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Ecology and seasonality of *Pseudo-nitzschia* species (Bacillariophyceae) in the northwestern Adriatic Sea over a 30-years period (1988–2020)

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Ecology and seasonality of *Pseudo-nitzschia* species (Bacillariophyceae) in the northwestern Adriatic Sea over a 30-year period (1988-2020)

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Table S1. List of *Pseudo-nitzschia* spp. strains isolated in the LTER Senigallia transect (N Adriatic Sea) in January 2018-January 2020. The three columns on the right, i.e. cover%, identity% and best match, are referred to the BLAST results.

Species	Strain	GenBank code	Marker	Cover%	Identity%	Best match	Reference
<i>Pseudo-nitzschia calliantha</i>	031811	MW560734	ITS	99	100	HE663415	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia calliantha</i>	031813	MW898689	ITS	100	100	KT247437	This study
<i>Pseudo-nitzschia calliantha</i>	05181	MW898690	ITS	100	99.75	HE663442	This study
<i>Pseudo-nitzschia calliantha</i>	06181	MW898691	ITS	99	100	DQ990359	This study
<i>Pseudo-nitzschia calliantha</i>	06183	MW898692	ITS	100	100	DQ990359	This study
<i>Pseudo-nitzschia calliantha</i>	11181	MW560735	ITS	100	100	KT247435	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia calliantha</i>	12181	MW898693	ITS	100	99.6	DQ990359	This study
<i>Pseudo-nitzschia calliantha</i>	12183	MW560733	ITS	100	99.75	KT247439	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	091910	MW560740	ITS	98	99.86	LT596195	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	091911	MW898694	ITS	100	100	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	091912	MW898695	ITS	99	99.86	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	091913	MW898696	ITS	98	99.58	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	091914	MW898697	ITS	100	99.86	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	091917	MW560741	ITS	99	99.72	LT596195	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	09192	MW898698	ITS	99	99.71	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	09193	MW898699	ITS	99	99.71	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	09195	MW898700	ITS	98	99.57	LT596195	This study
<i>Pseudo-nitzschia</i> cf. <i>arenysensis</i>	09199	MW560739	ITS	98	99.86	LT596195	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia delicatissima</i>	02191	MW898701	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	021913	MW898702	ITS	100	99.86	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	021914	MW898703	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	021915	MW898704	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	021916	MW898705	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	021917	MW898706	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	021919	MW898707	ITS	100	100	AY519281	This study
<i>Pseudo-nitzschia delicatissima</i>	021920	MW560744	ITS	100	100	AY519281	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia delicatissima</i>	02193	MW898708	ITS	100	100	AY519281	This study
<i>Pseudo-nitzschia delicatissima</i>	02195	MW898709	ITS	100	100	AY519281	This study
<i>Pseudo-nitzschia delicatissima</i>	02196	MW898710	ITS	100	100	MK106647	This study

Continued

Table continued

Species	Strain	GenBank code	Marker	Cover%	Identity%	Best match	Reference
<i>Pseudo-nitzschia delicatissima</i>	02197	MW898711	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	02198	MW898712	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	02199	MW898713	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	03181	MW898714	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031819	MW898715	ITS	100	99.32	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	03182	MW898716	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031820	MW560742	ITS	100	100	AY519281	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia delicatissima</i>	031821	MW898717	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031822	MW898718	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031825	MW898719	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	03183	MW898720	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031833	MW898721	ITS	99	99.58	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031835	MW898722	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031836	MW898723	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031837	MW898724	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	031838	MW898725	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	03185	MW898726	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	03186	MW898727	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	03188	MW898728	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	04183	MW898729	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	04186	MW898730	ITS	100	100	MK106647	This study
<i>Pseudo-nitzschia delicatissima</i>	04189	MW560743	ITS	100	100	MK106647	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia fraudulenta</i>	031824	MW560738	ITS	100	100	KC329503	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia mannii</i>	06184	MW560736	ITS	100	99.75	HE650978	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia mannii</i>	06185	MW560737	ITS	100	99.75	HE650978	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia pungens</i>	01181	MW898731	ITS	100	100	KT247433	This study
<i>Pseudo-nitzschia pungens</i>	01184	MW560745	ITS	100	100	EU599141	Accoroni <i>et al.</i> , 2020
<i>Pseudo-nitzschia pungens</i>	01186	MW114839	ITS	100	100	KT247433	Accoroni <i>et al.</i> , 2020
<i>Pseudo-nitzschia pungens</i>	01187	MW898733	ITS	100	100	KT247433	This study
<i>Pseudo-nitzschia pungens</i>	01188	MW898732	ITS	100	100	KT247433	This study
<i>Pseudo-nitzschia calliantha</i>	12181	MW898320	LSU	100	100	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	12182	MW898321	LSU	100	99.86	MK682487	This study
<i>Pseudo-nitzschia calliantha</i>	12183	MW560485	LSU	100	100	MK682487	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia calliantha</i>	0718	MW898322	LSU	100	99.34	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	01182	MW898323	LSU	100	99.87	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	031811	MW560486	LSU	99	100	MK682478	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia calliantha</i>	031813	MW898324	LSU	99	99.73	MK682478	This study

Continued

Table continued

Species	Strain	GenBank code	Marker	Cover%	Identity%	Best match	Reference
<i>Pseudo-nitzschia calliantha</i>	06181	MW898325	LSU	100	99.19	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	061811	MW898326	LSU	100	100	MK682487	This study
<i>Pseudo-nitzschia calliantha</i>	061812	MW898327	LSU	100	99.73	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	061813	MW898328	LSU	99	99.87	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	06183	MW898329	LSU	100	99.73	MK682487	This study
<i>Pseudo-nitzschia calliantha</i>	06186	MW898330	LSU	100	100	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	06187	MW898331	LSU	99	99.74	MK682487	This study
<i>Pseudo-nitzschia calliantha</i>	06189	MW898332	LSU	100	100	MK682478	This study
<i>Pseudo-nitzschia calliantha</i>	11181	MW560487	LSU	99	99.6	MK682478	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia calliantha</i>	11182	MW898333	LSU	100	100	MK682487	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091910	MW560492	LSU	100	99.4	KX290867	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia cf. arenysensis</i>	091911	MW898334	LSU	100	99.56	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091912	MW898335	LSU	100	99.56	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091913	MW898336	LSU	100	99.54	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091914	MW898337	LSU	100	99.54	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091915	MW898338	LSU	100	99.56	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091916	MW898339	LSU	100	99.56	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	091917	MW560493	LSU	100	99.57	KX290867	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia cf. arenysensis</i>	09192	MW898340	LSU	100	99.56	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	09193	MW898341	LSU	100	99.57	KX290867	This study
<i>Pseudo-nitzschia cf. arenysensis</i>	09195	MW898342	LSU	100	99.57	KX290867	This study
<i>Pseudo-nitzschia delicatissima</i>	02191	MW898343	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021910	MW898344	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021911	MW898345	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021912	MW898346	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021913	MW898347	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021914	MW898348	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021915	MW898349	LSU	100	99.71	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021916	MW898350	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021917	MW898351	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021918	MW898352	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021919	MW898353	LSU	99	99.86	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02192	MW898354	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	021920	MW560496	LSU	100	99.59	MK682504	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia delicatissima</i>	021921	MW898355	LSU	100	99.59	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02193	MW898356	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02194	MW898357	LSU	100	100	MK682504	This study

Continued

Table continued

Species	Strain	GenBank code	Marker	Cover%	Identity%	Best match	Reference
<i>Pseudo-nitzschia delicatissima</i>	02195	MW898358	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02196	MW898359	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02197	MW898360	LSU	100	99.56	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02198	MW898361	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	02199	MW898362	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	03181	MW898363	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031815	MW898364	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031816	MW898365	LSU	100	98,46	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031817	MW898366	LSU	100	98,48	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031818	MW898367	LSU	100	99,44	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031819	MW898368	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	03182	MW898369	LSU	99	99.73	MK682502	This study
<i>Pseudo-nitzschia delicatissima</i>	031820	MW560494	LSU	100	99.72	MK682504	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia delicatissima</i>	031821	MW898370	LSU	100	99.72	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031825	MW898371	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031827	MW898372	LSU	100	96,66	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031828	MW898373	LSU	100	99.87	MK682502	This study
<i>Pseudo-nitzschia delicatissima</i>	03183	MW898374	LSU	100	99,86	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031831	MW898375	LSU	100	81,75	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031833	MW898376	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031835	MW898377	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031836	MW898378	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031837	MW898379	LSU	100	99.87	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031838	MW898380	LSU	100	99.87	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031839	MW898381	LSU	100	99.87	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	031840	MW898382	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	03185	MW898383	LSU	99	99.87	MK682502	This study
<i>Pseudo-nitzschia delicatissima</i>	03186	MW898384	LSU	100	99,86	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	03188	MW898385	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	03189	MW898386	LSU	99	99.33	MK682502	This study
<i>Pseudo-nitzschia delicatissima</i>	041810	MW898387	LSU	100	99.86	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	04182	MW898388	LSU	100	99.6	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	04183	MW898389	LSU	100	100	MK682502	This study
<i>Pseudo-nitzschia delicatissima</i>	04184	MW898390	LSU	100	99.87	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	04185	MW898391	LSU	100	99.47	EF566017	This study
<i>Pseudo-nitzschia delicatissima</i>	04186	MW898392	LSU	100	99.73	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	04187	MW898393	LSU	100	100	MK682502	This study

Continued

Table continued

Species	Strain	GenBank code	Marker	Cover%	Identity%	Best match	Reference
<i>Pseudo-nitzschia delicatissima</i>	04189	MW560495	LSU	100	99.59	MK682504	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia delicatissima</i>	05182	MW898394	LSU	100	99.87	MK682502	This study
<i>Pseudo-nitzschia delicatissima</i>	05191	MW898395	LSU	100	99.35	MK682504	This study
<i>Pseudo-nitzschia delicatissima</i>	05193	MW898396	LSU	100	100	MK682504	This study
<i>Pseudo-nitzschia fraudulenta</i>	031824	MW560490	LSU	100	97.97	MK682507	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia fraudulenta</i>	031829	MW898397	LSU	100	99.47	MK682507	This study
<i>Pseudo-nitzschia mannii</i>	031826	MW898398	LSU	100	100	DQ813814	This study
<i>Pseudo-nitzschia mannii</i>	06182	MW898399	LSU	100	100	KX215916	This study
<i>Pseudo-nitzschia mannii</i>	06184	MW560488	LSU	100	99.87	DQ813814	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia mannii</i>	06185	MW560489	LSU	100	99.29	MK981217	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia mannii</i>	06188	MW898400	LSU	100	100	MK981220	This study
<i>Pseudo-nitzschia pungens</i>	01181	MW898401	LSU	100	100	KF726086	This study
<i>Pseudo-nitzschia pungens</i>	01184	MW560497	LSU	100	100	MK682490	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia pungens</i>	01185	MW560498	LSU	100	99.86	MK682490	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia pungens</i>	01186	MW560499	LSU	100	100	KF726086	Giulietti <i>et al.</i> , 2021
<i>Pseudo-nitzschia pungens</i>	01187	MW898402	LSU	100	99.72	KF726086	This study
<i>Pseudo-nitzschia pungens</i>	031810	MW898403	LSU	99	99.08	KF726086	This study
<i>Pseudo-nitzschia pungens</i>	031832	MW898404	LSU	100	100	KF726086	This study
<i>Pseudo-nitzschia pungens</i>	03187	MW898405	LSU	100	99.86	MK682490	This study
<i>Pseudo-nitzschia pungens</i>	04191	MW898406	LSU	100	100	MK682490	This study
<i>Pseudo-nitzschia pungens</i>	04194	MW898407	LSU	100	100	MK682490	This study
<i>Pseudo-nitzschia pungens</i>	04196	MW898408	LSU	100	100	MK682490	This study
<i>Pseudo-nitzschia pungens</i>	05198	MW898409	LSU	100	99.85	MK682490	This study