

**Table S1: Summary of MMETSP samples used in this study.** The table is based in information provided by the MMETSP project page.

Sample name	Group	Family	Species	Strain	Clonal	Axenic
MMETSP0093	Dinoflagellata	Goniodomataceae	<i>Alexandrium monilatum</i>	CCMP3105	1	No
MMETSP0095	Dinoflagellata	Goniodomataceae	<i>Alexandrium monilatum</i>	CCMP3105	1	No
MMETSP0096	Dinoflagellata	Goniodomataceae	<i>Alexandrium monilatum</i>	CCMP3105	1	No
MMETSP0097	Dinoflagellata	Goniodomataceae	<i>Alexandrium monilatum</i>	CCMP3105	1	No
MMETSP0378	Dinoflagellata	Goniodomataceae	<i>Alexandrium tamarense</i>	CCMP1771	1	1
MMETSP0380	Dinoflagellata	Goniodomataceae	<i>Alexandrium tamarense</i>	CCMP1771	1	1
MMETSP0382	Dinoflagellata	Goniodomataceae	<i>Alexandrium tamarense</i>	CCMP1771	1	1
MMETSP0384	Dinoflagellata	Goniodomataceae	<i>Alexandrium tamarense</i>	CCMP1771	1	1
MMETSP0795	Dinoflagellata	Goniodomataceae	<i>Amoebophrya</i> sp.	Ameob2	1	No
MMETSP0258	Dinoflagellata	Gymnodiniaceae	<i>Amphidinium carterae</i>	CCMP1314	Unknown	No
MMETSP0259	Dinoflagellata	Gymnodiniaceae	<i>Amphidinium carterae</i>	CCMP1314	Unknown	No
MMETSP0398C	Dinoflagellata	Gymnodiniaceae	<i>Amphidinium carterae</i>	CCMP1314	1	No
MMETSP0399	Dinoflagellata	Gymnodiniaceae	<i>Amphidinium carterae</i>	CCMP1314	1	No
MMETSP1036	Dinoflagellata	Unknown	<i>Azadinium spinosum</i>	3D9	1	1
MMETSP1037	Dinoflagellata	Unknown	<i>Azadinium spinosum</i>	3D9	1	1
MMETSP1038	Dinoflagellata	Unknown	<i>Azadinium spinosum</i>	3D9	1	1
MMETSP1462	Dinoflagellata	Peridiniaceae	<i>Brandtodinium nutriculum</i>	RCC3387	1	No
MMETSP1074	Dinoflagellata	Ceratiaceae	<i>Ceratium fusus</i>	PA161109	1	No
MMETSP1075	Dinoflagellata	Ceratiaceae	<i>Ceratium fusus</i>	PA161109	1	No
MMETSP0323	Dinoflagellata	Crypthecodiniaceae	<i>Crypthecodinium cohnii</i>	Seligo	1	1
MMETSP0324	Dinoflagellata	Crypthecodiniaceae	<i>Crypthecodinium cohnii</i>	Seligo	1	1
MMETSP0325	Dinoflagellata	Crypthecodiniaceae	<i>Crypthecodinium cohnii</i>	Seligo	1	1
MMETSP0326	Dinoflagellata	Crypthecodiniaceae	<i>Crypthecodinium cohnii</i>	Seligo	1	1
MMETSP0797	Dinoflagellata	Dinophysiaceae	<i>Dinophysis acuminata</i>	DAEP01	Unknown	No
MMETSP0116	Dinoflagellata	Peridiniaceae	<i>Durinskia baltica</i>	CSIRO CS-38	No	No
MMETSP0117	Dinoflagellata	Peridiniaceae	<i>Durinskia baltica</i>	CSIRO CS-38	No	No
MMETSP0766	Dinoflagellata	Goniodomataceae	<i>Gambierdiscus australes</i>	CAWD 149	1	No
MMETSP0118	Dinoflagellata	Peridiniaceae	<i>Glenodinium foliaceum</i>	CCAP 1116/3	No	No
MMETSP0119	Dinoflagellata	Peridiniaceae	<i>Glenodinium foliaceum</i>	CCAP 1116/3	No	No
MMETSP1439	Dinoflagellata	Gonyaulacaceae	<i>Gonyaulax spinifera</i>	CCMP409	Unknown	No
MMETSP0784	Dinoflagellata	Gymnodiniaceae	<i>Gymnodinium catenatum</i>	GC744	1	No
MMETSP1148	Dinoflagellata	Gymnodiniaceae	<i>Gyrodinium dominans</i>	SPMC 103	No	No
MMETSP0503	Dinoflagellata	Heterocapsaceae	<i>Heterocapsa rotundata</i>	SCCAP K-0483	No	No
MMETSP0448	Dinoflagellata	Heterocapsaceae	<i>Heterocapsa triquetra</i>	CCMP 448	1	No
MMETSP0027	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	CCMP2229	1	No
MMETSP0029	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	CCMP2229	1	No
MMETSP0030	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	CCMP2229	1	No
MMETSP0031	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	CCMP2229	1	No
MMETSP0201	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	Wilson	Unknown	No
MMETSP0202	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	Wilson	Unknown	No
MMETSP0527	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	SP3	1	No
MMETSP0528	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	SP3	1	No
MMETSP0573	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	SP1	1	No
MMETSP0574	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	SP1	1	No
MMETSP0648	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	Wilson	1	No
MMETSP0649	Dinoflagellata	Gymnodiniaceae	<i>Karenia brevis</i>	Wilson	1	No
MMETSP1015	Dinoflagellata	Gymnodiniaceae	<i>Karlodinium micrum</i>	CCMP2283	Unknown	No
MMETSP1016	Dinoflagellata	Gymnodiniaceae	<i>Karlodinium micrum</i>	CCMP2283	Unknown	No
MMETSP1017	Dinoflagellata	Gymnodiniaceae	<i>Karlodinium micrum</i>	CCMP2283	Unknown	No
MMETSP0120	Dinoflagellata	Peridiniaceae	<i>Kryptoperidinium foliaceum</i>	CCMP 1326	No	No
MMETSP0121	Dinoflagellata	Peridiniaceae	<i>Kryptoperidinium foliaceum</i>	CCMP 1326	No	No

Continued on next page

Table S1 – Continued from previous page

Sample name	Group	Family	Species	Strain	Clonal	Axenic
MMETSP1032	Dinoflagellata	Gonyaulacaceae	<i>Lingulodinium polyedra</i>	CCMP 1738	1	No
MMETSP1033	Dinoflagellata	Gonyaulacaceae	<i>Lingulodinium polyedra</i>	CCMP 1738	1	No
MMETSP1034	Dinoflagellata	Gonyaulacaceae	<i>Lingulodinium polyedra</i>	CCMP 1738	1	No
MMETSP1035	Dinoflagellata	Gonyaulacaceae	<i>Lingulodinium polyedra</i>	CCMP 1738	1	No
MMETSP0253	Dinoflagellata	Noctilucaceae	<i>Noctiluca scintillans</i>		No	No
MMETSP0468	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>		No	No
MMETSP0469	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>		No	No
MMETSP0470	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>		No	No
MMETSP0471	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>		No	No
MMETSP1424	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>	LB1974	No	No
MMETSP1425	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>	LB1974	No	No
MMETSP1426	Dinoflagellata	Oxyrrhinaceae	<i>Oxyrrhis marina</i>	LB1974	No	No
MMETSP1338	Dinoflagellata	Suessiaceae	<i>Pelagodinium beii</i>	RCC1491		
MMETSP0370	Dinoflagellata	Peridiniaceae	<i>Peridinium aciculiferum</i>	PAER-2	1	No
MMETSP0371	Dinoflagellata	Peridiniaceae	<i>Peridinium aciculiferum</i>	PAER-2	1	No
MMETSP1440	Dinoflagellata	Suessiaceae	<i>Polarella glacialis</i>	CCMP2088	1	No
MMETSP0227	Dinoflagellata	Suessiaceae	<i>Polarella glacialis</i>	CCMP 1383	Unknown	No
MMETSP0053	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP1329		1
MMETSP0055	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP1329		1
MMETSP0056	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP1329		1
MMETSP0057	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP1329		1
MMETSP0267	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP2233	Unknown	No
MMETSP0268	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP2233	Unknown	No
MMETSP0269	Dinoflagellata	Prorocentraceae	<i>Prorocentrum minimum</i>	CCMP2233	Unknown	No
MMETSP0228	Dinoflagellata	Gonyaulacaceae	<i>Protoceratium reticulatum</i>	CCC535 (=CCMP1889)	Unknown	No
MMETSP0796	Dinoflagellata	Gonyaulacaceae	<i>Pyrodinium bahamense</i>	pbaha01	1	No
MMETSP0359	Dinoflagellata	Peridiniaceae	<i>Scrippsiella hangoei</i>	SHTV-5	1	No
MMETSP0360	Dinoflagellata	Peridiniaceae	<i>Scrippsiella hangoei</i>	SHTV-5	1	No
MMETSP0361	Dinoflagellata	Peridiniaceae	<i>Scrippsiella hangoei</i>	SHTV-5	1	No
MMETSP0367	Dinoflagellata	Peridiniaceae	<i>Scrippsiella hangoei</i> -like	SHHI-4	1	No
MMETSP0368	Dinoflagellata	Peridiniaceae	<i>Scrippsiella hangoei</i> -like	SHHI-4	1	No
MMETSP0369	Dinoflagellata	Peridiniaceae	<i>Scrippsiella hangoei</i> -like	SHHI-4	1	No
MMETSP0270	Dinoflagellata	Peridiniaceae	<i>Scrippsiella trochoidea</i>	CCMP3099	No	No
MMETSP0271	Dinoflagellata	Peridiniaceae	<i>Scrippsiella trochoidea</i>	CCMP3099	No	No
MMETSP0272	Dinoflagellata	Peridiniaceae	<i>Scrippsiella trochoidea</i>	CCMP3099	No	No
MMETSP1115	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	CCMP2430	No	No
MMETSP1116	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	CCMP2430	No	No
MMETSP1117	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	CCMP2430	No	No
MMETSP1122	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	Mp	No	No
MMETSP1123	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	Mp	No	No
MMETSP1124	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	Mp	No	No
MMETSP1125	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	Mp	No	No
MMETSP1367	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	C1	Unknown	No
MMETSP1369	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	C1	Unknown	No
MMETSP1370	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	C15	Unknown	No
MMETSP1371	Dinoflagellata	Symbiodiniaceae	<i>Symbiodinium</i> sp.	C15	Unknown	No
MMETSP0224	Dinoflagellata	Gymnodiniaceae	<i>Togula jolla</i>	CCCM 725	Unknown	No
MMETSP0924C	Perkinsida	Perkinsidae	<i>Perkinsus chesapeaki</i>	ATCC PRA-65	1	No
MMETSP0925	Perkinsida	Perkinsidae	<i>Perkinsus chesapeaki</i>	ATCC PRA-65	1	No
MMETSP0922	Perkinsida	Perkinsidae	<i>Perkinsus marinus</i>	ATCC 50439	1	No
MMETSP0923	Perkinsida	Perkinsidae	<i>Perkinsus marinus</i>	ATCC 50439	1	No
MMETSP0290	Chromerida	Unknown	<i>Chromera velia</i>	CCMP2878	1	1