The following supplement accompanies the article

Planktonic biomass size spectra: an emergent property of size-dependent physiological rates, food web dynamics, and nutrient regimes

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This supplement contains all the values used for the parameterization for the size-structured models in the corresponding article.

Table S1. Phytoplankton maximum specific growth rate (μ) values and sources. Experimental temperatures and sources for equivalent spherical diameter (*esd*) are also listed

Organism	*esd* (μm)	Source for size	μ value (d^{-1})	Temp (°C)	Source
Synechococcus sp.	1.36	Popp et al. 1998	0.55	20	Timmermans et al. 2005
Pelagomonas calceolata	3.00	Timmermans et al. 2005	0.90	20	Timmermans et al. 2005
Prasinomonas capsulatus	4.00	Timmermans et al. 2005	1.19	20	Timmermans et al. 2005
Katodinium rotundatum	8.84	Verity et al. 1992	2.60	30	Fahnenstiel et al. 1995
Ochromonas minima	4.41	Novarino et al. 1997	1.80	29	Fahnenstiel et al. 1995
Dunaliella tertiolecta	7.85	Eppley & Sloan 1966	1.32	21	Eppley & Sloan 1966
Emiliania huxleyi	3.40	Eppley & Sloan 1966	1.28	21	Eppley & Sloan 1966
Syracosphaera elongata	13.81	Eppley & Sloan 1966	1.56	21	Eppley & Sloan 1966
Peridinium trochoideum	25.07	Eppley & Sloan 1966	0.89	21	Eppley & Sloan 1966
Cyclotella nana	7.49	Eppley & Sloan 1966	1.30	21	Eppley & Sloan 1966
Skeletonema costatum	8.42	Eppley & Sloan 1966	1.46	21	Eppley & Sloan 1966
Thalassiosira rotula	18.98	Eppley & Sloan 1966	1.19	21	Eppley & Sloan 1966
Coscinodiscus wailesii	303.24	Eppley & Sloan 1966	0.48	20	Eppley & Sloan 1966
Coscinodiscus asteromphilus	85.48	Eppley & Sloan 1966	0.36	20	Eppley & Sloan 1966
Thalassiosira fluviatilis	30.60	Eppley & Sloan 1966	1.12	20	Eppley & Sloan 1966
Ditylum brightwellii	40.58	Eppley & Sloan 1966	1.03	20	Eppley & Sloan 1966
Nitzschia closterium	3.13	Williams 1964	2.21	19.5	Williams 1964

Nitzschia laevis	3.81	Williams 1964	1.95	19.5	Williams 1964
Navicula sp.	5.80	Williams 1964	1.31	19.5	Williams 1964
Navicula sp.	10.33	Williams 1964	1.74	19.5	Williams 1964
Nitzschia thermaloides	12.15	Williams 1964	1.04	19.5	Williams 1964
Nitzschia obtusa var. *scalpelli formis*	17.89	Williams 1964	1.03	19.5	Williams 1964
Gyrosigma fasciola	15.39	Williams 1964	0.82	19.5	Williams 1964
Cylindrotheca gerstenbergeri	16.88	Williams 1964	0.83	19.5	Williams 1964
Bacillaria paradoxa	16.77	Williams 1964	0.69	19.5	Williams 1964
Gyrosigma spencerii	18.32	Williams 1964	0.61	19.5	Williams 1964
Amphiprora alata	28.41	Williams 1964	0.90	19.5	Williams 1964
Rhopalodia musculus	23.15	Williams 1964	0.48	19.5	Williams 1964
Nitzschi sigma	32.93	Williams 1964	0.76	19.5	Williams 1964
Pleurosigma angulatum	43.02	Williams 1964	0.42	19.5	Williams 1964
Pseudopedinella pyriforme	9.47	Ostroff & Van Valkenburg 1978	0.63	15	Ostroff et al. 1980
Chaetoceros sp.	4.06	Chan 1978	2.02	21	Chan 1978
Skeletonema costatum	8.74	Chan 1978	1.73	21	Chan 1978
Cylindrotheca fusiformis	8.49	Chan 1978	2.00	21	Chan 1978
Thalassiosira floridana	9.14	Chan 1978	2.05	21	Chan 1978
Thalassiosira eccentrica	36.28	Chan 1978	1.46	21	Chan 1978
Gymnodinium simplex	9.14	Chan 1978	0.87	21	Chan 1978
Amphidinium carterae	11.52	Chan 1978	0.71	21	Chan 1978
Scrippsiella sweeneyae	29.90	Chan 1978	0.57	21	Chan 1978
Prorocentrum micans	26.73	Chan 1978	0.42	21	Chan 1978
Prorocentrum micans	21.70	Falkowski et al. 1985	0.18	18	Falkowski et al. 1985
Isochrysis galbana	4.77	Falkowski et al. 1985	1.20	18	Falkowski et al. 1985
Thalassiosira weisflogii	14.14	Falkowski et al. 1985	1.80	18	Falkowski et al. 1985
Skeletonema costatum	6.75	Langdon 1987	1.10	15	Langdon 1987
Olisthodiscus luteus	12.90	Langdon 1987	0.60	15	Langdon 1987
Gonyaulax tamarensis	27.30	Langdon 1987	0.39	15	Langdon 1987
Chaetoceros calcitrans	3.89	Thompson et al. 1991	2.07	17.5	Thompson et al. 1991
Thalassiosira pseudonana	4.76	Thompson et al. 1991	2.11	17.5	Thompson et al. 1991
Chaetoceros gracilis	5.01	Thompson et al. 1991	1.87	17.5	Thompson et al. 1991
Chaetoceros simplex	5.22	Thompson et al. 1991	2.05	17.5	Thompson et al. 1991
Phaeodactylum tricornutum	5.01	Thompson et al. 1991	1.36	17.5	Thompson et al. 1991
Dunaliella tertiolecta	7.57	Thompson et al. 1991	1.45	17.5	Thompson et al. 1991
Isochrysis galbana	4.58	Thompson et al. 1991	1.39	17.5	Thompson et al. 1991
Heterosigma akashiwo	14.99	Thompson et al. 1991	1.51	17.5	Thompson et al. 1991
Micromonas pusilla	2.23	Thompson et al. 1991	0.89	17.5	Thompson et al. 1991

Gyrodinium c. aureolum	22.82	Garcia & Purdie 1992	0.26	20	Garcia & Purdie 1992
Thalassiosira pseudonana	11.37	Blasco et al. 1982	1.92	18	Blasco et al. 1982
Skeletonema costatum	10.04	Blasco et al. 1982	1.25	18	Blasco et al. 1982
Coscinodiscus sp.	17.28	Blasco et al. 1982	0.62	18	Blasco et al. 1982
Coscinodiscus sp.	227.93	Blasco et al. 1982	0.55	18	Blasco et al. 1982
Achnanthes brevipes	49.6	Mizuno 1991	1.15	18	Mizuno 1991
Amphora sp.	55.5	Mizuno 1991	0.74	18	Mizuno 1991
Caloneis linearis	50.6	Mizuno 1991	0.43	18	Mizuno 1991
Coscinodiscus sp.	22	Mizuno 1991	1.46	18	Mizuno 1991
Gyrosigma prolongatum	130.5	Mizuno 1991	1.06	18	Mizuno 1991
Gyrosigma tenuissimum	78.4	Mizuno 1991	0.73	18	Mizuno 1991
Licmophora abbreviata	41.9	Mizuno 1991	1.04	18	Mizuno 1991
Licmophora gracilis	17.9	Mizuno 1991	1.18	18	Mizuno 1991
Navicula complanatula	52.6	Mizuno 1991	1.07	18	Mizuno 1991
Navicula cryptocephala	24.6	Mizuno 1991	0.9	18	Mizuno 1991
Navicula directa	48.1	Mizuno 1991	1.4	18	Mizuno 1991
Navicula elegans	59.9	Mizuno 1991	0.28	18	Mizuno 1991
Navicula sp.	31.8	Mizuno 1991	0.68	18	Mizuno 1991
Nitzschia bilobata	64.5	Mizuno 1991	1.27	18	Mizuno 1991
Nitzschia sp.	138.5	Mizuno 1991	0.53	18	Mizuno 1991
Pleurosigma elongatum	237.8	Mizuno 1991	0.25	18	Mizuno 1991
Pleurosigma intermedium	114.8	Mizuno 1991	0.51	18	Mizuno 1991
Pleurosigma intermedium	103.6	Mizuno 1991	0.52	18	Mizuno 1991
Surirella ovata	35.4	Mizuno 1991	1.37	18	Mizuno 1991
Prochlorococcus sp.	0.61	Marañon et al. 2013	0.28	18	Marañon et al. 2013
Synechococcus sp.	0.92	Marañon et al. 2013	0.30	18	Marañon et al. 2013
Ostreococcus tauri	1.66	Marañon et al. 2013	0.41	18	Marañon et al. 2013
Nannochloropsis gaditana	2.54	Marañon et al. 2013	0.49	18	Marañon et al. 2013
Micromonas pusilla	2.76	Marañon et al. 2013	0.59	18	Marañon et al. 2013
Pavlova lutheri	4.41	Marañon et al. 2013	0.70	18	Marañon et al. 2013
Calcidiscus leptaporus	4.60	Marañon et al. 2013	0.89	18	Marañon et al. 2013
Isochrysis galbana	4.96	Marañon et al. 2013	0.82	18	Marañon et al. 2013
Gephyrocapsa oceanica	5.39	Marañon et al. 2013	0.85	18	Marañon et al. 2013
Phaeodactylum tricornutum	5.62	Marañon et al. 2013	1.06	18	Marañon et al. 2013
Emiliania huxleyi	6.71	Marañon et al. 2013	0.92	18	Marañon et al. 2013
Skeletonema costatum	7.73	Marañon et al. 2013	0.85	18	Marañon et al. 2013
Thalassiosira weisflogii	13.05	Marañon et al. 2013	0.54	18	Marañon et al. 2013
Melosira nummuloides	16.34	Marañon et al. 2013	0.56	18	Marañon et al. 2013
Protoceratium reticulatum	16.57	Marañon et al. 2013	0.43	18	Marañon et al. 2013
Thalassiosira rotula	17.05	Marañon et al. 2013	0.60	18	Marañon et al. 2013

Alexandrium minutum	22.00	Marañon et al. 2013	0.33	18	Marañon et al. 2013
Akashiwo sanguinea	44.89	Marañon et al. 2013	0.34	18	Marañon et al. 2013
Ditylum brightwellii	52.51	Marañon et al. 2013	0.32	18	Marañon et al. 2013
Coscinodiscus radiatus	53.89	Marañon et al. 2013	0.35	18	Marañon et al. 2013
Alexandrium tamarense	55.36	Marañon et al. 2013	0.24	18	Marañon et al. 2013
Coscinodiscus wailesii	168.35	Marañon et al. 2013	0.25	18	Marañon et al. 2013

Table S2. Phytoplankton half-saturation constant (k_s) values and sources. Sources and values are also given for equivalent spherical diameter (*esd*)

Organism	*esd* (mm)	Source for size	k_s value (µmol N l^{-1})	Source
Emiliania huxleyi BT-6	5.00	Eppley et al. 1969	0.10	Eppley et al. 1969
Emiliania huxleyi F-5	5.00	Eppley et al. 1969	0.15	Eppley et al. 1969
Chaetoceros gracilis	5.00	Eppley et al. 1969	0.30	Eppley et al. 1969
Cyclotella nana	5.00	Eppley et al. 1969	0.47	Eppley et al. 1969
Skeletonema costatum	8.00	Eppley et al. 1969	1.22	Eppley et al. 1969
Leptocylindrus danicus	21.00	Eppley et al. 1969	1.46	Eppley et al. 1969
Rhizosolenia stolterfothii	20.00	Eppley et al. 1969	0.90	Eppley et al. 1969
Rhizosolenia robusta	85.00	Eppley et al. 1969	5.23	Eppley et al. 1969
Ditylum brightwellii	30.00	Eppley et al. 1969	0.85	Eppley et al. 1969
Coscinodiscus lineatus	50.00	Eppley et al. 1969	2.30	Eppley et al. 1969
Coscinodiscus wailesii	210.00	Eppley et al. 1969	4.25	Eppley et al. 1969
Asterionella japonica	10.00	Eppley et al. 1969	1.03	Eppley et al. 1969
Gonyaulax polyedra	45.00	Eppley et al. 1969	7.48	Eppley et al. 1969
Gymnodinium splendens	47.00	Eppley et al. 1969	2.45	Eppley et al. 1969
Monochrysis lutheri	5.00	Eppley et al. 1969	0.55	Eppley et al. 1969
Isochrysis galbana	5.00	Eppley et al. 1969	0.10	Eppley et al. 1969
Dunaliella tertiolecta	8.00	Eppley et al. 1969	0.75	Eppley et al. 1969
Synechococcus sp.	1.36	Popp et al. 1998	2.37	Timmermans et al. 2005
Pelagomonas calceolata	3.00	Timmermans et al. 2005	1.04	Timmermans et al. 2005
Prasinomonas capsulatus	4.00	Timmermans et al. 2005	1.04	Timmermans et al. 2005
Skeletonema costatum	4.48	Romeo & Fisher 1982	2.12	Romeo & Fisher 1982
Asterionella japonica	5.62	Romeo & Fisher 1982	1.03	Romeo & Fisher 1982
Nitschiella logissima	4.58	Romeo & Fisher 1982	0.79	Romeo & Fisher 1982
Chaetoceros debilis	8.99	Harrison et al. 1977	0.70	Conway & Harrison 1977
Skeletonema costatum	6.30	Harrison et al. 1977	0.70	Conway & Harrison 1977
Thalassiosira gravida	19.21	Harrison et al. 1977	0.70	Conway & Harrison 1977
Thalassiosira weissflogii	15.97	Lomas & Glibert 2000	2.80	Lomas & Glibert 2000
Skeletonema costatum	9.19	Lomas & Glibert 2000	0.40	Lomas & Glibert 2000

Chaetoceros sp.	5.14	Lomas & Glibert 2000	3.10	Lomas & Glibert 2000
Prorocentrum minimum	12.01	Lomas & Glibert 2000	5.00	Lomas & Glibert 2000
Ethmodiscus spp.	1613.60	Villareal et al. 1999	10.20	Villareal et al. 1999

Table S3. Microzooplankton maximum specific grazing rate (*g*) values, temperatures and sources. Also listed are the sources for the equivalent spherical diameter (*esd*) values

Organism	*esd* (μm)	Source for size	*g* value (d^{-1})	Temp (°C)	Source
Actinomonas mirabilis	5.23	Hansen et al. 1997	15.64	20	Fenchel 1982
Bodo designis	4.69	Hansen et al. 1997	105.07	20	Eccleston-Parry & Leadbeater 1994
Ciliophrys infusionum	3.48	Hansen et al. 1997	41.71	20	Eccleston-Parry & Leadbeater 1994
Codosiga gracilis	4.06	Hansen et al. 1997	36.43	20	Eccleston-Parry & Leadbeater 1994
Diaphanoeca grandis	4.24	Hansen et al. 1997	6.00	15	Andersen 1988/1989
Jakoba libera	5.23	Hansen et al. 1997	2.38	20	Eccleston-Parry & Leadbeater 1994
Monosiga sp.	3.37	Hansen et al. 1997	14.73	20	Fenchel 1982
Ochromonas sp.	4.57	Hansen et al. 1997	16.56	20	Andersson et al. 1989
Ochromonas sp.	7.26	Hansen et al. 1997	25.33	20	Fenchel 1982
Paraphysomonas imperforata	7.40	Hansen et al. 1997	10.56	20	Eccleston-Parry & Leadbeater 1994
Paraphysomonas vestita	7.13	Hansen et al. 1997	14.55	20	Fenchel 1982
Pleoromonas jaculans	4.57	Hansen et al. 1997	9.75	20	Fenchel 1982
Pseudobodo tremulans	5.56	Hansen et al. 1997	10.18	20	Fenchel 1982
Pseudobodo sp.	4.00	Hansen et al. 1997	6.89	15	Rivier et al. 1985
Pseudobodo sp.	3.48	Hansen et al. 1997	8.91	18	Parslow et al. 1986
Spumella sp.	5.00	Hansen et al. 1997	5.50	25	Holen & Boraas 1991
Stephanoeca diplocostata	3.37	Hansen et al. 1997	11.59	18	Geider & Leadbeater 1988
Stephanoeca diplocostata	5.41	Hansen et al. 1997	15.84	20	Eccleston-Parry & Leadbeater 1994
Gymnodinium sp.	11.98	Hansen et al. 1997	1.12	12	Strom 1991
Gyrodinium spirale	28.00	Hansen et al. 1997	4.14	15	Hansen 1992
Oblea rotunda	22.71	Hansen et al. 1997	0.63	20	Strom & Buskey 1993
Protoperidinium crassipes	73.04	Hansen et al. 1997	0.15	19	Jeong & Latz 1994
Protoperidinium divergens	61.03	Hansen et al. 1997	0.59	19	Jeong & Latz 1994
Protoperidinium hirobis	20.02	Hansen et al. 1997	1.73	20	Jacobson & Anderson 1993
Eutintinnus pectinis	30.60	Hansen et al. 1997	1.73	18	Heinbokel 1978
Favella ehrenbergii	73.75	Hansen et al. 1997	5.35	20	Buskey & Stoecker 1988
Favella ehrenbergii	56.73	Hansen et al. 1997	7.81	18	Hansen et al. 1991
Helicostomella subulata	34.23	Hansen et al. 1997	2.41	18	Heinbokel 1978
Lohmaniella spiralis	65.92	Hansen et al. 1997	2.48	12	Jonsson 1986
Strobilidium cf. *spiralis*	36.99	Hansen et al. 1997	4.87	20	Verity 1991
Strombidium reticulatum	42.43	Hansen et al. 1997	2.88	12	Jonsson 1986

Strombidium sulcatum	26.73	Hansen et al. 1997	15.95	22	Bernard & Rassoulzadegan 1990
Tintinnopsis acuminata	23.85	Hansen et al. 1997	2.45	20	Verity 1985
Tintinnopsis dadayi	59.98	Hansen et al. 1997	3.76	20	Verity 1991
Tintinnopsis vasculus	50.89	Hansen et al. 1997	4.08	15	Verity 1985
Gyrodinium dominans, Harima strain	20.93	Nakamura et al. 1995	8.86	24	Nakamura et al. 1995
Gyrodinium dominans, Tokyo strain	19.69	Nakamura et al. 1995	7.44	24	Nakamura et al. 1995
Strombidium sulcatum	26.73	Bernard & Rassoulzadegan 1990	0.80	20	Christaki et al. 1999
Uronema sp.	10.18	Christaki et al. 1999	1.62	20	Christaki et al. 1999
Gyrodinium dominans	19.75	Schmoker et al. 2011	10.08	17	Schmoker et al. 2011
Fragilidium cf. *mexicanum*	54.50	Jeong et al. 1999	1.55	22	Jeong et al. 1999
Gymnodinium sp.	7.00	Jakobsen & Hansen 1997	1.35	15	Jakobsen & Hansen 1997
Balanion comatum	17.00	Jakobsen & Hansen 1997	6.62	15	Jakobsen & Hansen 1997
Paraphysomonas imperforata, Newfoundland strain	7.16	Choi & Peters 1992	9.04	15	Choi & Peters 1992
Paraphysomonas imperforata, Artic strain	7.89	Choi & Peters 1992	10.74	15	Choi & Peters 1992
Favella taraikaensis	79.19	Kamiyama et al. 2005	3.50	15	Kamiyama et al. 2005

Table S4. Microzooplankton grazing half-saturation constant (k_z) values and sources. Also listed are the sources for the equivalent spherical diameter (*esd*) values

Organism	*esd* (μm)	Source for size	k_z value (μmol N l^{-1})	Source
Actinomonas mirabilis	5.23	Hansen et al. 1997	1.64	Fenchel 1982
Bodo designis	4.69	Hansen et al. 1997	6.30	Eccleston-Parry & Leadbeater 1994
Ciliophrys infusionum	3.48	Hansen et al. 1997	83.43	Eccleston-Parry & Leadbeater 1994
Codosiga gracilis	4.06	Hansen et al. 1997	17.98	Eccleston-Parry & Leadbeater 1994
Diaphanoeca grandis	4.24	Hansen et al. 1997	3.02	Andersen 1988/1989
Jakoba libera	5.23	Hansen et al. 1997	10.01	Eccleston-Parry & Leadbeater 1994
Monosiga sp.	3.37	Hansen et al. 1997	17.40	Fenchel 1982
Ochromonas sp.	4.57	Hansen et al. 1997	5.17	Andersson et al. 1989
Ochromonas sp.	7.26	Hansen et al. 1997	23.06	Fenchel 1982
Paraphysomonas imperforata	7.40	Hansen et al. 1997	2.04	Eccleston-Parry & Leadbeater 1994
Paraphysomonas vestita	7.13	Hansen et al. 1997	18.45	Fenchel 1982
Pleoromonas jaculans	4.57	Hansen et al. 1997	24.74	Fenchel 1982

Pseudobodo tremulans	5.56	Hansen et al. 1997	10.69	Fenchel 1982
Pseudobodo sp.	4.00	Hansen et al. 1997	4.00	Rivier et al. 1985
Pseudobodo sp.	3.48	Hansen et al. 1997	1.68	Parslow et al. 1986
Spumella sp.	5.00	Hansen et al. 1997	24.27	Holen & Boraas 1991
Stephanoeca diplocostata	3.37	Hansen et al. 1997	6.01	Geider & Leadbeater 1988
Stephanoeca diplocostata	5.41	Hansen et al. 1997	4.26	Eccleston-Parry & Leadbeater 1994
Gymnodinium sp.	11.98	Hansen et al. 1997	0.21	Strom 1991
Gyrodinium spirale	28.00	Hansen et al. 1997	8.09	Hansen 1992
Oblea rotunda	22.71	Hansen et al. 1997	1.05	Strom & Buskey 1993
Protoperidinium crassipes	73.04	Hansen et al. 1997	2.12	Jeong & Latz 1994
Protoperidinium divergens	61.03	Hansen et al. 1997	5.54	Jeong & Latz 1994
Protoperidinium hirobis	20.02	Hansen et al. 1997	2.43	Jacobson & Anderson 1993
Eutintinnus pectinis	30.60	Hansen et al. 1997	0.44	Heinbokel 1978
Favella ehrenbergii	73.75	Hansen et al. 1997	0.49	Buskey & Stoecker 1988
Favella ehrenbergii	56.73	Hansen et al. 1997	1.29	Hansen et al. 1991
Helicostomella subulata	34.23	Hansen et al. 1997	1.04	Heinbokel 1978
Lohmaniella spiralis	65.92	Hansen et al. 1997	1.44	Jonsson 1986
Strobilidium cf. *spiralis*	36.99	Hansen et al. 1997	3.22	Verity 1991
Strombidium reticulatum	42.43	Hansen et al. 1997	2.66	Jonsson 1986
Strombidium sulcatum	26.73	Hansen et al. 1997	1.92	Bernard & Rassoulzadegan 1990
Tintinnopsis acuminata	23.85	Hansen et al. 1997	0.57	Verity 1985
Tintinnopsis dadayi	59.98	Hansen et al. 1997	2.21	Verity 1991
Tintinnopsis vasculus	50.89	Hansen et al. 1997	2.08	Verity 1985
Strombidium sulcatum	399.96	Rivier et al. 1985	0.52	Rivier et al. 1985
Paragymnodinium shiwhaense	14.72	Yoo et al. 2010	1.76	Yoo et al. 2010
Favella taraikaensis	79.19	Kamiyama et al. 2005	2.17	Kamiyama et al. 2005
Gyrodinium dominans, Harima strain	20.93	Nakamura et al. 1995	2.77	Nakamura et al. 1995
Gyrodinium dominans, Tokyo strain	19.69	Nakamura et al. 1995	0.63	Nakamura et al. 1995

Table S5. Microzooplankton gross growth efficiency (Γ) values and sources. All values are dimensionless. Sources for equivalent spherical diameter (*esd*) values are also listed

Organism	*esd* (μm)	Source for size	Γ value	Source
Diaphanoeca grandis	4.24	Hansen et al. 1997	0.34	Andersen 1988/1989
Spumella sp.	5.00	Hansen et al. 1997	0.50	Holen & Boraas 1991
Stephanoeca diplocostata	3.37	Hansen et al. 1997	0.40	Geider & Leadbeater 1988
Gymnodinium sp.	11.98	Hansen et al. 1997	0.21	Strom 1991
Gyrodinium spirale	28.00	Hansen et al. 1997	0.36	Hansen 1992
Oblea rotunda	22.71	Hansen et al. 1997	0.29	Strom & Buskey 1993
Protoperidinium divergens	61.03	Hansen et al. 1997	0.28	Jeong & Latz 1994
Protoperidinium crassipes	73.04	Hansen et al. 1997	0.28	Jeong & Latz 1994
Protoperidinium hirobis	20.02	Hansen et al. 1997	0.40	Jacobson & Anderson 1993
Tintinnopsis vasculus	50.89	Hansen et al. 1997	0.49	Verity 1985
Tintinnopsis acuminata	23.85	Hansen et al. 1997	0.41	Verity 1985
Gyrodinium dominans	19.75	Schmoker et al. 2011	0.06	Schmoker et al. 2011
Favella taraikaensis	79.19	Kamiyama et al., 2005	0.29	Kamiyama et al., 2005
Pteridomonas danica	36.10	Pelegri et al. 1999	0.22	Pelegri et al. 1999

LITERATURE CITED

Andersen P (1988/1989) Functional biology of the choanoflagellate *Diaphanoeca grandis* Ellis. Mar Microb Food Webs 3:35–50

Andersson A, Falk S, Samuelsson G, Hagstrom A (1989) Nutritional characteristics of a mixotrophic nanoflagellate, *Ochromonas* sp. Microb Ecol 17:251–262

Bernard C, Rassoulzadegan F (1990) Bacteria or microflagellates as a major food source for marine ciliates: Possible implications for the microzooplankton. Mar Ecol Prog Ser 64:147–155

Blasco D, Packard TT, Garfield PC (1982) Size dependence of growth rate, respiratory electron transport system activity, and chemical composition in marine diatoms in the laboratory. J Phycol 18:58–63

Buskey EJ, Stoecker DK (1988) Locomotory patterns of the planktonic ciliate *Favella* sp.: adaptations for remaining within food patches. Bull Mar Sci 43:783–796

Chan AT (1978) Comparative physiological study of marine diatoms and dinoflagellates in relation to irradiance and cell size. 1. Growth under continuous light. J Phycol 14:396–402

Choi JW, Peters F (1992) Effects of temperature on psychrophilic ecotypes of a heterotrophic nanoflagellate, *Paraphysomonas imperforata.* Appl Environ Microbiol 58:593–599

Christaki U, Jacquet S, Dolan JR, Vaulot D, Rassoulzadegan F (1999) Growth and grazing on *Prochlorococcus* and *Synechococcus* by two marine ciliates. Limnol Oceanogr 44:52–61

Conway HL, Harrison PJ (1977) Marine diatoms grown in chemostats under silicate or ammonium limitation. 4. Transient response of *Chaetoceros debilis, Skeletonema costatum*, and *Thalassiosira gravida* to a single addition of limiting nutrient. Mar Biol 43:33–43

Eccleston-Parry JD, Leadbeater BSC (1994) A comparison of the growth kinetics of six marine heterotrophic nanoflagellates fed with one bacterial species. Mar Ecol Prog Ser 105:167–177

Eppley RW, Rogers JN, McCarthy JJ (1969) Half-saturation constants for uptake of nitrate and ammonium by marine phytoplankton. Limnol Oceanogr 14:912–920

Eppley RW, Sloan PR (1966) Growth rates of marine phytoplankton: correlation with light absortpion by cell chlorophyll a. Physiol Plant 19:47–59

Fahnenstiel GL, McCormick MJ, Lang GA, Redalje DG and others (1995) Taxon-specific growth and loss rates for dominant phytoplankton populations from the northern Gulf of Mexico. Mar Ecol Prog Ser 117:229–239

Falkowski PG, Dubinsky Z, Wyman K (1985) Growth-irradiance relationships in phytoplankton. Limnol Oceanogr 30:311–321

Fenchel T (1982) Ecology of heterotrophic microflagellates 2. Bioenergetics and growth. Mar Ecol Prog Ser 8:225–231

Garcia VMT, Purdie DA (1992) The influence of irradiance on growth, photosynthesis and respiration of *Gyrodinium* cf *aureolum.* J Plankton Res 14:1251–1265

Geider RJ, Leadbeater BSC (1988) Kinetics and energetics of growth of the marine choanoflagellate *Stephanoeca diplocostata.* Mar Ecol Prog Ser 47:169–177

Hansen B, Hansen PJ, Nielsen TG (1991) Effects of large nongrazable particles on clearance and swimming behavior of zooplankton. J Exp Mar Biol Ecol 152:257–269

Hansen PJ (1992) Prey size selection, feeding rates and growth dynamics of heterotrophic dinoflagellates with special emphasis on *Gyrodinium spirale.* Mar Biol 114:327–334

Hansen PJ, Bjornsen PK, Hansen BW (1997) Zooplankton grazing and growth: scaling within the 2-2,000 µm body size range. Limnol Oceanogr 42:687–704

Harrison PJ, Conway HL, Holmes RW, Davis CO (1977) Marine diatoms grown in chemostats under silicate or ammonium limitation. III. Cellular chemical composition and morphology of *Chaetoceros debilis, Skeletonema costatum*, and *Thalassiosira gravida.* Mar Biol 43:19–31

Heinbokel JF (1978) Studies on the functional role of tintinnids in the Southern California Bight. 1. Grazing and growth rates in laboratory cultures. Mar Biol 47:177–189 Holen DA, Boraas ME (1991) The feeding behavior of *Spumella* sp. as a function of particle size: implications for bacterial size in pelagic systems. Hydrobiologia 220:73–88

Jacobson DM, Anderson DM (1993) Growth and grazing rates of *Protoperidinium hirobis* Abe, a thecate heterotrophic dinoflagellate. J Plankton Res 15:723–736

Jakobsen HH, Hansen PJ (1997) Prey size selection, grazing and growth response of the small heterotrophic dinoflagellate *Gymnodinium* sp. and the ciliate *Balanion comatum* - a comparative study. Mar Ecol Prog Ser 158:75–86

Jeong HJ, Latz MI (1994) Growth and grazing rates of the heterotrophic dinoflagellates *Protoperidinium* spp. on red tide dinoflagellates. Mar Ecol Prog Ser 106:173–185

Jeong HJ, Shim JH, Kim JS, Park JY, Lee CW, Lee Y (1999) Feeding by the mixotrophic thecate dinoflagellate *Fragilidium* cf. *mexicanum* on red-tide and toxic dinoflagellates. Mar Ecol Prog Ser 176:263–277

Jonsson PR (1986) Particle size selection, feeding rates and growth dynamics of marine planktonic oligotrichous ciliates (Ciliophora, Oligotrichina). Mar Ecol Prog Ser 33:265–277

Kamiyama T, Tsujino M, Matsuyama Y, Uchida T (2005) Growth and grazing rates of the tintinnid ciliate Favella taraikaensis on the toxic dinoflagellate *Alexandrium tamarens*e. Mar Biol 147:989–997

Langdon C (1987) On the causes of interspecific differences in the growth-irradiance relationship for phytoplankton. Part I. A comparative study of the growth-irradiance relationship of 3 marine phytoplankton species: *Skeletonema costatum, Olisthodiscus luteus* and *Gonyaulax tamarensis.* J Plankton Res 9:459–482

Lomas MW, Glibert PM (2000) Comparisons of nitrate uptake, storage, and reduction in marine diatoms and flagellates. J Phycol 36:903–913

Marañón E, Cermeno P, Lopez-Sandoval DC, Rodriguez-Ramos T and others (2013) Unimodal size scaling of phytoplankton growth and the size dependence of nutrient uptake and use. Ecol Lett 16:371–379

Mizuno M (1991) Influence of cell volume on the growth and size reduction of marine and estuarine diatoms. J Phycol 27:473–478

Nakamura Y, Suzuki SY, Hiromi J (1995) Growth and grazing of a naked heterotrophic dinoflagellate, *Gyrodinium dominans*. Aquat Microb Ecol 9:157–164

Novarino G, Mills DK, Hannah F (1997) Pelagic flagellate populations in the southern North Sea, 1988-89. 1. Qualitative observations. J Plankton Res 19:1081–1109

Ostroff CR, Karlander EP, Vanvakenburg SD (1980) Growth rates of *Pseudopedinella pyriforme* (Chrysophyceae) in response to 75 combinations of light, temperature and salinity. J Phycol 16:421–423

Ostroff CR, Van Valkenburg SD (1978) Fine structure of *Pseudopedinella pyriforme* Carter (Chrysophyceae). Br Phycol J 13:35–49

Parslow JS, Doucette GJ, Taylor FJR, Harrison PJ (1986) Feeding by the zooflagellate *Pseudobodo* sp. on the picoplanktonic prasinomonda *Micromonas pusilla*. Mar Ecol Prog Ser 29:237–246

Pelegri SP, Christaki U, Dolan J, Rassoulzadegan F (1999) Particulate and dissolved organic carbon production by the heterotrophic nanoflagellate *Pteridomonas danica* Patterson and Fenchel. Microb Ecol 37:276–284

Popp BN, Laws EA, Bidigare RR, Dore JE, Hanson KL, Wakeham SG (1998) Effect of phytoplankton cell geometry on carbon isotopic fractionation. Geochim Cosmochim Acta 62:69–77

Rivier A, Brownlee DC, Sheldon RW, Rassoulzadegan F (1985) Growth of microzooplankton: A comparative study of bactivorous zooflagellates and ciliates. Mar Microb Food Webs 1:51–60

Romeo AJ, Fisher NS (1982) Intraspecific comparisons of nitrate uptake in 3 marine diatoms. J Phycol 18:220–225

Schmoker C, Thor P, Hernandez-Leon S, Hansen BW (2011) Feeding, growth and metabolism of the marine heterotrophic dinoflagellate *Gyrodinium dominans*. Aquat Microb Ecol 65:65–73

Strom SL (1991) Growth and grazing rates of the herbivorous dinoflagellate *Gymnodinium* sp. from the open subarctic Pacific ocean. Mar Ecol Prog Ser 78:103–113

Strom SL, Buskey EJ (1993) Feeding, growth, and behavior of the thecate heterotrophic dinoflagellate *Oblea rotunda*. Limnol Oceanogr 38:965–977

Thompson PA, Harrison PJ, Parslow JS (1991) Influence of irradiance on cell volume and carbon quota for 10 species of marine phytoplankton. J Phycol 27:351–360

Timmermans KR, van der Wagt B, Veldhuis MJW, Maatman A, de Baar HJW (2005) Physiological responses of three species of marine pico-phytoplankton to ammonium, phosphate, iron and light limitation. J Sea Res 53:109–120

Verity PG (1985) Grazing, respiration, excretion, and growth rates of tintinnids. Limnol Oceanogr 30:1268–1282

Verity PG (1991) Measurement and simulation of prey uptake by marine planktonic ciliates fed plastidic and aplastidic nanoplankton. Limnol Oceanogr 36:729–750

Verity PG, Robertson CY, Tronzo CR, Andrews MG, Nelson JR, Sieracki ME (1992) Relationships between cell volume and the carbon and nitrogen content of marine photosynthetic nanoplankton. Limnol Oceanogr 37:1434–1446

Villareal TA, Joseph L, Brzezinski MA, Shipe RF, Lipschultz F, Altabet MA (1999) Biological and chemical characteristics of the giant diatom *Ethmodiscus* (Bacillariophyceae) in the central North Pacific gyre. J Phycol 35:896–902

Williams RB (1964) Division rates of salt marsh diatoms in relation to salinity and cell size. Ecology 45:877–880

Yoo YD, Jeong HJ, Kang NS, Song JY, Kim KY, Lee G, Kim JH (2010) Feeding by the newly described mixotrophic dinoflagellate *Paragymnodinium shiwhaense*: feeding mechanism, prey species, and effect of prey concentration. J Eukaryot Microbiol 57:145–158