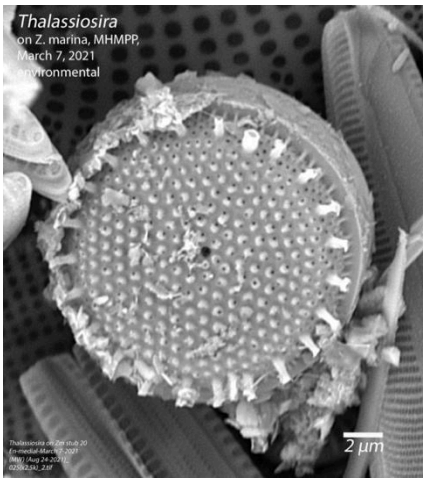

Tabularia,
on Z. Marina,
Mar. 7, 2021,
distal,
RT-H2O2
a cribrum
0.5 µm

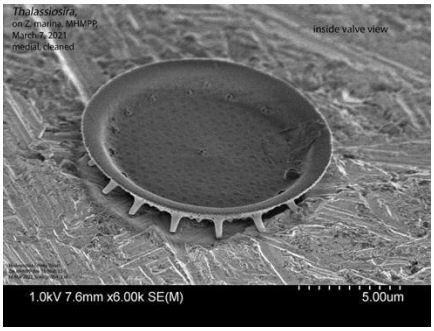
***Thalassiosira*:**

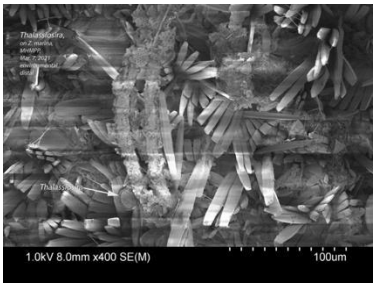


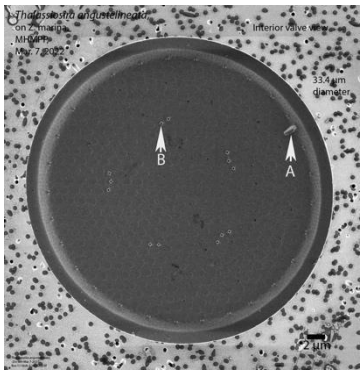




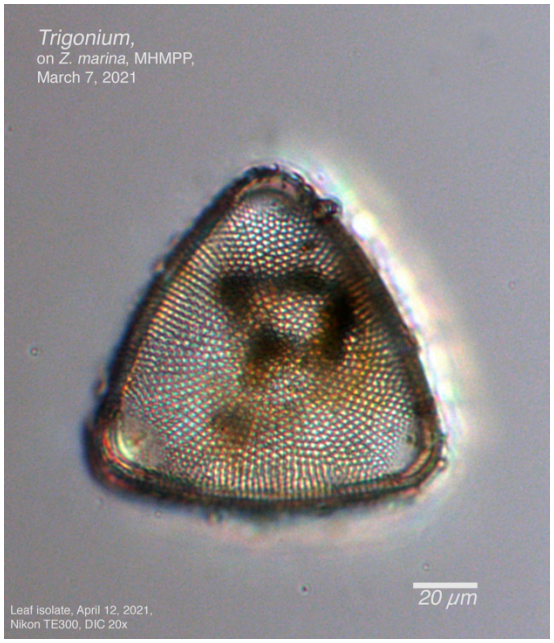


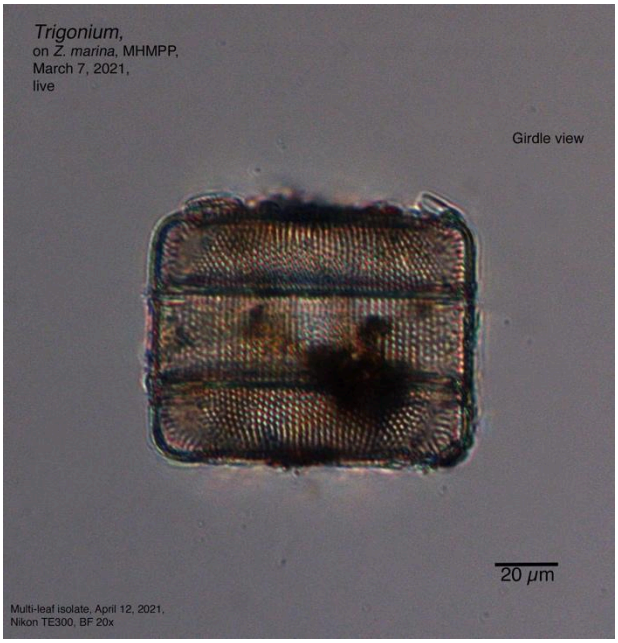




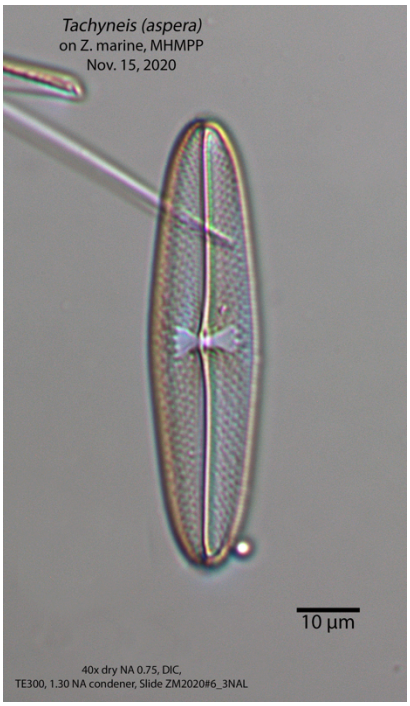


Trigonium

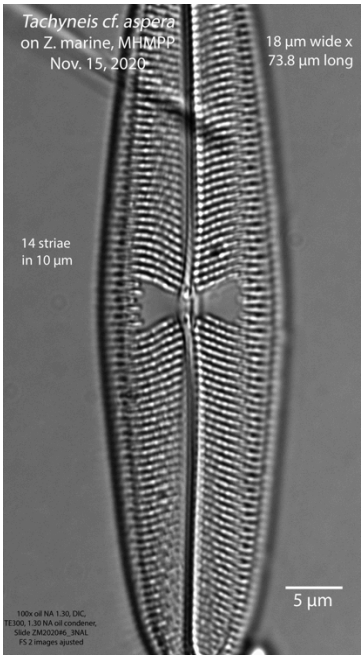

Trigonium,
on *Z. marina*, MHMPP,
March 7, 2021
20 μm
Leaf isolate, April 12, 2021,
Nikon TE300, DIC 20x


Trigonium,
on *Z. marina*, MHMPP,
March 7, 2021,
live
Girdle view
20 μm
Multi-leaf isolate, April 12, 2021,
Nikon TE300, BF 20x

Trachyneis


Tachyneis (aspera)
on Z. marine, MHMPP
Nov. 15, 2020
10 µm
40x dry NA 0.75, DIC,
TE300, 1.30 NA condener, Slide ZM2020#6_3NAL

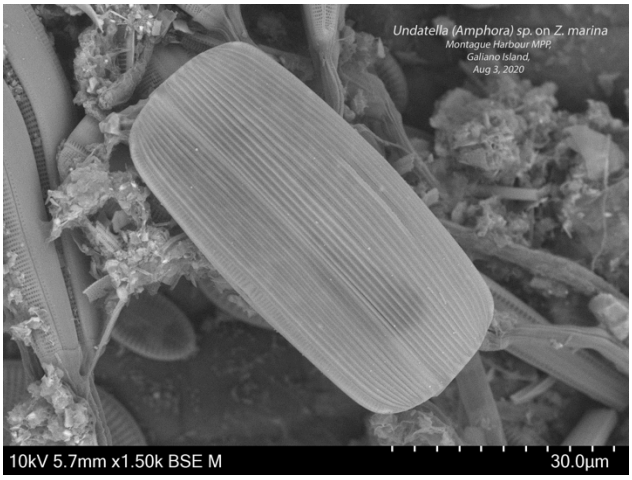

Trachyneis (aspera) on *Z. marina*,
Montague Harbour MPP,
Aug. 4, 2020
40x dry E800 FS 4 images
Cleaned with H2O2, Oct 23, 2020


Tachyneis cf. aspera
on Z. marine, MHMPP
Nov. 15, 2020
18 µm wide x
73.8 µm long
14 striae
in 10 µm
5 µm
100x oil NA 1.30, DIC,
TE300, 1.30 NA oil condener,
Slide ZM2020#6_3NAL
FS 2 images ajusted


Trachyneis sp, girdle view,
on Z. marina, MHMPP
Nov 15, 2020
5 µm
slide: 6_2-NAL

Tryblionella or Psammodictyon

***Undatella?*:** (likely.)



Images of Unidentified Genera