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Characterizing photosymbiosis in modern planktonic foraminifera

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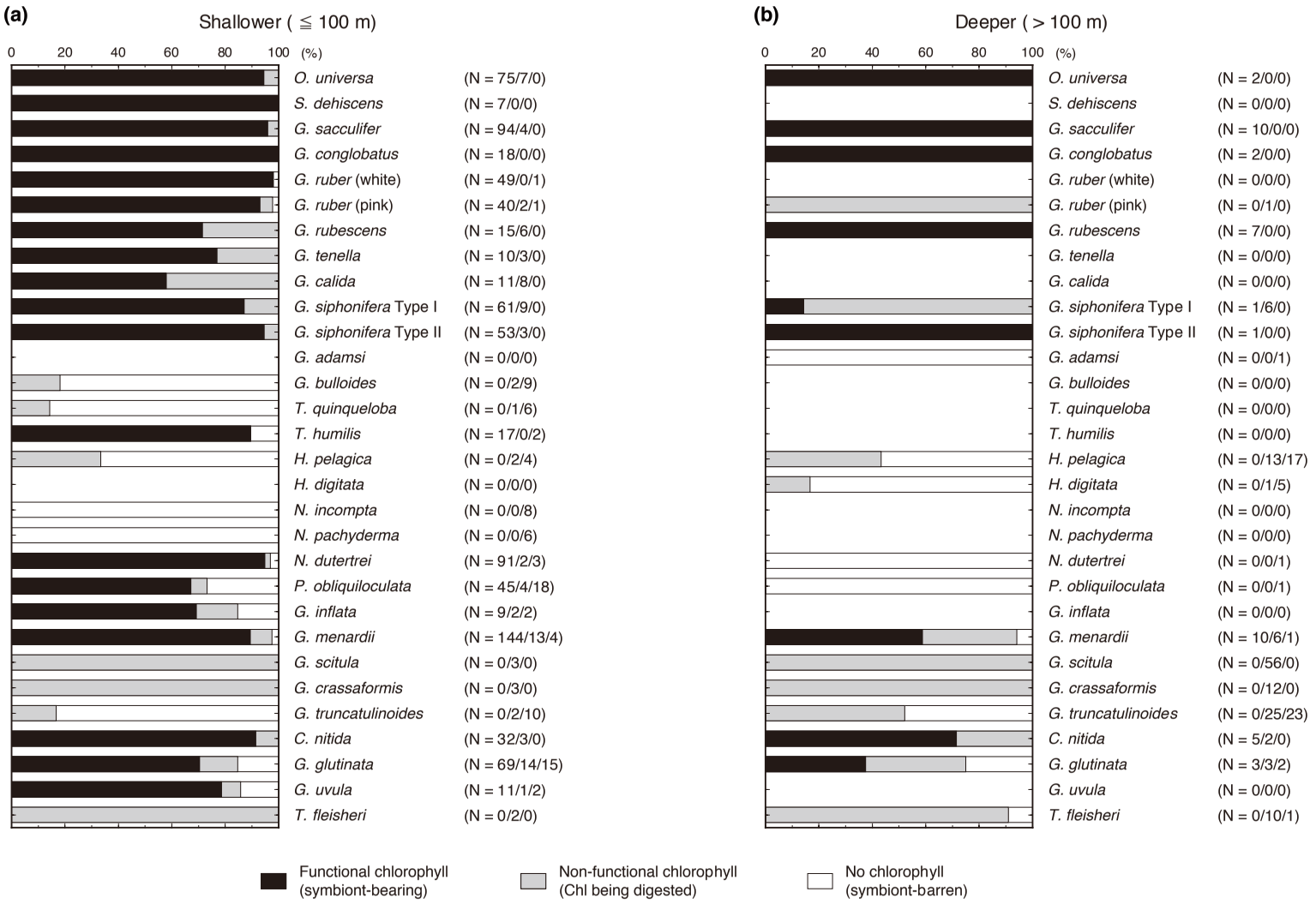

Figure S1. Summary of categorization of intracellular chlorophyll. (a) Specimens collected shallower than 100 m. (b) Specimens collected deeper than 100 m. The functionality of chlorophyll indicates the presence of symbionts. Numbers of specimens for three categories are represented in parentheses (functional chlorophyll / non-functional chlorophyll / no chlorophyll). The percentage of functional chlorophyll are essentially the same as the symbiont possession rate used as a variable to characterize photosymbiosis (see text for detail).

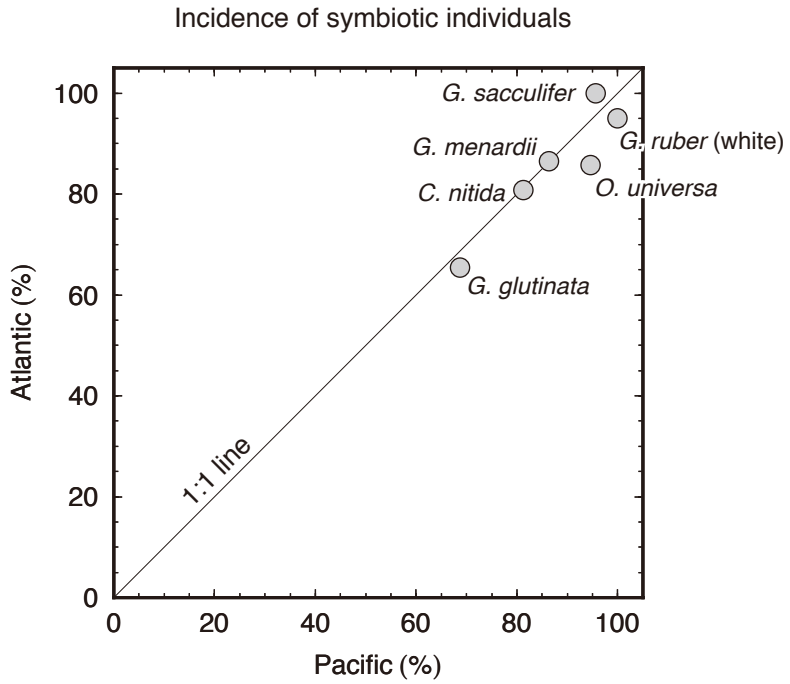

Figure S2. Cross plot of the incidence of symbiotic individuals (%) collected from the Pacific and the Atlantic. Species with enough sample number (N > 15 for both basins) are shown. The difference between the two basin was not significant (Fisher's exact test, *O. universa*; $p = 0.21$, *G. sacculifer*; $p = 1.0$, *G. ruber* (white); $p = 0.40$, *G. menardii*; $p = 1.0$, *C. nitida*; $p = 1.0$, *G. glutinata*; $p = 0.81$).

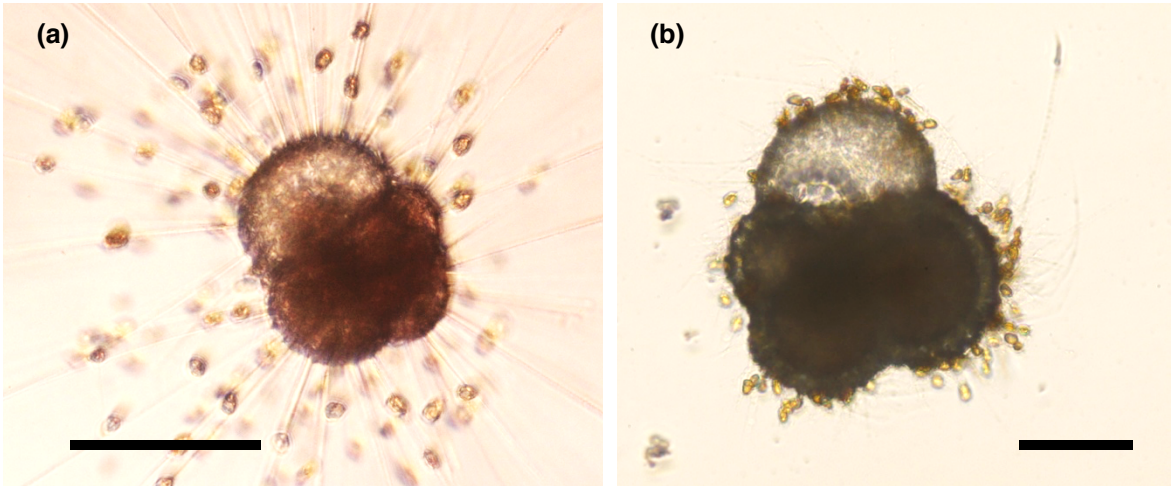

Figure S3. Photomicrographs of *Globoturborotalita* species showing the presence of dinoflagellate symbionts. (a) *Globoturborotalita rubescens*, (b) *Globoturborotalita tenella* (spines are broken). Scale bars are 100 µm. Brownish algal cells are visible in both species. The algae have ovoid morphology with a slight constriction at the middle, which is typically seen in the other dinoflagellate-bearing species like *G. sacculifer*, *G. ruber*, *G. conglobatus*, and *O. universa*. The algal cell size were ca. 10 µm in maximum length. Previous studies on the molecular phylogeny of spinose planktonic foraminifera showed that *G. rubescens* consistently forms a clade together with *G. conglobatus* and *G. ruber* (Seears et al., 2012; Spezzaferri et al., 2015). Considering the molecular phylogeny of modern species together with the fossil records, Spezzaferri et al. (2015) also argued that the *G. ruber-conglobatus* group including *G. rubescens* and the *G. sacculifer-O. universa* group shared a common ancestor that diverged in the late Oligocene. It implied that *G. rubescens* is likely to share the same dinoflagellate symbiont *Pelegodinium béii*. The photophysiology of the symbionts in *G. rubescens* did not contradict to this assumption from phylogeny. To clarify this, molecular identification of their symbionts is strongly required.

Seears, H. A., Darling, K. F., and Wade, C. M.: Ecological partitioning and diversity in tropical planktonic Foraminifera, BMC Evolutionary Biology, 12, 54, doi:10.1186/ 1471-2148-12-54, 2012.

Spezzaferri, S., Kucera, M., Pearson, P. N., Wade, B. S., Rappo, S., Poole, C. R., Morard, R., and Stalder, C.: Fossil and genetic evidence for the polyphyletic nature of the planktonic foraminifera "*Globigerinoides*", and description of the new genus *Trilobatus*, PLoS ONE, 10, 5, e0128108, 2015.

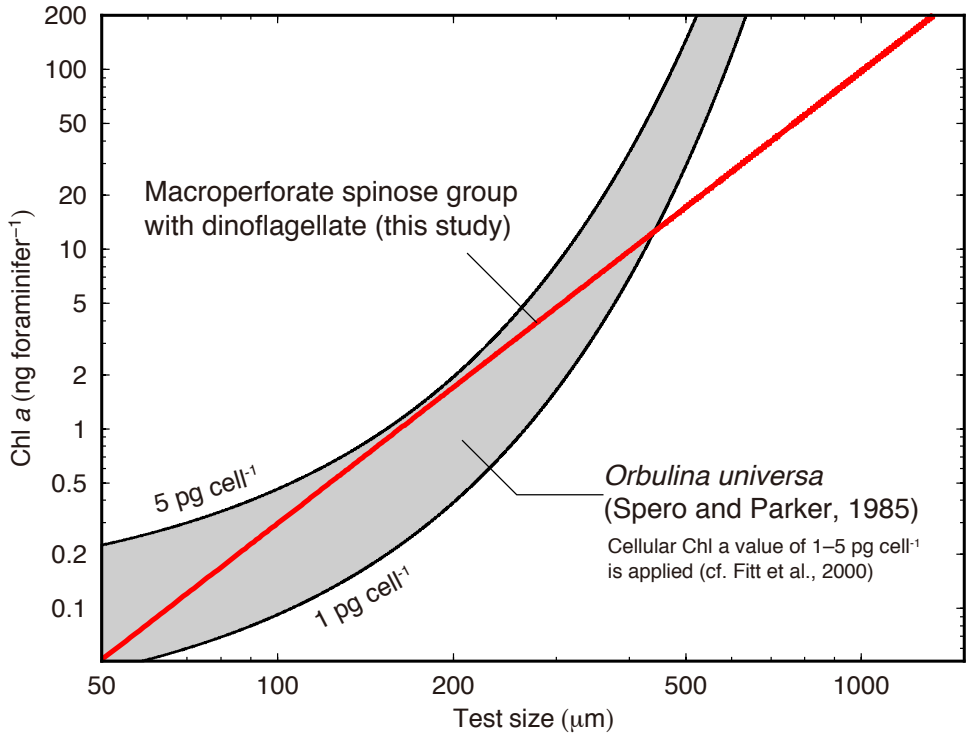

Figure S4. Comparison of the relationship between test size and Chl *a* content for dinoflagellate-bearing species from Spero and Parker (1985) and this study. Red line; relationship in the dinoflagellate-bearing group (regression line for macroperforate spinose group with dinoflagellate in Figure 9). Gray area; relationship in *Orbulina universa* derived from Spero and Parker (1985) using a range of Chl *a* content per symbiont cell (1–5 pg cell^{-1}, cf. Fitt et al., 2000, for *Symbiodinium* in corals). The relationship between test size and symbiont density (number of symbiont per foraminifera) in Spero and Parker (1985) was presented as an exponential function, whereas our test size-Chl *a* content relationship was a power function. Therefore, the gap between the two estimations in larger test size is due to the difference in the regression models. In fact, the regression analysis of Spero and Parker (1985) was performed for the test size range of 100–400 μm, and in this size range, we can find that the two estimations overlap. We can say that, under the assumption of general Chl *a* content of a symbiont cell, our Chl *a* results per foraminifera are comparable to the derived values from the previous study.

Fitt, W. K., McFarland, F. K., Warner, M. E., and Chilcoat, G. C.: Seasonal patterns of tissue biomass and densities of symbiotic dinoflagellates in reef corals and relation to coral bleaching, Limnology and Oceanography, 45, 677–685, 2000.

Table S1. Individual results of fast repetition rate fluorometric measurements and sampling information. When a specimen was collected from the continuous pumped seawater on the ship, the position of the mid time of the sampling interval is represented. In such cases, no specific site name is given. Test size is the maximum test diameter whatever the growth stage is. Pre-sphered *O. universa* specimens are marked with *.

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
Orbulina universa										
	0718-1824_thin-spinose*	320	17.2	0.50	495	MR13-04	2013.07.18	35°35.2'N-145°55.6'E	Surface	DF-03
	0719-0612_uni*	200	6.0	0.50	410	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	0719-0612-uni2	422	17.2	0.45	444	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	0720-1218_uni_large*	278	5.9	0.45	439	MR13-04	2013.07.25	42°24.3'N-153°02.7'E	Surface	DF-03
	0725-1924_uni*	300	21.5	0.40	392	MR13-04	2013.07.25	42°24.3'N-152°56.3'E	Surface	DF-03
	0725-1924_uni2	670	19.4	0.41	456	MR13-04	2013.07.25	42°24.3'N-152°56.3'E	Surface	DF-03
	0725-1924_uni-juve*	200	10.6	0.45	374	MR13-04	2013.07.25	42°24.3'N-152°56.3'E	Surface	DF-03
	0725-1319_uni	600	14.0	0.51	605	MR13-04	2013.07.25	43°21.2'N-154°27.1'E	Surface	DF-03
	0725-1319_uni2	444	28.3	0.49	611	MR13-04	2013.07.25	43°21.2'N-154°27.1'E	Surface	DF-03
	0725-1319_uni-juv*	311	6.0	0.43	561	MR13-04	2013.07.25	43°21.2'N-154°27.1'E	Surface	DF-03
	0725-1319_uni3	411	21.8	0.44	466	MR13-04	2013.07.25	43°21.2'N-154°27.1'E	Surface	DF-03
	0725-1924_uni3*	300	15.8	0.51	448	MR13-04	2013.07.25	42°24.3'N-152°56.3'E	Surface	DF-03
	0725-1924_uni4	478	25.5	0.52	463	MR13-04	2013.07.25	42°24.3'N-152°56.3'E	Surface	DF-03
	0725-1924_uni5	489	30.1	0.33	492	MR13-04	2013.07.25	42°24.3'N-152°56.3'E	Surface	DF-03
	2_uni	620	29.4	0.49	546	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	2-uni1*	179	2.7	0.51	329	MR14-02	2014.02.16	7°32.5'N-134°45'E	Surface	DF-03
	7-uni3	464	12.1	0.44	355	MR14-02	2014.02.18	3°52'N-141°20'E	Surface	DF-03
	29-uni5*	321	6.2	0.43	393	MR14-02	2014.03.12	7°58'N-156°2'E	Surface	DF-03
	31-uni6	875	55.9	0.50	371	MR14-02	2014.03.14	15°N-153°N	Surface	DF-03
	KY14-09_4-uni-juve*	357	9.5	0.52	544	KY14-09	2014.06.21	30°03.1'N-144°58.3'E	Surface	DF-03
	tap1_uni1*	216	3.0	0.50	618	KS-16-9	2016.07.18	34°10.4'N-140°04.5'E	Surface	DF-03
	Mana_uni1	785	36.1	0.51	755	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_uni2	904	51.4	0.48	538	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_uni4	871	13.5	0.52	783	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	St11_uni1	818	50.0	0.54	328	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_uni2	818	53.3	0.46	339	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_uni3	886	52.2	0.51	407	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_uni4	726	31.5	0.52	338	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_uni5	675	26.5	0.56	409	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_uni6	743	31.1	0.47	422	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St12_uni7	633	17.6	0.50	346	St12 / KH-17-4	2017.09.16	23°N-180°E/W	200–150	DF-14
	St12_uni8	894	60.4	0.55	440	St12 / KH-17-4	2017.09.16	23°N-180°E/W	150–100	DF-14
	St12_uni25	726	4.1	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	50–20	DF-14
	St12_uni26	844	17.5	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	50–20	DF-14
	St12_uni27	624	41.8	0.47	510	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni28	810	54.7	0.54	364	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni29	818	8.8	0.46	724	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni30	683	55.1	0.53	497	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni38	692	2.1	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni39	852	23.2	0.44	476	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni40	844	12.5	0.37	550	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni41	861	35.6	0.49	415	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni42	641	17.6	0.54	541	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni44	793	50.3	0.52	466	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni45	759	44.2	0.54	393	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni46	785	39.4	0.52	367	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni47	726	54.1	0.57	419	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni48	945	50.1	0.48	372	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni49	903	38.8	0.50	351	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni50	810	35.3	0.46	344	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni51	793	42.6	0.54	379	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni52	878	68.4	0.44	768	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni53	785	16.7	0.54	383	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni54	726	12.6	0.46	437	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni57	768	48.0	0.54	398	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_uni58	608	14.6	0.52	368	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St22402_uni2	538	14.1	0.55	406	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	Stn22406_uni3	402	19.6	0.22	426	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	60–40	DF-14
	Stn22407_uni4	588	26.7	0.50	344	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	Stn22407_uni5	433	4.8	0.49	430	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	Stn22407_uni6	490	12.3	0.22	598	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22412_uni10	613	12.4	0.49	464	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni11	572	0.6	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni12	507	0.1	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni13	642	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni14	508	13.9	0.57	662	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni15	619	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni16	613	17.4	0.57	603	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_uni17	569	19.6	0.54	578	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_uni18	603	52.7	0.57	443	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_uni19	822	20.5	0.40	328	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_uni20	570	44.4	0.56	483	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	22414_uni22	500	11.7	0.51	429	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_uni23	561	4.3	0.55	735	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22417_uni22	532	26.7	0.53	475	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_uni23	476	49.7	0.58	612	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_uni24	472	14.9	0.47	520	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_uni25	539	11.6	0.57	440	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_uni26	510	20.8	0.41	714	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_uni27	480	27.1	0.47	652	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_uni28	438	31.0	0.58	460	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_uni29	578	30.5	0.37	443	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_uni30	462	13.5	0.45	661	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_uni31	470	53.3	0.56	602	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
Sphaeroidinella dehiscens										
	tap4_sac116-dehi	544	11.1	0.50	622	KH-16-7	2016.12.08	26°40.7'N-145°14.3'E	Surface	DF-03
	tap4_sac117-dehi	520	5.8	0.52	619	KH-16-7	2016.12.08	26°40.7'N-145°14.3'E	Surface	DF-03
	tap4_sac121-dehi	421	6.5	0.53	479	KH-16-7	2016.12.08	26°40.7'N-145°14.3'E	Surface	DF-03
	tap6_sac132-dehi	537	10.5	0.55	554	KH-16-7	2016.12.08	23°52.9'N-139°31'E	Surface	DF-03
	tap4_sac147-dehi	562	7.0	0.52	652	KH-16-7	2016.12.08	26°40.7'N-145°14.3'E	Surface	DF-03
	tap3_sac149-dehi	320	2.6	0.56	606	KH-16-7	2016.12.07	28°37.6'N-143°55.4'E	Surface	DF-03
	tap8_sac154-dehi	287	1.2	0.61	468	KH-16-7	2016.12.12	23°N-131°45'E	Surface	DF-03
Globigerinoides sacculifer										
	0713-0006_sac	340	10.9	0.57	321	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0006_sac2	322	5.9	0.46	414	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0006_sac3	222	3.7	0.33	228	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0717-0612_sac	289	4.8	0.48	562	MR13-04	2013.07.17	30°N-145°E	Surface	DF-03
	0719-0612_sac	655	30.6	0.52	541	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	0719-0612_sac2	266	13.3	0.54	453	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	1-sac1	411	12.7	0.44	363	MR14-02	2014.02.15	8°10'N-134°45E	Surface	DF-03
	2-sac2	357	12.1	0.48	375	MR14-02	2014.02.16	7°32.5'N-134°45'E	Surface	DF-03
	4-sac3	286	5.6	0.53	475	MR14-02	2014.02.16	6°40'N-138°55'E	Surface	DF-03
	5-sac4	268	3.4	0.48	395	MR14-02	2014.02.17	5°43.2'N-139°43.3'E	Surface	DF-03
	5-sac5	393	6.7	0.53	550	MR14-02	2014.02.17	5°43.2'N-139°43.3'E	Surface	DF-03
	4-sac6	482	16.3	0.53	572	MR14-02	2014.02.16	6°40'N-138°55'E	Surface	DF-03
	4-sac7	375	22.6	0.55	464	MR14-02	2014.02.16	6°40'N-138°55'E	Surface	DF-03
	6-sac8	304	27.3	0.53	554	MR14-02	2014.02.17	4°47.6'N-140°31.6'E	Surface	DF-03
	8-sac9	375	25.4	0.48	412	MR14-02	2014.02.18	4°13.7'N-142°53.9'E	Surface	DF-03
	18-sac10	393	30.5	0.46	493	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac11	304	5.0	0.47	429	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac12	339	7.3	0.41	436	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac13	321	9.4	0.41	381	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac14	339	16.1	0.48	409	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac15	304	10.9	0.45	390	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac16	286	10.5	0.50	368	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac17	286	3.7	0.54	323	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac18	304	5.6	0.47	369	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac19	286	6.1	0.52	504	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac20	268	3.1	0.51	344	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac21	268	5.9	0.54	454	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac22	357	11.4	0.39	466	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac23	446	34.5	0.53	584	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac24	429	13.1	0.53	422	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	18-sac25	429	20.0	0.53	489	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac26	339	6.5	0.44	431	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac27	357	6.7	0.48	552	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac28	375	38.0	0.56	646	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac29	446	21.3	0.54	539	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac30	446	12.0	0.52	507	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac31	357	15.8	0.49	438	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac32	464	34.8	0.52	462	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac33	375	6.6	0.44	434	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac34	375	22.7	0.52	513	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac35	393	12.9	0.40	455	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac36	375	12.1	0.51	510	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac37	321	5.0	0.42	344	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac38	250	7.7	0.56	617	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac39	286	4.8	0.50	544	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac40	214	5.4	0.32	432	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac41	250	3.5	–	–	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac42	304	6.0	–	–	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac43	321	35.3	0.55	580	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac44	268	5.7	0.41	338	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac45	357	9.2	0.49	503	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac46	268	3.6	0.36	383	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac47	304	7.3	0.52	372	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac48	375	9.3	0.44	421	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac51	339	6.8	0.49	454	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac52	286	3.7	0.37	366	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac53	286	3.5	–	–	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac54	357	17.9	0.52	573	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac55	161	3.0	0.51	489	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	20-sac56	304	4.9	0.45	368	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac57	339	7.1	0.41	372	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac58	321	5.8	0.50	350	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac59	500	9.1	0.50	443	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac60	304	6.0	–	–	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac61	304	3.1	0.39	312	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac62	393	13.1	0.52	469	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac63	357	10.6	0.47	406	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac64	321	4.8	0.48	442	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac65	321	5.2	0.51	400	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac66	304	5.7	0.48	484	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac67	411	9.6	0.50	378	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac68	393	9.0	0.43	341	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	20-sac69	304	5.2	0.51	411	MR14-02	2014.03.01	4°30'S-156°E	Surface	DF-03
	31sac70	571	28.8	0.58	395	MR14-02	2014.03.14	15°N-153°E	Surface	DF-03
	tap2_sac1	312	8.8	0.48	688	KS-16-9	2016.07.18	32°28.9'N-141°50.2'E	Surface	DF-03
	tap3_sac3	471	7.6	0.50	625	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap3_sac4	333	3.6	0.61	474	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap3_sac6	272	4.1	0.59	485	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap4_sac8	377	6.2	0.56	594	KS-16-9	2016.07.19	31°17.1'N-142°25.3'E	Surface	DF-03
	tap5_sac9	362	2.7	0.39	458	KS-16-9	2016.07.19	28°57.5'N-143°18'E	Surface	DF-03
	N150-100_sac12	314	8.2	0.46	443	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	N150-100_sac13	646	31.6	0.51	546	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	N150-100_sac14	504	5.2	0.50	447	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	N150-100_sac15	491	10.3	0.55	640	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	N150-100_sac16	466	11.1	0.48	573	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	N200-150_sac17	416	8.9	0.45	461	KS-16-9	2016.07.22	27°N-144°E	200–150	DF-03
	N200-150_sac18	352	10.3	0.47	592	KS-16-9	2016.07.22	27°N-144°E	200–150	DF-03
	N200-150_sac19	234	2.9	0.50	531	KS-16-9	2016.07.22	27°N-144°E	200–150	DF-03
	N200-150_sac20	461	8.4	0.40	424	KS-16-9	2016.07.22	27°N-144°E	200–150	DF-03
	N150-100_sac22	591	9.0	0.39	396	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	St22402_sac1	567	19.4	0.44	538	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_sac2	561	42.1	0.54	610	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_sac3	479	10.0	0.57	415	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	22413_sac5_0	499	25.0	0.55	512	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14
	22413_sac6_0	331	14.9	0.56	419	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14
	22413_sac7_0	352	9.9	0.51	554	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14

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	22413_sac8	236	4.4	0.48	497	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14
	22413_sac9_0	327	7.5	0.52	523	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22413_sac10_0	356	13.9	0.57	554	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22413_sac11	398	4.2	0.56	550	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22413_sac12_0	308	4.0	0.54	392	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22417_sac13_0	444	28.6	0.56	484	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22421_sac14	246	3.9	0.50	307	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_sac15	253	4.2	0.55	415	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
	22421_sac16	283	3.9	0.51	560	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
	22421_sac17	242	2.5	0.47	480	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	80–60	DF-14
	tap1_sac1_0	304	5.4	0.56	287	KH-17-4	2017.09.10	21°16.6'N-160°45'W	Surface	DF-14
	tap1_sac2_0	363	8.9	0.52	269	KH-17-4	2017.09.10	21°16.6'N-160°45'W	Surface	DF-14
Globigerinoides conglobatus										
	0713-0006-cong	367	18.3	0.55	493	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0006_large_con	556	14.5	0.38	558	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0718-0612-cong	344	6.0	0.50	410	MR13-04	2013.07.18	33°53.4'N-145°02.8'E	Surface	DF-03
	0719-0612-cong	489	10.1	0.43	382	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	1-con1	321	6.8	0.38	342	MR14-02	2014.02.15	8°10'N-134°45E	Surface	DF-03
	7-con2	429	21.5	0.51	571	MR14-02	2014.02.18	3°52'N-141°20'E	Surface	DF-03
	9-con3	732	15.7	0.43	386	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	9-con4	607	25.5	0.36	335	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	9-con5	571	14.5	0.32	451	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	12-con	268	5.7	0.53	447	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	18-sac49-con	357	24.0	0.52	493	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	18-sac50-con	304	6.4	0.42	413	MR14-02	2014.02.27	4°30'S-156°E	Surface	DF-03
	31-con6	714	37.5	0.49	415	MR14-02	2014.03.14	15°N-153°E	Surface	DF-03
	31-con7	607	27.9	0.55	332	MR14-02	2014.03.14	15°N-153°E	Surface	DF-03
	cong_KEO-c2-50-0	464	12.7	0.52	571	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	50–0	DF-03
	tap3_cong2	627	10.7	0.55	595	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap3_cong3	349	6.8	0.56	648	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	N150-100_cong5	374	4.7	0.60	587	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	N150-100_cong6	585	8.9	0.47	447	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	tap7_cong7	320	8.8	0.59	566	KS-16-9	2016.07.20	27°N-144°E	Surface	DF-03
Globigerinoides ruber (white)										
	0713-0006-rub	267	2.4	0.47	469	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0006-rub2	444	14.2	0.48	403	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0006_rub3	411	12.1	0.43	415	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0006_rub4	267	8.8	0.50	643	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0718-0612-rub-kawachi	178	6.7	0.50	410	MR13-04	2013.07.18	33°53.4'N-145°02.8'E	Surface	DF-03
	0718-0006_rub_kawachi	422	2.3	0.47	503	MR13-04	2013.07.18	32°32.5'N-144°36.4'E	Surface	DF-03
	0718-1824_rub	310	4.4	0.49	475	MR13-04	2013.07.18	35°35.2'N-145°55.6'E	Surface	DF-03
	1-rub1	232	3.0	0.40	402	MR14-02	2014.02.15	8°10'N-134°45E	Surface	DF-03
	2-rub2	250	3.5	0.44	409	MR14-02	2014.02.16	7°32.5'N-134°45'E	Surface	DF-03
	9-rub3	429	6.7	0.31	454	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	34-rub4	304	10.8	0.17	352	MR14-02	2014.03.17	25°N-149°12'E	Surface	DF-03
	1-rub1	360	15.9	0.51	571	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	1-rub2	190	1.0	0.54	553	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	2-rub1	320	4.0	0.51	592	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	2-rub2	285	6.6	0.52	677	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	KY14-09_2-rub	232	4.3	0.44	483	KY14-09	2014.06.20	30°22.6'N-144°39.5'E	Surface	DF-03
	KY14-09_2-rub2	375	6.5	0.46	574	KY14-09	2014.06.20	30°22.6'N-144°39.5'E	Surface	DF-03
	tap2_rub2	386	4.5	0.54	667	KS-16-9	2016.07.18	32°28.9'N-141°50.2'E	Surface	DF-03
	tap2_rub3	314	4.6	0.49	688	KS-16-9	2016.07.18	32°28.9'N-141°50.2'E	Surface	DF-03
	tap2_rub4	232	1.3	0.27	560	KS-16-9	2016.07.18	32°28.9'N-141°50.2'E	Surface	DF-03
	tap6_rub7	211	1.9	0.30	605	KS-16-9	2016.07.20	27°42.1'N-143°43.1'E	Surface	DF-03
	Mana_rub2	484	5.9	0.46	620	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_rub3	314	2.5	0.47	599	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_rub4	506	8.3	0.45	466	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_rub5	297	1.9	0.43	617	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_rub7	351	2.5	0.52	583	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_rub8	481	5.0	0.50	543	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	mana_rub1	321	6.0	0.53	354	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_rub2	276	5.6	0.53	314	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_rub3	226	3.3	0.49	313	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14

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	Stn22407_rub-w5	227	3.4	0.52	424	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_rub-w6	216	1.8	0.53	527	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_rub-w7	202	1.8	0.62	452	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_rub-w9	190	0.9	0.44	495	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_rub-w10	250	3.3	0.56	475	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_rub-w11	213	2.5	0.50	404	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_rub-w13	177	1.0	0.36	376	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	80–60	DF-14
	Stn22407_rub-w14	209	1.4	0.44	496	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	80–60	DF-14
	Stn22407_rub-w15	238	1.8	0.37	472	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	80–60	DF-14
	Stn22407_rub-w16	195	1.5	0.24	388	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	80–60	DF-14
	22417_rub-w17	183	3.1	0.54	311	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	100–80	DF-14
	22417_rub-w18_0	436	7.5	0.51	365	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_rub-w19_0	339	6.3	0.47	366	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_rub-w20_0	395	8.0	0.53	350	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_rub-w21_0	316	6.5	0.45	341	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_rub-w23_0	246	4.3	0.53	268	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	60–40	DF-14
	22421_rub-w24	225	2.7	0.50	327	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-w25	218	3.0	0.50	333	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-w26	238	3.1	0.55	502	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-w27	245	ND	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
Globigerinoides ruber (pink)										
	Stn22407_rub-p2	267	2.4	0.54	331	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22409_rub-p3	350	4.5	0.57	318	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_rub-p4	405	13.3	0.57	380	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_rub-p5	192	1.8	0.45	378	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	300–200	DF-14
	tap2_rub-p8	262	2.3	0.49	318	M140	2017.08.22	11°25.9'N-22°56.6'W	Surface	DF-14
	Stn22412_rub-p6	290	3.8	0.58	194	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_rub-p7	377	7.6	0.53	378	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	PP37_rub-p13	287	4.1	0.55	392	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p14	203	0.9	0.50	389	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p15	270	2.7	0.50	286	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p16	253	1.3	0.51	309	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p17	169	1.3	0.54	378	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p18	304	2.4	0.52	349	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p19	295	2.0	0.47	270	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p20	321	8.7	0.60	574	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p21	160	1.1	0.47	373	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p22	295	3.4	0.50	331	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_rub-p23	354	3.5	0.48	378	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	22414_rub-p24	339	8.4	0.56	415	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22417_rub-p25_0	377	6.8	0.50	478	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_rub-p26_0	402	6.1	0.54	345	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_rub-p27_0	407	6.8	0.52	452	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_rub-p28_0	487	10.2	0.53	375	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_rub-p29_0	332	4.2	0.52	330	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_rub-p30_0	376	7.0	0.52	396	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	40–20	DF-14
	22417_rub-p31_0	219	4.2	0.51	404	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	60–40	DF-14
	22421_rub-p32	181	1.4	0.53	381	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p33	179	0.8	0.65	309	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p34	238	1.9	0.45	346	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p35	213	2.6	0.53	421	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p36	173	0.8	0.54	446	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p37	289	3.1	0.52	359	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p38	209	1.6	0.39	298	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p39	209	ND	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p40	252	3.0	0.50	405	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p41	207	0.8	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p42	301	2.6	0.50	286	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p43	252	2.3	0.46	293	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p45	191	1.4	0.44	347	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rub-p46	282	2.9	0.50	374	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p47	198	1.5	0.52	377	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p48	252	1.8	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rub-p49	278	2.5	0.47	400	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
	22421_rub-p50	281	1.4	0.56	325	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
Globoturborotalita rubescens										
	S1-100-50-c3_rubes1	143	0.6	0.47	559	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	S1-50-0-c4_rubes2	196	0.9	0.40	421	S1 / KY14-09	2014.07.22	30°N-145°E	50–0	DF-03
	S1-300-200-c4_rubes3	143	0.3	0.26	419	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	S1-300-200-c4_rubes4	143	0.8	0.43	586	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	S1-300-200-c4_rubes5	125	0.5	0.43	500	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	S1-300-200-c3_rubes6	107	0.4	0.32	354	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	S1-300-200-c3_rubes7	125	0.5	0.46	487	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	S1-300-200-c3_rubes8	89	0.5	0.40	519	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	KEO-50-0-c2_rubes9	143	0.6	0.55	420	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	50–0	DF-03
	KEO-300-200-c2_rubes10	125	0.5	0.46	399	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	300–200	DF-03
	Stn22406_rubes2	112	0.4	0.61	492	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	40–20	DF-14
	Stn22406_rubes3	125	0.5	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	40–20	DF-14
	Stn22407_rubes4	158	0.6	0.50	516	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22408_rubes5	86	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	60–40	DF-14
	Stn22408_rubes6	247	1.3	0.51	477	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	40–20	DF-14
	Stn22408_rubes7	120	0.7	0.41	175	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	40–20	DF-14
	Stn22408_rubes8	182	1.3	0.50	388	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	40–20	DF-14
	Stn22408_rubes9	111	0.5	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	40–20	DF-14
	Stn22409_rubes10	231	1.1	0.49	407	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	22417_rubes11	179	2.0	–	–	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	100–80	DF-14
	22417_rubes12	157	0.6	0.43	383	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	100–80	DF-14
	22421_rubes13	165	0.9	0.46	227	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rubes14	123	0.5	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rubes15	148	0.6	0.30	388	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rubes16	162	0.9	0.44	166	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rubes17	135	0.5	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_rubes18	204	1.1	0.28	268	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_rubes19	158	1.2	0.40	321	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	80–60	DF-14
Globoturborotalita tenella										
	0719-1218_tene	233	1.9	0.47	383	MR13-04	2013.07.19	39°02'N-147°53.3'E	Surface	DF-03
	tap3_tene1	323	3.4	0.55	537	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap4_tene2	282	0.2	–	–	KS-16-9	2016.07.19	31°17.1'N-142°25.3'E	Surface	DF-03
	0720-0612_tene	200	2.4	–	–	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	22421_tene2	221	1.7	0.51	634	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
	22421_tene3	146	0.8	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_tene4	155	1.5	0.63	480	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_tene5	189	1.9	0.53	309	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_tene6	168	1.5	0.55	464	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_tene7	183	1.4	0.49	410	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_tene8	167	0.9	0.48	243	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	40–20	DF-14
	22421_tene9	199	1.6	0.50	348	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
	22421_tene10	128	1.2	0.37	432	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
Globigerinella calida										
	100-50D_calida3	383	3.2	0.30	538	KS-16-9	2016.07.21	27°N-144°E	100–50	DF-03
	100-50D_calida4	357	1.9	0.47	757	KS-16-9	2016.07.21	27°N-144°E	100–50	DF-03
	Mana_calida1	302	1.9	0.41	398	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_calida2	442	2.6	0.44	585	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	RM1_calida1	694	2.2	0.43	633	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_calida2	709	0.1	–	–	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	St22403_calida7	335	6.9	0.48	737	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	St22403_calida9	328	7.2	0.54	492	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	40–20	DF-14
	Stn22407_calida10	309	1.8	0.49	399	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	Stn22408_calida11	293	0.2	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	100–80	DF-14
	Stn22408_calida12	212	0.1	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	100–80	DF-14
	Stn22408_calida13	242	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	100–80	DF-14
	Stn22408_calida14	362	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	100–80	DF-14
	Stn22408_calida15	400	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	100–80	DF-14
	Stn22412_siph16_calida	376	4.0	0.44	616	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	100–80	DF-14
	St17_calida1_0	270	2.8	0.37	444	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14
	St17_calida2_0	582	20.5	0.49	462	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14
	St17_calida3	371	8.3	0.37	389	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14
	St17_calida4	304	1.1	–	–	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
Globigerinella siphonifera Type I										
	SSK_siph2	464	24.1	0.46	507	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph5	357	16.5	0.47	530	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph7	375	9.2	0.32	520	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph9	446	42.7	0.43	718	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph13	375	3.4	0.40	439	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	4-siph2	304	3.9	0.44	642	MR14-02	2014.02.16	6°40'N-138°55'E	Surface	DF-03
	5-siph2	232	5.7	0.35	414	MR14-02	2014.02.17	5°43.2'N-139°43.3'E	Surface	DF-03
	9-siph4	714	29.6	0.49	595	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	20-siph14	357	5.1	0.47	428	MR14-02	2014.03.01	3°S-156°E	Surface	DF-03
	20-siph15	375	10.0	0.45	536	MR14-02	2014.03.01	3°S-156°E	Surface	DF-03
	20-siph16	357	13.5	0.49	500	MR14-02	2014.03.01	3°S-156°E	Surface	DF-03
	22-siph17	393	10.8	0.46	509	MR14-02	2014.03.03	0°30'S-156°E	Surface	DF-03
	22-siph18	411	11.6	0.48	471	MR14-02	2014.03.03	0°30'S-156°E	Surface	DF-03
	22-siph19	429	2.8	0.40	450	MR14-02	2014.03.03	0°30'S-156°E	Surface	DF-03
	29-siph21	304	3.4	0.45	593	MR14-02	2014.03.12	7°58'N-156°2'E	Surface	DF-03
	Mana_siphI1	509	7.6	0.46	598	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	N01-50-20_siphI2	360	2.3	0.38	454	N01 / KH-16-7	2016.12.09	24°N-147°E	50–20	DF-03
	N01-50-20_siphI3	320	3.4	0.41	550	N01 / KH-16-7	2016.12.09	24°N-147°E	50–20	DF-03
	N01-50-20_siphI4	312	2.0	0.42	543	N01 / KH-16-7	2016.12.09	24°N-147°E	50–20	DF-03
	N01-20-0_siphI5	521	19.6	0.43	664	N01 / KH-16-7	2016.12.09	24°N-147°E	20–0	DF-03
	N01-20-0_siphI6	438	10.6	0.23	408	N01 / KH-16-7	2016.12.09	24°N-147°E	20–0	DF-03
	N01-50-20_siphI7	487	16.0	0.42	560	N01 / KH-16-7	2016.12.09	24°N-147°E	50–20	DF-03
	N01-50-20_siphI10	394	8.8	0.42	646	N01 / KH-16-7	2016.12.09	24°N-147°E	50–20	DF-03
	N01-20-0_siphI12	370	4.5	0.44	679	N01 / KH-16-7	2016.12.09	24°N-147°E	20–0	DF-03
	Stn22406_siph7	565	0.3	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	100–80	DF-14
	Stn22406_siph8	436	13.2	0.47	622	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	100–80	DF-14
	Stn22406_siph14	417	0.2	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	200–100	DF-14
	Stn22407_siph15	466	8.6	0.53	552	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22412_siph17	323	1.5	0.24	308	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	100–80	DF-14
	Stn22412_siph19	328	2.3	0.48	497	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	Stn22412_siph20	295	0.3	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	100–80	DF-14
	Stn22412_siph21	289	1.1	0.45	664	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	100–80	DF-14
	Stn22412_siph22	450	0.2	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_siph23	356	0.1	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	22417_siph28	309	3.5	0.57	382	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	60–40	DF-14
	22417_siph29_0	444	13.4	0.54	534	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22421_siph30	330	2.5	0.51	352	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	20–0	DF-14
	22421_siph31	197	0.3	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	60–40	DF-14
	St11_siphI1_0	498	26.0	0.47	554	St11 / KH-17-4	2017.09.12	21°30'N-170°W	50–20	DF-14
	St11_siphI2_0	582	15.5	0.50	364	St11 / KH-17-4	2017.09.12	21°30'N-170°W	50–20	DF-14
	St11_siphI3	520	2.2	–	–	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI4	538	33.0	0.52	457	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI5	532	12.4	0.51	504	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI6	515	15.0	0.52	408	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI7	480	8.5	0.49	338	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI8	467	9.1	0.52	363	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI9	658	1.8	–	–	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI10	398	15.5	0.51	404	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI11	476	13.2	0.50	349	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI12	456	11.2	0.51	396	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_siphI13	532	0.2	–	–	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St12_siphI14	401	17.4	0.50	522	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI15	494	11.4	0.44	450	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI16	407	8.4	0.46	317	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI17	460	5.0	0.49	408	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI18	574	1.4	0.32	515	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI19	281	8.1	0.54	479	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI20	393	5.0	0.53	614	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI21	604	4.3	0.44	687	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI22	468	3.2	0.50	783	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI23	759	0.3	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_siphI24	776	0.3	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	150–100	DF-14
	St12_siphI25	878	0.4	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	150–100	DF-14
	St12_siphI26	793	0.2	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	150–100	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	St12_siphI29	709	0.1	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	200–150	DF-14
	St12_siphI30	683	0.2	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	200–150	DF-14
	St12_siphI31	548	3.7	0.43	548	St12 / KH-17-4	2017.09.16	23°N-180°E/W	200–150	DF-14
	St12_siphI32	473	2.9	0.46	644	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–50	DF-14
	St12_siphI33	726	21.4	0.46	610	St12 / KH-17-4	2017.09.16	23°N-180°E/W	50–20	DF-14
	St14_siphI34	471	14.0	0.55	566	St14 / KH-17-4	2017.09.23	23°N-160°E	100–0	DF-14
	St14_siphI35	466	18.4	0.54	592	St14 / KH-17-4	2017.09.23	23°N-160°E	100–0	DF-14
	St14_siphI36	328	12.4	0.52	545	St14 / KH-17-4	2017.09.23	23°N-160°E	100–0	DF-14
	St14_siphI37	470	9.8	0.53	510	St14 / KH-17-4	2017.09.23	23°N-160°E	100–0	DF-14
	St14_siphI38	363	9.6	0.53	742	St14 / KH-17-4	2017.09.23	23°N-160°E	100–0	DF-14
	St14_siphI39	318	11.8	0.55	654	St14 / KH-17-4	2017.09.23	23°N-160°E	100–0	DF-14
	St17_siphI40_0	557	24.2	0.50	494	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14
	St17_siph41_0	675	13.2	0.51	427	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14
Globigerinella siphonifera Type II										
	0713-0006-siph	389	3.2	0.45	568	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0612-siph	477	5.2	0.45	559	MR13-04	2013.07.13	31°44.5'E-144°27.5'E	Surface	DF-03
	0713-0612-siph2	278	1.8	0.41	631	MR13-04	2013.07.13	31°44.5'E-144°27.5'E	Surface	DF-03
	S1-0-100_siph-small	222	3.5	0.44	852	S1 / MR13-04	2013.07.13	30°N-145°E	100–0	DF-03
	S1-0-100_siph-black	490	83.3	0.42	881	S1 / MR13-04	2013.07.13	30°N-145°E	100–0	DF-03
	S1_20-50_siph	277	4.5	0.45	642	S1 / MR13-04	2013.07.13	30°N-145°E	50–20	DF-03
	S1_25-75-3_siph	566	11.0	0.48	498	S1 / MR13-04	2013.07.14	30°N-145°E	75–25	DF-03
	1-siph	410	14.5	0.50	808	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	1-siph2	300	3.4	0.51	614	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	SSK_siph3	518	2.9	0.40	545	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph14	321	12.2	0.57	726	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph17	339	4.3	0.55	564	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph20	232	1.5	0.51	690	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph21	375	5.2	0.54	720	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph22	286	2.1	0.54	589	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph23	268	3.2	0.54	692	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph26	196	3.4	0.52	712	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK_siph27	232	3.3	0.35	675	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	2-siph1	214	1.7	0.40	587	MR14-02	2014.02.16	7°32.5'N-134°45'E	Surface	DF-03
	8-siph3	286	1.9	0.48	605	MR14-02	2014.02.18	4°13.7'N-142°53.9'E	Surface	DF-03
	9-siph5	554	22.3	0.48	729	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	12-siph6	464	10.9	0.46	618	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	12-siph7	518	7.5	0.49	502	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	12-siph8	375	8.9	0.46	689	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	12-siph9	375	13.3	0.51	721	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	12-siph10	321	7.0	0.48	584	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	12-siph11	286	14.2	0.51	671	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	12-siph13	357	3.6	0.45	671	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	29-siph20	286	2.7	0.46	651	MR14-02	2014.03.12	7°58'N-156°2'E	Surface	DF-03
	tap3_siphII2	360	5.7	0.50	833	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap3_siph11	326	5.0	0.36	1068	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	Mana_siphII1	354	27.8	0.50	806	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_siphII2	627	30.0	0.44	725	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	Mana_siphII3	314	32.4	0.45	868	Manazuru	2016.10.24	35°07'N-139°08'E	Surface	DF-03
	T20_siphII3	289	6.1	0.51	850	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII4	415	5.1	0.45	566	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII5	260	4.2	0.55	723	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII6	420	5.7	0.50	721	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII7	301	14.3	0.46	842	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII8	322	28.7	0.54	883	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII9	228	4.0	0.48	761	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII10	414	5.4	0.51	721	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_siphII11	314	3.4	0.47	579	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	St22403_siph1	442	6.2	0.51	722	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	St22403_siph2	336	3.7	0.33	669	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	St22403_siph3	408	5.7	0.49	669	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	St22403_siph4	310	3.9	0.51	825	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	Stn22406_siph9	305	6.1	0.52	467	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	60–40	DF-14
	Stn22406_siph10	268	4.7	0.53	595	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	80–60	DF-14
	Stn22406_siph11	120	1.2	0.55	723	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	80–60	DF-14
	Stn22406_siph12	299	0.1	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	40–20	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	Stn22406_siph13	272	0.1	0.68	847	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22412_siph18	422	4.6	0.49	496	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	PP37_siph24	239	2.8	0.35	396	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	Stn22412_siph25	427	1.8	0.38	903	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	100–80	DF-14
	Stn22412_siph26	352	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	100–80	DF-14
	Stn22412_siph27	515	0.8	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
Globigerinella adamsi										
	St13_adams1	1080	ND	–	–	St13/ KH-17-4	2017.09.20	23°N-170°E	200–150	DF-14
Globigerina bulloides										
	2_bullo	328	ND	–	–	Sagami Bay	2013.04.22	35°9'N-139°28.3'E	Surface	DF-03
	0719-0612_bullo2	375	ND	–	–	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	K2_c2_50-100_bullo	375	ND	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2_c2_50-100_bullo2	536	0.1	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2_c2_50-100_bullo3	321	ND	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2_c2_50-100_bullo4	304	ND	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2_c2_50-100_bullo5	250	ND	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	1-bullo	268	ND	–	–	KY14-09	2014.06.19	34°33.7'N-140°20.5'E	Surface	DF-03
	1-bullo2	250	ND	–	–	KY14-09	2014.06.19	34°33.7'N-140°20.5'E	Surface	DF-03
	1-bullo3	250	ND	–	–	KY14-09	2014.06.19	34°33.7'N-140°20.5'E	Surface	DF-03
	tap1_bullo1	380	0.1	–	–	KS-16-9	2016.07.18	34°10.4'N-140°04.5'E	Surface	DF-03
Turborotalita quinqueloba										
	quin5-8	160	ND	–	–	Sagami Bay	2013.04.22	35°9'N-139°28.3'E	Surface	DF-03
	quin5-9	155	ND	–	–	Sagami Bay	2013.04.22	35°9'N-139°28.3'E	Surface	DF-03
	quin7-1	240	ND	–	–	Sagami Bay	2013.04.22	35°9'N-139°28.3'E	Surface	DF-03
	0725-0613-quin_large	211	0.2	–	–	MR13-04	2013.07.25	44°37.7'N-156°13.1'E	Surface	DF-03
	quinq1	173	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	quinq2	201	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	quinq3	138	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
Turborotalita humilis										
	RM2_cris1	128	0.3	0.49	639	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris2	110	ND	–	–	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris3	166	0.3	0.49	710	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris4	162	0.3	0.54	793	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris5	128	0.3	0.62	780	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris6	152	0.1	0.62	663	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris7	129	0.1	0.55	780	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris8	137	0.2	0.50	619	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM2_cris9	143	0.3	0.53	752	RM2 / KH-16-7	2016.12.20	26°04.6'N-126°21.3'E	100–0	DF-03
	RM1_cris10	169	ND	–	–	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris11	168	0.3	0.54	635	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris12	116	0.9	0.45	911	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris13	115	0.2	0.49	700	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris14	140	0.2	0.44	634	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris15	144	0.8	0.49	901	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris17	97	0.2	0.51	808	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris18	111	0.8	0.44	899	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris19	117	0.2	0.54	613	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_cris20	109	0.2	0.51	609	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
Hastigerina pelagica										
	S1_100-150_pela	500	0.2	–	–	S1 / MR13-04	2013.07.13	30°N-145°E	150–100	DF-03
	S1_100-150_pela2	355	0.3	–	–	S1 / MR13-04	2013.07.13	30°N-145°E	150–100	DF-03
	9-pela1	536	ND	–	–	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	17-pela2	518	1.0	–	–	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	KEO_c1_300-200_pela1	750	ND	–	–	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	300–200	DF-03
	KEO_c2_300-200_pela2	679	ND	–	–	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	300–200	DF-03
	KEO_c2_300-200_pela3	446	ND	–	–	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	300–200	DF-03
	KEO_c2_200-100_pela4	625	ND	–	–	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	200–100	DF-03
	KEO_c2_200-100_pela5	179	ND	–	–	KEO / KY14-09	2014.07.27	32°20'N-144°30'E	200–100	DF-03
	tap5_pela1	525	ND	–	–	KS-16-9	2016.07.19	28°57.5'N-143°18'E	Surface	DF-03
	St22403_pela1	367	0.2	–	–	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	Stn22406_pela1	834	0.2	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	Stn22406_pela2	398	0.2	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_pela3	406	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_pela4	410	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_pela5	387	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_pela6	373	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_pela7	298	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_pela8	421	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	200–100	DF-14
	Stn22406_pela9	548	0.2	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	300–200	DF-14
	Stn22406_pela10	456	0.2	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	700–500	DF-14
	Stn22406_pela11	581	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	700–500	DF-14
	Stn22406_pela12	733	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	700–500	DF-14
	Stn22407_pela13	195	ND	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	300–200	DF-14
	Stn22407_pela14	379	ND	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	700–500	DF-14
	Stn22407_pela15	897	0.2	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22408_pela16	474	0.2	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_pela17	289	0.2	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_pela18	473	0.2	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_pela19	640	0.2	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_pela20	669	0.2	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	22417_pela21	730	0.3	–	–	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	700–500	DF-14
	22417_pela22	1006	ND	–	–	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	700–500	DF-14
	22417_pela23	529	ND	–	–	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	700–500	DF-14
	tap2_pela1	338	ND	–	–	KH-17-4	2017.09.12	31°01.6'N-142°17'E	Surface	DF-14
	tap2_pela2	321	ND	–	–	KH-17-4	2017.09.12	31°01.6'N-142°17'E	Surface	DF-14
Hastigerinella digitata										
	digitata	1330	ND	–	–	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	Stn22406_digit1	763	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_digit2	436	ND	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22408_Hdigit4	1327	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	22417_digit7	662	ND	–	–	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	300–200	DF-14
	22421_digit8	804	ND	–	–	22421 / M140	2017.09.03	24°43.7'N-16°34.7'W	500–300	DF-14
Neogloboquadrina incompta										
	F1-I-9_incompta	213	ND	–	–	F1 / MR13-04	2013.07.11	36°29N-141°30E	200–0	DF-03
	K2_c1_0-50_4dex2_inco	189	ND	–	–	K2 / MR13-04	2013.07.22	47°N-160°E	50–0	DF-03
	inco3	210	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	inco4	197	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	inco5	165	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	inco8	205	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	inco16	200	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	inco17	180	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
Neogloboquadrina pachyderma										
	0721-0006_pach	200	ND	–	–	MR13-04	2013.07.21	44°N-155°E	Surface	DF-03
	0721-0006_pach2	189	ND	–	–	MR13-04	2013.07.21	44°N-155°E	Surface	DF-03
	0724-1206_sin_pach	211	ND	–	–	MR13-04	2013.07.24	47°N-160°E	Surface	DF-03
	pachy1	179	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	pachy3	181	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
	pachy6	220	ND	–	–	Tsugaru Strait	2014.05.27	41°26.7'N-141°13.2'E	100–0	DF-03
Neogloboquadrina dutertrei										
	F1-I-1_dut	389	1.5	0.32	835	F1 / MR13-04	2013.07.11	36°29N-141°30E	Surface	DF-03
	0718-0612TAP_dut-kawach	300	1.7	0.41	761	MR13-04	2013.07.18	33°53.4'N-145°02.8'E	Surface	DF-03
	0720-0612_dut	478	3.5	0.47	751	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	0720-0612_inco_dut	433	3.4	0.45	720	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	0720-0612_dut2	189	0.4	0.38	704	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	0726-0612_dut	400	3.1	0.45	632	MR13-04	2013.07.26	40°39.8'N-150°9.9'E	Surface	DF-03
	2_dut	360	0.5	0.46	775	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	2_dut2	580	3.8	0.47	705	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	2_dut3	450	1.6	0.49	753	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	3_dut	490	2.5	0.43	627	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	7-dut1	393	4.4	0.43	646	MR14-02	2014.02.18	3°52'N-141°20'E	Surface	DF-03
	17-dut2	625	5.8	0.35	557	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	17-dut3	482	1.8	0.30	718	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	23-dut4	321	1.0	0.41	571	MR14-02	2014.03.04	0°N/S-156°E	Surface	DF-03

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	KY14-09_1-dut	393	2.7	0.38	780	KY14-09	2014.06.19	34°33.7'N-140°20.5'E	Surface	DF-03
	tap3_dut2	314	1.4	0.41	778	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap4_dut1	392	1.0	0.45	802	KH-16-7	2016.12.08	26°40.7'N-145°14.3'E	Surface	DF-03
	tap10_dut2	343	1.8	0.35	749	KH-16-7	2016.12.14	26°18'N-126°44'E	Surface	DF-03
	T20_dut3	390	1.1	0.46	762	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut4	480	4.3	0.51	827	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut5	396	1.3	0.48	787	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut6	454	2.6	0.48	761	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut7	359	1.7	0.48	825	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut8	360	1.5	0.47	812	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut9	279	0.7	0.47	822	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut10	397	1.5	0.48	813	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut11	310	0.7	0.49	749	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut12	407	1.5	0.48	858	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut13	370	1.6	0.47	807	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut14	357	1.4	0.48	791	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut15	314	0.3	0.47	857	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut16	371	1.3	0.48	886	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut17	407	2.6	0.47	763	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut18	378	1.4	0.51	839	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut19	276	0.7	0.52	823	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut20	282	1.1	0.53	764	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut21	305	0.4	0.49	778	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut22	502	3.4	0.50	736	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut23	414	3.2	0.48	709	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut24	351	2.1	0.47	898	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut25	388	1.5	0.44	786	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_dut26	406	2.6	0.45	872	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T15_dut27	579	5.1	0.51	783	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut28	458	2.7	0.49	770	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut29	473	3.4	0.49	803	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut30	429	2.0	0.45	785	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut31	394	2.6	0.48	702	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut32	481	3.8	0.47	718	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut33	367	1.9	0.45	821	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut34	329	1.4	0.50	814	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut35	367	2.4	0.49	859	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_dut36	393	1.7	0.48	859	T9 / KH-16-7	2016.12.19	25°49.3'N-126°55'E	100–0	DF-03
	T15_dut37	533	4.4	0.48	745	T9 / KH-16-7	2016.12.19	25°49.3'N-126°55'E	100–0	DF-03
	T15_dut38	435	2.1	0.48	724	T9 / KH-16-7	2016.12.19	25°49.3'N-126°55'E	100–0	DF-03
	T15_dut39	501	2.1	0.49	680	T9 / KH-16-7	2016.12.19	25°49.3'N-126°55'E	100–0	DF-03
	T15_dut40	426	2.5	0.48	775	T9 / KH-16-7	2016.12.19	25°49.3'N-126°55'E	100–0	DF-03
	mana_dut1	500	3.9	0.52	657	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut2	417	2.5	0.53	550	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut4	417	1.9	0.41	630	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut6	483	1.1	0.50	819	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut7	492	3.4	0.52	569	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut8	433	2.5	0.41	570	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut9	500	4.5	0.48	691	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut10	433	2.2	0.43	624	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut11	483	ND	–	–	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut12	492	1.8	0.52	549	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut14	517	3.5	0.53	805	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut15	483	5.7	0.51	651	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut16	425	4.7	0.51	656	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut17	475	6.0	0.53	640	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut18	467	4.6	0.50	660	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut19	433	5.1	0.54	591	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut20	417	2.6	0.51	639	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut22	517	6.3	0.54	567	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut23	425	2.2	0.50	815	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut24	483	3.5	0.52	705	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut25	483	3.9	0.54	698	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut26	450	3.8	0.53	626	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut28	350	1.3	0.58	633	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut29	458	1.1	0.45	612	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	mana_dut30	317	1.7	0.49	747	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut31	450	4.1	0.51	560	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut33	517	1.2	0.33	595	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut34	367	2.4	0.52	477	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut37	533	2.2	0.53	807	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut38	533	5.2	0.53	520	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut39	467	4.2	0.53	868	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_dut40	433	1.4	0.31	654	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	Stn22407_dut1	151	0.1	0.49	248	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_dut2	270	ND	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	100–80	DF-14
	Stn22407_dut3	291	ND	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	500–300	DF-14
	Stn22409_dut4	397	3.7	0.50	882	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_dut5	437	ND	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	80–60	DF-14
	Stn22412_dut6	248	0.7	0.54	524	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	80–60	DF-14
	22413_dut7	323	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–80	DF-14
	22413_dut8	298	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–80	DF-14
	22413_dut9	621	8.4	0.50	564	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	60–40	DF-14
Pulleniatina obliquiloculata										
	0713-0006_obliq1	344	ND	–	–	MR13-04	2013.07.13	32°56.8'N-143°59.5'E	Surface	DF-03
	0713-0612_obliq	377	0.2	–	–	MR13-04	2013.07.13	31°44.5'E-144°27.5'E	Surface	DF-03
	1-obliq	425	0.2	0.40	349	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	13-obliq1	464	0.1	0.17	780	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	13-obliq2	482	0.2	0.31	351	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	13-obliq3	464	0.1	0.23	385	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	13-obliq4	571	0.3	0.16	414	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	13-obliq5	446	0.1	0.20	516	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	17-obliq6	411	0.1	0.26	293	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	17-obliq7	411	0.1	0.37	385	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	24-obliq7	543	0.2	–	–	MR14-02	2014.03.05	0°2.2'S-156°8.0'E	Surface	DF-03
	obliq1_S1-c4-100-50	357	0.5	0.29	520	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq2_S1-c4-100-50	446	0.4	0.27	417	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq3_S1-c4-100-50	339	0.4	0.28	416	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq4_S1-c4-100-50	393	0.3	0.30	364	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq5_S1_c3-300-200	286	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	obliq6_S1-c4-100-50	286	0.1	0.37	504	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq7_S1-c4-100-50	286	1.1	0.43	465	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq8_S1-c4-100-50	214	0.6	0.38	462	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	obliq9_S1-c3-50-0	357	0.2	0.46	467	S1 / KY14-09	2014.07.22	30°N-145°E	50–0	DF-03
	tap12_obliq1	438	ND	–	–	KH-16-7	2016.12.15	26°18'N-126°44'E	Surface	DF-03
	tap12_obliq2	551	ND	–	–	KH-16-7	2016.12.15	26°18'N-126°44'E	Surface	DF-03
	tap12_obliq3	317	ND	–	–	KH-16-7	2016.12.15	26°18'N-126°44'E	Surface	DF-03
	tap14_obliq4	363	0.2	0.40	398	KH-16-7	2016.12.17	26°10.1'N-126°18'E	Surface	DF-03
	T20_obliq5	395	0.3	0.45	480	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq6	404	0.1	0.40	681	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq7	474	0.1	0.37	362	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq8	549	2.9	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq9	478	0.1	0.42	660	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq10	480	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq11	607	0.3	0.38	565	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq12	418	0.1	0.44	780	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq13	520	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq14	472	0.4	0.48	589	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq15	494	0.2	0.46	793	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq16	427	0.2	0.43	581	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq17	499	0.3	0.47	518	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq18	382	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq19	401	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq20	399	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq21	401	0.2	0.34	652	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq22	346	0.6	0.40	543	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq23	421	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq24	352	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq25	331	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq26	396	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq27	366	0.2	0.41	654	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	T20_obliq28	478	0.1	0.36	479	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq29	412	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq30	324	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq31	404	0.1	0.46	650	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq32	316	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq33	374	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T20_obliq34	309	ND	–	–	T20 / KH-16-7	2016.12.17	26°06.1'N-125°52'E	100–0	DF-03
	T15_obliq35	437	0.2	0.16	580	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq36	567	0.5	0.21	617	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq37	564	0.1	0.13	284	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq38	473	0.2	0.23	456	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq39	434	0.3	0.24	617	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq40	400	0.1	0.23	403	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq41	427	0.3	0.17	557	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq42	669	0.2	0.25	551	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	T15_obliq43	534	0.1	0.27	503	T15 / KH-16-7	2016.12.18	25°59.5'N-125°26.7'E	100–0	DF-03
	mana_obliq1	334	1.9	0.51	670	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_obliq2	482	3.0	0.50	626	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_obliq3	450	0.3	0.28	598	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_obliq4	320	0.1	–	–	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_obliq5	409	0.3	0.27	619	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
Globorotalia inflata										
	0725-1319_inf	344	0.1	–	–	MR13-04	2013.07.25	43°21.2'N-154°27.1'E	Surface	DF-03
	0725-1319-inf2	330	ND	–	–	MR13-04	2013.07.25	43°21.2'N-154°27.1'E	Surface	DF-03
	1-inf	340	0.4	0.17	489	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	inf1_S1-c4-100-50	277	0.1	0.40	544	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	inf2_S1-c4-100-50	286	0.1	0.35	531	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	inf3_S1-c4-100-50	268	0.4	0.35	577	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	inf4_S1-c3-100-50	304	0.2	0.33	601	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	inf5_S1-c3-100-50	339	0.2	0.37	613	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	tap2_inf1	360	ND	–	–	KH-16-7	2016.12.07	28°37.6'N-143°55.4'E	Surface	DF-03
	mana_inf1	252	0.7	0.15	601	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_inf2	234	0.1	–	–	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	22413_inf1	329	0.7	0.32	330	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–0	DF-14
	22413_inf2	311	0.9	0.32	288	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–0	DF-14
Globorotalia menardii										
	0713-0612-mena	489	1.3	0.47	693	MR13-04	2013.07.13	31°44.5'E-144°27.5'E	Surface	DF-03
	0713-0612-mena2	278	0.6	0.43	663	MR13-04	2013.07.13	31°44.5'E-144°27.5'E	Surface	DF-03
	0718-0612-mena	422	1.0	0.45	607	MR13-04	2013.07.18	33°53.4'N-145°02.8'E	Surface	DF-03
	2-mena1	464	1.4	0.39	668	MR14-02	2014.02.16	7°32.5'N-134°45'E	Surface	DF-03
	2-mena2	339	ND	–	–	MR14-02	2014.02.16	7°32.5'N-134°45'E	Surface	DF-03
	5-mena3	482	1.0	0.32	687	MR14-02	2014.02.17	5°43.2'N-139°43.3'E	Surface	DF-03
	5-mena4	375	0.9	0.40	696	MR14-02	2014.02.17	5°43.2'N-139°43.3'E	Surface	DF-03
	8-mena6	607	2.7	0.44	642	MR14-02	2014.02.18	4°13.7'N-142°53.9'E	Surface	DF-03
	8-mena7	429	1.4	0.44	715	MR14-02	2014.02.18	4°13.7'N-142°53.9'E	Surface	DF-03
	9-mena8	446	1.9	0.45	673	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	9-mena9	464	1.1	0.42	571	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	19-mena10	304	0.5	0.45	723	MR14-02	2014.02.28	5°02'S-156°01.5'E	Surface	DF-03
	22-mena11	411	0.5	0.44	626	MR14-02	2014.03.03	0°30'S-156°E	Surface	DF-03
	34-mena12	446	0.8	0.44	671	MR14-02	2014.03.17	25°N-149°12'E	Surface	DF-03
	21-mena12	357	ND	–	–	MR14-02	2014.03.02	1°30'S-156°E	Surface	DF-03
	150-100N_mena1	587	2.1	0.28	829	KS-16-9	2016.07.22	27°N-144°E	150–100	DF-03
	100-50D_mena2	766	2.4	0.24	530	KS-16-9	2016.07.21	27°N-144°E	100–50	DF-03
	tap12_mena4	454	0.1	0.57	649	KH-16-7	2016.12.15	26°18'N-126°44'E	Surface	DF-03
	St22402_mena3	561	2.1	0.49	375	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	500–300	DF-14
	St22402_mena5	823	2.2	0.46	698	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	100–80	DF-14
	St22402_mena7	612	1.4	0.49	476	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	100–80	DF-14
	St22402_mena8	823	2.3	0.47	445	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	100–80	DF-14
	St22402_mena10	792	2.6	0.46	447	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	100–80	DF-14
	St22402_mena11	809	2.0	0.47	388	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	100–80	DF-14
	St22402_mena12	606	0.1	–	–	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	200–100	DF-14
	St22402_mena14	394	1.1	0.44	489	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	200–100	DF-14
	St22402_mena15	409	1.2	0.43	402	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	200–100	DF-14
	St22402_mena16	517	1.4	0.48	443	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	200–100	DF-14

Species	ID	Test size (µm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	St22402_mena17	402	1.2	0.41	546	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	200–100	DF-14
	St22402_mena18	1042	4.7	0.48	387	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena19	788	2.5	0.47	401	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena20	839	3.0	0.50	440	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena21	958	3.3	0.47	482	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena22	555	0.2	–	–	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena23	895	0.9	0.51	433	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena24	665	2.6	0.50	454	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena25	432	2.1	0.52	381	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena26	438	1.0	0.33	405	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena27	408	1.9	0.51	512	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	20–0	DF-14
	St22402_mena28	514	1.6	0.54	401	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_mena29	574	1.7	0.52	397	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_mena30	483	3.3	0.52	624	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_mena31	673	1.5	0.50	310	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_mena32	463	1.0	0.54	559	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	40–20	DF-14
	St22402_mena34	905	1.0	0.47	556	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	80–60	DF-14
	St22402_mena35	853	2.2	0.51	660	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	80–60	DF-14
	St22402_mena36	831	4.8	0.53	501	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	80–60	DF-14
	St22402_mena41	767	2.9	0.54	567	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	80–60	DF-14
	St22402_mena42	914	2.4	0.50	357	22402 / M140	2017.08.12	15°52.2'N-28°44.7'W	80–60	DF-14
	St22403_mena44	609	2.3	0.49	440	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	20–0	DF-14
	St22403_mena46	721	0.6	0.34	439	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	80–60	DF-14
	St22403_mena47	512	3.0	0.51	372	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	60–40	DF-14
	St22403_mena49	930	4.3	0.48	474	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	St22403_mena50	853	1.9	0.36	388	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	St22403_mena51	374	0.6	0.35	373	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	100–80	DF-14
	Stn22404_mena57	464	0.1	0.53	732	22404 / M140	2017.08.14	13°43.3'N-36°12.9'W	500–300	DF-14
	Stn22404_mena58	507	0.3	–	–	22404 / M140	2017.08.14	13°43.3'N-36°12.9'W	300–200	DF-14
	Stn22404_mena59	812	0.4	–	–	22404 / M140	2017.08.14	13°43.3'N-36°12.9'W	200–100	DF-14
	Stn22404_mena60	465	0.5	–	–	22404 / M140	2017.08.14	13°43.3'N-36°12.9'W	200–100	DF-14
	Stn22404_mena62	573	0.7	0.51	652	22404 / M140	2017.08.14	13°43.3'N-36°12.9'W	80–60	DF-14
	Stn22404_mena63	455	0.6	0.56	493	22404 / M140	2017.08.14	13°43.3'N-36°12.9'W	80–60	DF-14
	Stn22406_mena64	243	0.7	0.50	459	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	60–40	DF-14
	Stn22407_mena65	855	5.5	0.47	379	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_mena66	259	0.5	0.43	490	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22408_mena69	424	1.0	0.52	426	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena70	151	ND	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena71	123	0.2	0.48	678	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena72	392	ND	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_mena73	440	0.1	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_mena74	684	1.4	0.32	470	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	80–60	DF-14
	Stn22408_mena75	710	3.3	0.22	530	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	80–60	DF-14
	Stn22408_mena76	749	2.7	0.53	577	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	80–60	DF-14
	Stn22408_mena77	228	0.1	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena78	347	0.5	0.54	474	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena79	270	0.4	0.48	405	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena80	290	0.4	0.53	531	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22408_mena81	160	0.6	0.50	544	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	20–0	DF-14
	Stn22409_mena82	431	1.7	0.50	365	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	100–80	DF-14
	Stn22409_mena83	669	0.9	0.30	414	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	60–40	DF-14
	Stn22409_mena84	772	2.9	0.53	589	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	60–40	DF-14
	Stn22409_mena85	782	2.6	0.30	334	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	60–40	DF-14
	Stn22409_mena86	836	1.0	0.31	338	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	60–40	DF-14
	Stn22409_mena87	710	0.5	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_mena88	463	2.8	0.53	422	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_mena89	350	1.1	0.57	580	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_mena90	916	4.5	0.52	395	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_mena91	520	0.9	0.55	663	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_mena92	466	2.8	0.55	371	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_mena93	301	3.1	0.52	500	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_mena94	250	0.4	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_mena95	254	0.5	0.55	511	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22412_mena96	230	0.5	0.56	578	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena97	227	0.3	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena98	230	0.6	0.45	468	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	Stn22412_mena99	276	0.5	0.55	344	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena100	245	0.3	0.65	675	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena101	230	0.5	0.51	608	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena102	169	0.6	0.46	552	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena103	240	0.1	0.48	502	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	20–0	DF-14
	Stn22412_mena104	306	0.4	0.51	483	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	40–20	DF-14
	Stn22412_mena105	243	1.5	0.52	524	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	40–20	DF-14
	Stn22412_mena107	293	0.5	0.56	556	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	40–20	DF-14
	Stn22412_mena108	244	0.2	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	40–20	DF-14
	Stn22412_mena109	298	0.3	0.47	631	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_mena110	241	0.4	0.49	508	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	60–40	DF-14
	Stn22412_mena111	239	0.4	0.52	527	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	200–100	DF-14
	22413_mena116_0	616	2.4	0.52	558	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22413_mena117_0	532	1.7	0.48	449	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22413_mena118_0	404	0.9	0.49	368	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	40–20	DF-14
	22413_mena119_0	482	1.3	0.52	515	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14
	22413_mena120_0	408	0.5	0.48	395	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14
	22413_mena121_0	392	1.6	0.51	466	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	20–0	DF-14
	22413_mena122_0	570	1.7	0.50	430	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	60–40	DF-14
	22413_mena123_0	441	0.9	0.48	641	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	60–40	DF-14
	22413_mena124_0	447	0.7	0.53	537	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	60–40	DF-14
	22413_mena125_0	431	0.6	0.40	584	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	80–60	DF-14
	22413_mena126_0	956	3.4	0.44	499	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–80	DF-14
	22413_mena127_0	863	1.8	0.43	589	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–80	DF-14
	22413_mena128_0	307	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	100–80	DF-14
	22413_mena129_0	426	1.1	0.48	502	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	300–200	DF-14
	22413_mena130_0	461	0.8	0.38	421	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_mena132	326	ND	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	300–200	DF-14
	22414_mena134	373	1.6	0.55	483	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena135	359	1.3	0.51	469	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena136	378	1.6	0.50	484	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena137	256	1.3	0.57	545	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena138	331	1.3	0.51	518	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena139	343	1.1	0.49	394	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena140	319	1.0	0.55	453	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena141	474	2.6	0.57	516	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena142	406	ND	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena143	358	1.4	0.57	618	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena144	343	1.0	0.60	459	22414 / M140	2017.08.28	21°14.3'N-21°2'W	40–20	DF-14
	22414_mena145	574	2.0	0.53	494	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena146	550	1.5	0.56	469	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena147	513	1.8	0.54	622	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena148	459	1.5	0.54	470	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena149	493	1.6	0.54	503	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena150	456	1.7	0.60	440	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena151	424	1.8	0.54	392	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena152	556	2.2	0.51	440	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena153	410	1.3	0.54	398	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena154	416	1.3	0.56	485	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena155	472	3.0	0.49	528	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena156	393	0.9	0.55	498	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_mena157	1274	8.7	0.46	356	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena158	512	2.0	0.52	576	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena159	456	0.1	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena160	515	1.0	0.56	572	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena161	453	0.8	0.58	520	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena162	286	0.4	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena163	310	1.5	0.54	521	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena164	280	0.1	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena165	262	0.2	0.56	482	22414 / M140	2017.08.28	21°14.3'N-21°2'W	100–80	DF-14
	22414_mena166	555	0.4	0.56	669	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22414_mena167	547	0.4	0.49	716	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22414_mena169	815	2.4	0.52	496	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22414_mena170	400	0.5	0.46	396	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22414_mena171	425	0.9	0.50	402	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22414_mena172	429	1.4	0.46	369	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14

Species	ID	Test size (µm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	22414_mena173	467	0.2	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena174	473	0.4	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena175	443	0.9	0.51	595	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena176	649	2.5	0.54	535	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena177	508	2.7	0.50	413	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena178	531	2.2	0.55	571	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena179	506	0.7	0.50	545	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena180	488	1.5	0.53	739	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena181	511	2.1	0.57	755	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena182	480	1.5	0.51	491	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22414_mena183	390	0.6	0.59	657	22414 / M140	2017.08.28	21°14.3'N-21°2'W	60–40	DF-14
	22417_mena184	411	1.3	0.50	435	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_mena185	375	1.0	0.48	389	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_mena186	395	0.5	0.43	441	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	St11_mena1_0	861	5.3	0.43	589	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_mena2_0	591	0.2	–	–	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_mena3_0	692	4.2	0.51	314	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
	St11_mena4_0	633	3.8	0.52	549	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
Globorotalia scitula										
	St22403_scitu2	286	0.4	–	–	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	300–200	DF-14
	St22403_scitu3	263	0.4	–	–	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	300–200	DF-14
	Stn22406_scitu7	191	0.3	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	60–40	DF-14
	Stn22406_scitu8	148	0.4	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	40–20	DF-14
	Stn22406_scitu9	238	0.4	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22407_scitu10	216	1.2	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_scitu11	212	0.5	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22408_scitu13	252	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_scitu14	236	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_scitu15	210	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	300–200	DF-14
	Stn22408_scitu17	238	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu18	242	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu19	206	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu20	205	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu21	260	0.5	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu22	278	0.5	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu23	170	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_scitu24	180	0.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22412_scitu25	464	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	700–500	DF-14
	Stn22412_scitu26	449	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	700–500	DF-14
	Stn22412_scitu27	308	0.3	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	700–500	DF-14
	Stn22412_scitu28	316	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	700–500	DF-14
	Stn22412_scitu29	363	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	700–500	DF-14
	Stn22412_scitu30	347	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	700–500	DF-14
	Stn22412_scitu31	383	0.8	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	500–300	DF-14
	Stn22412_scitu32	289	0.6	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	500–300	DF-14
	Stn22412_scitu33	362	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	500–300	DF-14
	Stn22412_scitu34	305	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	500–300	DF-14
	Stn22412_scitu35	273	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	500–300	DF-14
	Stn22412_scitu36	210	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	500–300	DF-14
	Stn22412_scitu37	243	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	200–100	DF-14
	Stn22412_scitu38	233	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	200–100	DF-14
	Stn22412_scitu39	256	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	200–100	DF-14
	Stn22412_scitu40	240	0.4	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	200–100	DF-14
	Stn22412_scitu41	236	0.5	–	–	22412 / M140	2017.08.25	14°6.4'N-23°44.5'W	200–100	DF-14
	22413_scitu42	464	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu43	413	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu44	424	0.6	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu45	379	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu46	353	0.6	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu47	373	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu48	334	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu49	378	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu50	341	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu51	357	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu52	299	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	22413_scitu53	399	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu54	381	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu55	334	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu56	354	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu57	370	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu58	274	0.7	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu59	278	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu60	319	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu61	373	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu62	287	0.5	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu63	355	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu64	298	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
	22413_scitu65	285	0.4	–	–	22413 / M140	2017.08.27	19°31.4'N-22°35.4'W	700–500	DF-14
Globorotalia crassaformis										
	St22403_crassa1	369	1.1	–	–	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	60–40	DF-14
	St22403_crassa4	404	1.4	–	–	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	60–40	DF-14
	Stn22406_crassa5	384	0.6	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_crassa6	374	0.4	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	500–300	DF-14
	Stn22406_crassa7	355	0.9	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	200–100	DF-14
	Stn22406_crassa8	188	0.5	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	200–100	DF-14
	Stn22406_crassa9	382	0.4	–	–	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	700–500	DF-14
	Stn22408_crassa10	424	0.9	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_crassa11	422	0.7	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_crassa12	333	0.4	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	80–60	DF-14
	Stn22408_crassa13	391	0.8	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_crassa14	517	0.8	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	700–500	DF-14
	Stn22408_crassa15	587	1.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_crassa16	512	0.9	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
	Stn22408_crassa17	571	1.3	–	–	22408 / M140	2017.08.19	11°52.8'N-30°22.3'W	500–300	DF-14
Globorotalia truncatulinoides										
	S1-100-50_trun1	266	ND	–	–	S1 / MR13-04	2013.07.13	30°N-145°E	100–50	DF-03
	S1-300-200_trun1	444	0.2	–	–	S1 / MR13-04	2013.07.13	30°N-145°E	300–200	DF-03
	S1-300-200_trun2	450	ND	–	–	S1 / MR13-04	2013.07.13	30°N-145°E	300–200	DF-03
	trun1_S2-200-100	429	0.9	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun2_S2-200-100	321	0.5	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun3_S2-200-100	393	0.9	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun4_S2-200-100	411	0.5	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun6_S2-200-100	357	0.4	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun7_S2-200-100	429	0.8	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun8_S2-200-100	339	0.4	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun9_S2-200-100	446	0.4	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun10_S2-200-100	321	0.4	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun11_S2-200-100	286	0.2	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun12_S2-200-100	411	0.8	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun13_S2-200-100	429	0.3	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	trun14_S2-300-200	482	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun15_S2-300-200	411	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun16_S2-300-200	429	0.2	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun17_S2-300-200	429	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun18_S2-300-200	411	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun19_S2-300-200	357	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun20_S2-300-200	196	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun21_S2-300-200	286	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun22_S2-300-200	304	ND	–	–	S2 / KY14-09	2014.07.23	28°N-145°E	300–200	DF-03
	trun23_S1-300-200	357	0.2	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	trun24_S1-300-200	446	0.2	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	trun25_S1-300-200	375	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	trun26_S1-300-200	357	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	trun27_S1-300-200	411	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	trun28_S1-300-200	321	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	300–200	DF-03
	trun29_S1-200-100	464	0.4	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun30_S1-200-100	411	0.5	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun31_S1-200-100	411	0.2	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun32_S1-200-100	536	0.4	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	trun33_S1-200-100	482	0.2	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun34_S1-200-100	429	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun35_S1-200-100	268	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun36_S1-200-100	143	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun37_S1-200-100	339	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun38_S1-200-100	304	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun39_S1-200-100	268	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun40_S1-200-100	464	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun41_S1-200-100	286	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	trun42_S1-100-50	464	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun43_S1-100-50	429	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun44_S1-100-50	161	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun45_S1-100-50	411	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun46_S1-100-50	339	0.2	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun47_S1-100-50	304	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun48_S1-100-50	232	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun49_S1-100-50	196	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun50_S1-100-50	250	0.3	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	trun51_S1-100-50	232	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	D150-100_trun1	375	ND	–	–	KS-16-9	2016.07.21	27°N-144°E	150–100	DF-03
	D200-150_trun2	479	0.6	–	–	KS-16-9	2016.07.21	27°N-144°E	200–150	DF-03
	D200-150_trun3	443	0.3	–	–	KS-16-9	2016.07.21	27°N-144°E	200–150	DF-03
	D200-150_trun4	496	0.2	–	–	KS-16-9	2016.07.21	27°N-144°E	200–150	DF-03
	D200-150_trun5	475	ND	–	–	KS-16-9	2016.07.21	27°N-144°E	200–150	DF-03
	D200-150_trun6	411	0.3	–	–	KS-16-9	2016.07.21	27°N-144°E	200–150	DF-03
	St11_trun1	325	ND	–	–	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–0	DF-14
Candeina nitida										
	4-can0	375	6.3	0.40	402	MR14-02	2014.02.16	6°40'N-138°55'E	Surface	DF-03
	4-can1	375	6.0	0.39	472	MR14-02	2014.02.16	6°40'N-138°55'E	Surface	DF-03
	9-can2	536	5.9	0.38	616	MR14-02	2014.02.19	4°35.4'N-144°27.8'E	Surface	DF-03
	10-can3	321	3.1	0.40	521	MR14-02	2014.02.19	4°57.8'N-147°01.6'E	Surface	DF-03
	11-can4	304	4.1	0.51	489	MR14-02	2014.02.20	2°30'N-147°E	Surface	DF-03
	29-can5	250	1.6	0.44	440	MR14-02	2014.03.12	7°58'N-156°2'E	Surface	DF-03
	Stn22409_niti1	330	0.7	0.45	409	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	700–500	DF-14
	Stn22409_niti2	438	0.1	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	300–200	DF-14
	Stn22409_niti3	330	0.8	0.46	504	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	300–200	DF-14
	Stn22409_niti4	343	0.3	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	300–200	DF-14
	Stn22409_niti5	230	0.1	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	300–200	DF-14
	Stn22409_niti6	315	0.2	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	300–200	DF-14
	Stn22409_niti7	225	0.1	–	–	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	200–100	DF-14
	Stn22409_niti8	268	1.8	0.46	271	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	80–60	DF-14
	Stn22409_niti9	319	2.0	0.46	275	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	80–60	DF-14
	Stn22409_niti10	382	0.7	0.53	416	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	60–40	DF-14
	Stn22409_niti11	199	2.1	0.49	319	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti12	268	1.8	0.49	290	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti13	293	1.9	0.44	275	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti14	203	2.3	0.50	302	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti15	335	0.8	0.50	377	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti16	254	1.8	0.52	287	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti17	218	1.0	0.56	454	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti18	226	1.0	0.50	312	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti19	207	1.0	0.49	255	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	40–20	DF-14
	Stn22409_niti20	269	0.6	0.57	361	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_niti21	367	2.6	0.49	396	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	Stn22409_niti22	419	6.6	0.52	353	22409 / M140	2017.08.20	11°41.3'N-26°39.7'W	20–0	DF-14
	PP37_niti23	422	2.7	0.46	343	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_niti24	338	1.3	0.51	263	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_niti25	363	3.0	0.52	317	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	PP37_niti26	236	0.6	0.53	355	M140	2017.08.25	13°10.3'N-23°25.8'W	Surface	DF-14
	tap1_niti1_0	422	1.3	0.35	380	KH-17-4	2017.09.10	21°16.6'N-160°45'W	Surface	DF-14
	St11_niti2_0	380	2.3	0.41	285	St11 / KH-17-4	2017.09.12	21°30'N-170°W	100–50	DF-14
	St11_niti3_0	219	0.6	0.55	317	St11 / KH-17-4	2017.09.12	21°30'N-170°W	50–20	DF-14
	tap4_niti4_0	373	4.2	0.50	346	KH-17-4	2017.09.15	26°40.7'N-145°14.3'E	Surface	DF-14
	St12_niti5_0	253	0.2	0.43	257	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_niti6_0	270	0.1	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	St12_niti7_0	388	0.5	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_niti8_0	278	0.1	–	–	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St12_niti9	250	0.7	0.34	428	St12 / KH-17-4	2017.09.16	23°N-180°E/W	100–0	DF-14
	St17_niti10_0	481	6.5	0.42	349	St17 / KH-17-4	2017.10.01	23°N-137°E	100–0	DF-14
Globoigerinita glutinata										
	0718-0006_glu	233	0.8	–	–	MR13-04	2013.07.18	32°32.5'N-144°36.4'E	Surface	DF-03
	0719-0612_glu	311	2.2	0.48	627	MR13-04	2013.07.19	38°05'N-146°25'E	Surface	DF-03
	0719-1218_glu	233	0.5	0.44	609	MR13-04	2013.07.19	39°02'N-147°53.3'E	Surface	DF-03
	K2-c1-0-50_4dex-glu	255	0.2	–	–	K2 / MR13-04	2013.07.22	47°N-160°E	50–0	DF-03
	0723-0712_glu	220	0.1	–	–	MR13-04	2013.07.23	47°N-160°E	Surface	DF-03
	0723-0712_glu2	220	ND	–	–	MR13-04	2013.07.23	47°N-160°E	Surface	DF-03
	K2-c2-50-100_glu1	222	0.2	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2-c2-50-100_glu2	222	0.1	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2-c2-50-100_glu3	255	0.1	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	K2-c2-50-100_glu4	266	0.2	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	100–50	DF-03
	0724-1206_glu	233	ND	–	–	MR13-04	2013.07.24	47°N-160°E	Surface	DF-03
	0727-0006_glu	144	ND	–	–	MR13-04	2013.07.27	41°15'N-146°43'E	Surface	DF-03
	2-glu	190	0.2	0.50	615	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	3-glu	245	ND	–	–	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	4-glu	207	0.1	–	–	Sagami Bay	2013.08.05	35°10'N-139°11'E	Surface	DF-03
	SSK-glu_DNA-1	214	0.7	0.49	558	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK-glu_DNA-2	250	0.6	0.46	562	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	SSK-glu_DNA-3	214	0.5	0.48	563	Sesoko	2013.11.29	26°37.3'N-127°52.3'E	Surface	DF-03
	8-glu1	268	0.7	0.49	613	MR14-02	2014.02.18	4°13.7'N-142°53.9'E	Surface	DF-03
	8-glu2	321	ND	–	–	MR14-02	2014.02.18	4°13.7'N-142°53.9'E	Surface	DF-03
	14-glu3	196	0.3	0.54	585	MR14-02	2014.02.23	0°1.5'S-147°E	Surface	DF-03
	13-glu4	268	0.2	0.44	423	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	13-glu5	214	ND	–	–	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	13-glu6	161	ND	–	–	MR14-02	2014.02.22	0°N/S-147°E	Surface	DF-03
	17-glu7	321	ND	–	–	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	34-glu7	268	0.6	0.44	594	MR14-02	2014.03.17	25°N-149°12'E	Surface	DF-03
	S1-200-100_glu	232	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	S1-200-100_glu2	250	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	200–100	DF-03
	S1-100-50_glu3	161	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	S1-100-50_glu4	179	0.2	0.49	586	S1 / KY14-09	2014.07.22	30°N-145°E	100–50	DF-03
	S1-50-20_glu5	125	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	50–20	DF-03
	S1-50-20_glu6	143	0.2	0.40	789	S1 / KY14-09	2014.07.22	30°N-145°E	50–20	DF-03
	S2-200-100-c2_glu7	143	0.3	0.38	453	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	S2-200-100-c2_glu8	161	0.4	0.39	639	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	S2-200-100-c2_glu9	143	0.3	0.34	840	S2 / KY14-09	2014.07.23	28°N-145°E	200–100	DF-03
	S2-100-50-c2_glu10	179	0.6	0.31	745	S2 / KY14-09	2014.07.23	28°N-145°E	100–50	DF-03
	S2-100-50-c2_glu11	161	0.3	0.38	746	S2 / KY14-09	2014.07.23	28°N-145°E	100–50	DF-03
	S2-50-0-c2_glu12	161	0.4	0.43	677	S2 / KY14-09	2014.07.23	28°N-145°E	50–0	DF-03
	S2-50-0-c2_glu13	179	0.7	0.43	704	S2 / KY14-09	2014.07.23	28°N-145°E	50–0	DF-03
	S2-50-0-c2_glu14	143	0.4	0.48	714	S2 / KY14-09	2014.07.23	28°N-145°E	50–0	DF-03
	S1-50-0-c3_glu15	196	ND	–	–	S1 / KY14-09	2014.07.22	30°N-145°E	50–0	DF-03
	tap3_glu1	279	1.1	0.48	850	KS-16-9	2016.07.19	32°09.7'N-142°04.2'E	Surface	DF-03
	tap6_glu2	243	1.3	0.54	828	KS-16-9	2016.07.20	27°42.1'N-143°43.1'E	Surface	DF-03
	20-0D_glu5	177	0.5	0.31	831	KS-16-9	2016.07.21	27°N-144°E	20–0	DF-03
	20-0D_glu6	195	0.2	–	–	KS-16-9	2016.07.21	27°N-144°E	20–0	DF-03
	tap2_glu1	196	0.5	0.42	890	KH-16-7	2016.12.07	28°37.6'N-143°55.4'E	Surface	DF-03
	N02-50-20_glu2	197	0.3	0.48	581	N02 / KH-16-7	2016.12.10	23°N-141°E	50–20	DF-03
	N02-50-20_glu3	166	0.5	0.41	789	N02 / KH-16-7	2016.12.10	23°N-141°E	50–20	DF-03
	RM1_glu4	243	1.5	0.51	835	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu5	230	1.1	0.51	776	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu6	207	0.7	0.53	743	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu7	244	1.4	0.47	834	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu8	254	0.8	0.57	685	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu9	252	0.9	0.50	737	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu10	216	1.1	0.53	732	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu11	246	0.8	0.54	776	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu12	201	0.7	0.51	721	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu13	211	1.0	0.48	812	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu14	209	0.8	0.55	750	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu15	166	0.5	0.50	749	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03

Species	ID	Test size (μm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	RM1_glu16	233	1.0	0.47	874	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu17	200	0.6	0.50	761	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu18	178	0.5	0.50	739	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu19	246	1.1	0.49	804	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu20	180	0.5	0.51	657	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	RM1_glu21	247	0.8	0.53	698	RM1 / KH-16-7	2016.12.21	25°49'N-126°55'E	100–0	DF-03
	mana_glu1	187	0.1	–	–	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	mana_glu2	286	1.7	0.56	538	M1 / Manazuru	2017.07.13	35°09'N-139°10.5'E	Surface	DF-14
	St22403_glu1	144	0.5	0.53	632	22403 / M140	2017.08.13	14°47.4'N-32°31.1'W	80–60	DF-14
	Stn22407_glu2	137	0.6	0.58	409	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	40–20	DF-14
	Stn22407_glu3	141	0.9	0.53	479	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_glu5	145	0.5	0.53	715	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_glu6	139	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	200–100	DF-14
	Stn22407_glu7	132	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	200–100	DF-14
	Stn22407_glu8	162	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	200–100	DF-14
	Stn22407_glu9	123	0.4	0.54	588	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_glu10	157	0.3	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_glu11	134	ND	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	60–40	DF-14
	Stn22407_glu12	116	0.5	0.53	596	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	80–60	DF-14
	Stn22407_glu13	203	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	100–80	DF-14
	Stn22407_glu14	170	0.6	0.61	592	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	Stn22407_glu15	166	0.5	0.57	511	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	Stn22407_glu16	145	0.5	0.51	505	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	Stn22407_glu17	169	0.5	0.52	314	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	Stn22407_glu18	160	0.8	0.57	510	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14
	22414_glu19	238	0.7	0.50	505	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_glu20	217	0.8	0.55	508	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_glu21	175	0.7	0.60	477	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_glu22	172	0.4	0.58	416	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22414_glu23	173	ND	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22414_glu24	170	0.1	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	80–60	DF-14
	22417_glu25_0	296	ND	–	–	22414 / M140	2017.08.28	21°14.3'N-21°2'W	20–0	DF-14
	22417_glu26_0	198	1.1	0.60	485	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	22417_glu27_0	231	1.1	0.56	471	22417 / M140	2017.08.31	20°52.1'N-18°56.3'W	20–0	DF-14
	tap1_glu1_0	321	1.2	0.56	562	KH-17-4	2017.09.10	21°16.6'N-160°45'W	Surface	DF-14
	St14_glu_double	270	1.2	0.51	677	St14 / KH-17-4	2017.09.23	23°N-160°E	20–0	DF-14
	St14_glu2_0	228	ND	–	–	St14 / KH-17-4	2017.09.23	23°N-160°E	100–50	DF-14
	St14_glu3_0	211	0.8	0.46	852	St14 / KH-17-4	2017.09.23	23°N-160°E	50–20	DF-14
	St15_glu4_0	219	1.0	0.52	839	St15 / KH-17-4	2017.09.27	23°N-150°E	20–0	DF-14
	St16_glu5_0	262	1.7	0.50	622	St16 / KH-17-4	2017.09.30	23°N-140°E	50–20	DF-14
	St16_glu6_0	236	0.4	–	–	St16 / KH-17-4	2017.09.30	23°N-140°E	20–0	DF-14
	St16_glu7_0	219	0.5	0.34	429	St16 / KH-17-4	2017.09.30	23°N-140°E	20–0	DF-14
	St16_glu8_0	228	1.5	0.51	594	St16 / KH-17-4	2017.09.30	23°N-140°E	20–0	DF-14
	St16_glu9_0	219	0.3	0.46	584	St16 / KH-17-4	2017.09.30	23°N-140°E	50–20	DF-14
	St16_glu10_0	186	0.6	0.54	519	St16 / KH-17-4	2017.09.30	23°N-140°E	20–0	DF-14
	St16_glu11_0	211	0.4	0.33	691	St16 / KH-17-4	2017.09.30	23°N-140°E	20–0	DF-14
Globigerinita uvula										
	0720-0612_uvu	169	0.9	0.35	784	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	0720-0612_uvu2	144	0.2	0.20	780	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	0720-0612_uvu3	145	ND	–	–	MR13-04	2013.07.20	42°N-152°33'E	Surface	DF-03
	0720-1218_uvu	167	0.2	0.29	640	MR13-04	2013.07.20	42°24.3'N-153°02.7'E	Surface	DF-03
	0720-1218_uvu-small	134	0.4	0.45	535	MR13-04	2013.07.20	42°24.3'N-153°02.7'E	Surface	DF-03
	0724-1206_uvu	155	0.2	0.39	536	MR13-04	2013.07.24	47°N-160°E	Surface	DF-03
	0724-1206_uvu2	156	ND	–	–	MR13-04	2013.07.24	47°N-160°E	Surface	DF-03
	0725-0613_uvu	144	0.4	0.29	423	MR13-04	2013.07.25	44°37.7'N-156°13.1'E	Surface	DF-03
	0725-0613_uvu2	133	0.3	0.26	522	MR13-04	2013.07.25	44°37.7'N-156°13.1'E	Surface	DF-03
	K2-0-50-c2_uvu	122	0.2	0.28	780	K2 / MR13-04	2013.07.23	47°N-160°E	50–0	DF-03
	K2-0-50_uvu2	120	0.1	–	–	K2 / MR13-04	2013.07.23	47°N-160°E	50–0	DF-03
	12-uvu1	214	0.7	0.43	618	MR14-02	2014.02.21	1°N-147°E	Surface	DF-03
	17-uvu2	304	1.7	0.51	646	MR14-02	2014.02.26	4°58'S-154°44'E	Surface	DF-03
	Stn22406_uvu1	143	0.3	0.55	564	22406 / M140	2017.08.17	12°18.6'N-36°56.6'W	80–60	DF-14
Tenuitella fleisheri										
	Stn22407_fleis1	205	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis2	190	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14

Species	ID	Test size (µm)	Chl *a* (ng foraminifer^{-1})	F_v/F_m	σ_{PSII} ($\times10^{-20}$ m^2 quanta^{-1})	Station / Cruise	Date	Latitude-Longitude	Depth (m)	FRRf
	Stn22407_fleis3	171	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis4	186	0.2	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis5	131	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis6	177	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis7	176	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis8	164	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis9	164	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis10	165	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	500–300	DF-14
	Stn22407_fleis11	164	ND	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	300–200	DF-14
	Stn22407_fleis12	145	0.1	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	100–80	DF-14
	Stn22407_fleis13	173	0.2	–	–	22407 / M140	2017.08.18	12°5.8'N-33°47.1'W	20–0	DF-14