Supplementary Information

Molecular Tools for the Selective Detection of Nine Diatom Species Biomarkers of Various Water Quality Levels

Table S1. Sequence of the oligonucleotide probes developed in this work. The probe's classification is based on the two marker genes (eEF1-a and *SIT*), on the diatom species and also on the position within the target DNA sequence (sense strand or anti-sense strand).

Elongation Factor Gene (eEF1-a)			
Diatom Species	**Probe Name**		**Probe Sequence 5' → 3'**
Achnanthidium minutissimum (Kützing) Czarnecki	**Antisense strand**	**AchMinEFas01**	ATACCGACAGAGTTTCCGGGTCCGGCAG
		AchMinEFas03	ACAGGACAGTATCCAACCTTGAGAACTCCGGG
		AchMinEFas04	CGCGGTACGGGAAAAGATAACAGGGCAGTAT
		AchMinEFas05	CAACCTTCTGTCCTCCAGTCTTCTTCGATTGC
		AchMinEFas02	GCAACCTTGGCGGTACGGCAGAAAATAACAG
Craticula halophila (Grunow ex Van Heurck) Mann	**Sense strand**	**CraHalEFs02**	TATTGCCAAGGACGAGAAGGTACAGCC
	Antisense strand	**CraHalEFas05**	GGCTGGACCTTCTCTTCCTTGGCAATA
		CraHalEFas01	CTTCCACAAAATCTTGGTCATCTTGCA
Cyclotella meneghiniana Kützing	**Sense strand**	**CycMenEFs01**	CTTGTGGAAGATGGGCAAGAAGACTGGAGG
		CycMenEFs02	ACTCCTGTTGTCTTCTGCCGTACTGCCAA
		CycMenEFs03	AAGATGAGAAGGTTGAGCCAGGTGACA
Mayamaea atomus var. *permitis* (Hustedt) Bruder & Medlin	**Sense strand**	**MayPerEFs01**	TTATTTTCTGCCGTACCGCCAAGGTTGC
		MayPerEFs02	CTGTCGGTATGTCCATCAGGGGTATTGCCAAG
		MayPerEFs03	AGAAGACCGGAGGTGCCAAGTTGGAAAATCCC
	Antisense strand	**MayPerEFas02**	ATGTCTCCAGGCTGTACCTTCTCGTCCTT
		MayPerEFas03	TTATCGACCTTGGCACCTCCCGTCTTCTT
		MayPerEFas04	ATACCGACAGAGTTTCCGGGTCCGGCAG
		MayPerEFas05	ACAGGACAGTATCCAACCTTGAGAACTCCGGG
		MayPerEFas06	GCAACCTTGGCGGTACGGCAGAAAATAACAG
Navicula veneta Kützing	**Sense strand**	**NavVenEFs07**	TATTGCCAAGGACGAGAAGGTACAGCC
	Antisense strand	**NavVenEFas07**	GTCAACCTTGGCACCTCCAGTCTTCTT
		NavVenEFas08	GACCTTCTCGTCCTTTCCAATACCCTTGA
		NavVenEFas03	GGCTTGAGGACACCGGGATGCTCTTGGAC
		NavVenEFas02	AAGGCAGTGAACGACTTGACGGGCTTGAG
		NavVenEFas04	GGGCAGTATCCGGGCTTGAGGACACCA
		NavVenEFas01	GGCTGTACCTTCTCGTCCTTGGCAATA
		NavVenEFas05	GCTGTACCTTCTCGTCCTTGGCAATAC
		NavVenEFas09	CTTCCACAAAATCTTGGTCATCTTGCA
Nitzschia dissipata (Kützing) Grunow	**Sense strand**	**NitDisEFs02**	TTATTTTCTGCCGTACCGCCAAGGTTGC
		NitDisEFs03	CTGTCGGTATGTCCATCAGGGGTATTGCCAAG
		NitDisEFs04	AGAAGACCGGAGGTGCCAAGTTGGAAAATCCC
	Antisense strand	**NitDisEFas04**	GGCTGGACCTTCTCTTCCTTGGCAATA
		NitDisEFas13	ATGTCTCCAGGCTGTACCTTCTCGTCCTT
		NitDisEFas14	TTATCGACCTTGGCACCTCCCGTCTTCTT
		NitDisEFas15	AAGGCAGTGAACGACTTGACGGGCTTGAG
		NitDisEFas06	ATACCGACAGAGTTTCCGGGTCCGGCAG
		NitDisEFas16	GGCTGTACCTTCTCGTCCTTGGCAATA
		NitDisEFas07	ACAGGACAGTATCCAACCTTGAGAACTCCGGG
		NitDisEFas08	GCAACCTTGGCGGTACGGCAGAAAATAACAG

Table S1. *Cont.*

Elongation Factor Gene (eEF1-a)			
Diatom Species	**Probe Name**		**Probe Sequence 5' → 3'**
Nitzschia palea (Kützing) W Smith	**Sense strand**	**NitPalEFs02**	AAGGACGAAAAGGTCAACCCCGGAGACATCATC
		NitPalEFs03	CTCTGTTGGTATGTCCGTCAAGGGTATTGGAAAGG
		NitPalEFs04	CCTCAAGCCTGGATACTGTCCCATCATTTTCTC
		NitPalEFs05	TTTCACCGCTTTGGTCGCTGTTCAGGAG
		NitPalEFs06	CATCAAGTCTTTCACCGCTTTGGTCGCTG
		NitPalEFs07	GTCGCTGTTCAGGAGCACCCCGGTGT
	Antisense strand	**NitPalEFas06**	ACTGGGAAAGTTCTGGGGGGTTGTCGACCTT
		NitPalEFas07	GAAAATGATGGGACAGTATCCAGGCTTGAGGACAC
		NitPalEFas08	GTCTCCGGGGTTGACCTTTTCGTCCTTTCCAATA
		NitPalEFas01	GACCTTCTCGTCCTTTCCAATACCCTTGA
		NitPalEFas02	GTCAACCTTGGCACCTCCAGTCTTCTT
		NitPalEFas04	GGGCAGTATCCGGGCTTGAGGACACCA
		NitPalEFas05	CAACCTTGGCACCTCCAGTCTTCTTCGA
		NitPalEFas09	CGCGGTACGGGAAAAGATAACAGGGCAGTAT
		NitPalEFas09	CAACCTTCTGTCCTCCAGTCTTCTTCGATTGC
Surirella angusta Kützing	**Sense strand**	**SurAngEFs01**	ACAGGACAGTATCCAACCTTGAGAACTCCGGG
		SurAngEFs04	GAAGGTTCTTGACTCCGCCGGACCAGGAA
		SurAngEFs05	TACTGCCCTGTTATCTTTTCCCGTACCGCG
		SurAngEFs06	GGAAGCAATCGAAGAAGACTGGAGGACAGAAG
	Antisense strand	**SurAngEFas01**	GGCTGTACCTTCTCGTCCTTGGCAATA
		SurAngEFas02	GCTGTACCTTCTCGTCCTTGGCAATAC
		SurAngEFas03	AATCTTGGTCATCTTGCAGGCAACCTTGGC
		SurAngEFas06	GCAACCTTGGCGGTACGGCAGAAAATAACAG
		SurAngEFas07	AACAGGGCAGTATCCCGGCTTGAGGACAC
		SurAngEFas04	CGCGGTACGGGAAAAGATAACAGGGCAGTAT
		SurAngEFas05	CAACCTTCTGTCCTCCAGTCTTCTTCGATTGC
Bacillariophyceae	**OrNavNavSSEFs01**		AGCGACCAAAGCGGTGAAAGACTTGATGG
	OrNavNavSSEFs02		CCAGGGTTGACCTTCTCATCCTTGGCAATACC
	OrNavNavSSEFas01		TTTCACCGCTTTGGTCGCTGTTCAGGAG
	OrNavNavSSEFas02		CATCAAGTCTTTCACCGCTTTGGTCGCTG
	OrNavNavSSEFas03		GTCGCTGTTCAGGAGCACCCCGGTGT
	ClBacNavSSEFs01		GCAAGATGACCAAGATTCTCTGGAAGCAGTCC
	ClBacNavSSEFs02		GTTATCTTCTCTCGTACCGCCAAGGTTGCCT
	ClBacNavSSEFs03		GCCCGGTTACTGTCCTGTTATCTTCTCTCGTAC
	ClBacNavSSEFs04		GACTGCTTCCAGAGAATCTTGGTCATCTTG
	ClBacNavSSEFs05		AGGCAACCTTGGCGGTACGAGAGAAGATAA
	ClBacNavSSEFs06		TACGAGAGAAGATAACAGGACAGTAACCGGGC
	ClBacNavSSEFs08		CAAGAAGACCGGTGGTGCCAAGGTTGACAA
	ClBacNavSSEFs09		CCCTGGTGACATCATCTACCTTGAAAAGGAAGG
	ClBacNavSSEFs010		TCAACCTTGGCACCACCGGTCTTCTTGGAC
	ClBacNavSSEFs011		GATAACAGGACAGTAACCGGGCTTGAGGACACC
	ClBacNavSSEFs012		CAACCTTGGCGGTACGAGAGAAGATAACAGGA
	ClBacNavSSEFs013		ATCTTGGTCATCTTGCAGGCAACCTTGGC

Table S1. *Cont.*

Silicic Acid Transporter Gene (*SIT*)			
Diatom Species	**Probe Name**		**Probe Sequence 5' → 3'**
Craticula halophila (Grunow ex Van Heurck) Mann	**Sense strand**	**CraHalSITs09**	CATTCTTCTCCGTTACTGCCTGTTGCTC
		CraHalSITs04	GCGGTTACCCTCTTCTTTGTCTTCATGGCCAT
		CraHalSITs05	GTTACTCTATATGCCCTCTTCCATGGCCAGACT
		CraHalSITs06	GTCTTCATGGCCATTGTTGGTATGCTTGAGGGA
		CraHalSITs01	TCGCCGTTACTCTATATGCCCTCTTCCATG
		CraHalSITs02	TGTGGCAAAAATGACCGAGGAAGAGCGTG
	Antisense strand	**CraHalSITas08**	CCAACGGCGTCTCTGTATTCCTCTTCTT
		CraHalSITas04	ATGGAAGAGGGCATATAGAGTAACGGCGAAAG
		CraHalSITas05	CATGAAGACAAAGAAGAGGGTAACCGCGGC
		CraHalSITas06	TTAGGGACGCCGGGCCACATGGTAGTC
Eolimna minima (Grunow) Lange-Bertalot	**Sense strand**	**EolMinSITs02**	GATTCAGATCGCCTTCTTCGCCGTCACC
	Antisense strand	**EolMinSITas01**	GCGAAGAAGGCGATCTGAATCGCCTCGAGCAT
		EolMinSITas02	GGTGACGGCGAAGAAGGCGATCTGAATC
Navicula veneta Kützing	**Sense strand**	**NavVenSITs05**	GCATTGCTGCTATCTTGTACAGATGTTCTTCG
		NavVenSITs01	CCAACGGCGTCTCTGTATTCCTCTTCTT
		NavVenSITs02	CATTCTTCTCCGTTACTGCCTGTTGCTC
		NavVenSITs03	TCGCCGTTACTCTATATGCCCTCTTCCATG
		NavVenSITs04	TGTGGCAAAAATGACCGAGGAAGAGCGTG
	Antisense strand	**NavVenSITas05**	TGGCCATGGAAGAGGGCATATAGAGTAACGG
		NavVenSITas06	GGCGAAGAACATCTGTACAAGATAGCAGCAAT
		NavVenSITas07	ATGAAGACAAAGAAGAGGGTAACCGCGGCA
		NavVenSITas09	CACATGGTGGTCTGTCCATTGAACAGGG
		NavVenSITas10	CCAAAGAAGAAGATGTTTTGCATAGTGTT
Nitzschia dissipata (Kützing) Grunow	**Sense strand**	**NitDisSITs06/AmpCofSITas05**	CACCATGAGCACTCTCTTCAACGAACAAACCAC
		NitDisSITs07/AmpCofSITs03	AATCTCTTCTTCTGGGGACGATGCCTCTTCTCT
		NitDisSITs08/AmpCofSITas09	GCTGTTGCCAAGATCCGCGAGTCGGAA
	Antisense strand	**NitDisSITas02/AmpCofSITas02**	GCAAAAGCACACGACGGCGAAAGAGAAG
		NitDisSITas03/AmpCofSITas03	AGAAGAAGAGATTGGCCACGGCACTGC
		NitDisSITas04/AmpCofSITas04	AAGCACAATTCCCTTGGGGATTCCCTCCCA
Nitzschia palea (Kützing) W Smith	**Antisense strand**	**NitPalSITas11**	GAGCAACAGGCAGTAACGGAGAAGAATG
Bacillariophyceae	**OrRaphSITs01**		TTGCCGACATAGACTTCATCACGCTGGA
	OrRaphexNaviculalesSITs02		GGAACACCCTCCCACATGGTGGTCTGTCCA

Probes classification

Probe producing either weak or no signal
Species-specific probe
Probe recognizing two species
Probe recognizing three species
Probe recognizing four species
Probe recognizing Order level and Genus level diatoms
Probe recognizing Class level diatoms (Bacillariophyceae)

Table S2. List of oligonucleotides spotted on the MicroAqua-array-02. Multiple names indicate probes whose sequence is shared by more than one diatom species.

MicroAqua-array-02 Probe Name
Cy3-Marker
Buffer
Empty
AmpCofTag7F
AmpCofTag25
NitPalEFas02/NavVenEFas07
SurAngEFas03/AmpCofEFas10
OrRaphexNaviculalesSITs02
AmpCofSITas08
ClBacNavSSEFs09
NavVenSITas07
NitDisSITs08/AmpCofSITas09
SurAngEFas07
Lambda
AmpCofP20Tag41F
NitVitTag7R
NavVenEFas05/SurAngEFas02/ AmpCofEFas09
MayPerEFas03/NitDisEFas14
EolMinSITas02
AmpCofSITas07
ClBacNavSSEFs08
NavVenSITas06
NitDisSITs07/AmpCofSITs03
SurAngEFas05/AchMinEFas05/ NitPalEFas10
POSITIVE_25_dT_12.5-μM
NitDisTag46R
AmpCofTagP29
NitDisEFas04/CraHalEFas05
NavVenEFas05/SurAngEFas02/ AmpCofEFas09
NitVitSIT01
AmpCofSITas06
ClBacNavSSEFs03
NavVenSITas05
NitDisSITs06/AmpCofSITas05
SurAngEFas04/AchMinEFas04/ NitPalEFasS09
POSITIVE_25_dT_25-μM
CraHalTag23R
AmpCofP20Tag221R
CraHalEFs02/NavVenEFs07
MayPerEFas02/NitDisEFas13
EolMinSITs02
AmpCofSITs08
ClBacNavSSEFs012
NavVenSITs05
NitDisSITas04/AmpCofSITas04
SurAngEFs06
POSITIVE_25_dT_50 μM
AmpCofTag46F
NavVenTag55
NavVenEFas03
SurAngEFs01/NitDisEFs16/ NavVenEFas01
AmpCofTag10
AmpCofSITs07
ClBacNavSSEFs011
NavVenSITs04/CraHalSITs02
NitDisSITas03/AmpCofSITas03
SurAngEFs05
DunGS05_25_dT_dT_12.5 μM
NitDisTag23F
NitVitTag27F
AmpCofEFas03
CycMenEFs03
EolMinSITas01
AmpCofSITs06
ClBacNavSSEFs010
NavVenSITs03/CraHalSITs01
NitDisSITas02/AmpCofSITas02
SurAngEFs04
DunGS05_25_dT_dT_25 μM
NitPalTag36F
NitVitTag7
NavVenEFas02/NitDisEFas15
NitPalEFas01/NavVenEFas08
NitPalSITas11
ClBacNavSSEFs06
CraHalSITas06
OrNavNavSSEFs02
NitDisEFas08/SurAngEFas06/ AchMinEFas02/MayPerEFas06
NitPalEFas08
ClBacNavSSEFs03
DunGS05_25_dT_dT_50-μM
AmpCofTag5R
AmpCofEFas02
CycMenEFs02
NavVenSITas10
NavVenSITs01/CraHalSITas08
CrahalSITas05
OrNavNavSSEFs01
NitDisEFas07/SurAngEFs01/ AchMinEFas03/MayPerEFas05
NitPalEFas07
DunGS02_25_dT_dT_12.5 μM
NitDisTag67R
NitPalTag23
NavVenEFas09/AmpCofEFas01/ CraHalEFas01
NitPalEFas05/AmpCofEFas11
OrRaphSITs01
ClBacNavSSEFs05
CraHalSITas04
ClBacNavSSEFs013
NitDisEFas06/AchMinEFas01/ MayPerEFas04
NitPalEFas06
ClBacNavSSEFs02
DunGS02_25_dT_dT_25 μM
AmpCofP20F
AmpCofTag
CycMenEFs01
NavVenSITas09
CraHalSITs06
OrNavNavSSEFas03/NitPalEFs07
NitDisEFs04/MayPerEFs03
NitPalEFs04
DunGS02_25_dT_dT_50 μM
NitDisTag67F
NitDisTag7R
SurAngEFs01/NitDisEFs16/ NavVenEFas01
NitPalEFas04/NavVenEFas04
AmpCofTag09
ClBacNavSSEFs04
CraHalSITs05
OrNavNavSSEFas02/NitPalEFs06
NitDisEFs03/MayPerEFs02
NitPalEFs03
ClBacNavSSEFs01
euk 1209
AmpCofTag29R
AmpCofP29Tag54R
AmpCof29Tag
CraHalSITs04
OrNavNavSSEFas01/NitPalEFs05
NitDisEFs02/MayPerEFs01
NitPalEFs02
NavVenSITs02/CraHalSITs09
euk 328

Table S3. Collection of DNA sequences of diatom marker genes obtained in this work.

Diatom Species	Silicic Acid Transporter Gene (*SIT*) [Sequence 5' → 3']
Craticula halophila	1 CGTACTGCCGTTCANAACTTGTTTTTCTGGACTCNAGTTATTATGTCACTTGCAATTCTT GCATGACGGCAAGTNTTGAACAAAAAGACCTGAGNTCAATAATACAGTGAACGTTAAGAA 61 GTATTTTCTTTCGCCGTTACTCTATATGCCCTCTTCCATGGCCAGACTACCATGTGGCCC CATAAAAGAAAGCGGCAATGAGATATACGGGAGAAGGTACCGGTCTGATGGTACACCGGG 121 GGCGTCCCTAATGCTGCCGCGGTTACCCTCTTCTTTGTCTTCATGGCCATTGTTGGTATG CCGCAGGGATTACGACGGCGCCAATGGGAGAAGAAACAGAAGTACCGGTAACAACCATAC 181 CTTGAGGGAATGCAAATTGCATTCTTTGCTGTGGCAAAAATGACCGAGGAAGAGCGTGCA GAACTCCCTTACGTTTAACGTAAGAAACGACACCGTTTTTACTGGCTCCTTCTCGCACGT 241 GCTCATCCATGGGCCAACAAAACTTGCGATGTGCTTTTCNATGGCGATGGAAGAAACTTG CGAGTAGGTACCCGGTTGTTTTGAACGCTACACGAAAAGNTACCGCTACCTTCTTTGAAC 301 CCTGGATTCATGATTG GGACCTAAGTACTAAC
Eolimna minima	1 GTTTCCAGAGAAGATCCCCGAACCGGCTTTGNGAAGGTCTTCTTCTGGGCTCGGTGCGTC CAAAGGTCTCTTCTAGGGGCTTGGCCGAAACNCTTCCAGAAGAAGACCCGAGCCACGCAG 61 CTCTCGATCGTTCTCTCGGGCGTTGCGTTCGCGGTCATCATGGCGGGCCTCGTCGAGGGA GAGAGCTAGCAAGAGAGCCCGCAACGCAAGCGCCAGTAGTACCGCCCGGAGCAGCTCCCT 121 AAGACCACCGTGTGGGAGGGCGTCCCTCATTGGGCGGCGATTATCGTCTTCTTTGTATTC TTCTGGTGGCACACCCTCCCGCAGGGAGTAACCCGCCGCTAATAGCAGAAGAAACATAAG 181 GCGGGCCTCGTTGGGATGCTCGAGGCGATTCAGATCGCCTTCTTCGCCGTCACCGAAGTC CGCCCGGAGCAACCCTACGAGCTCCGCTAAGTCTAGCGGAAGAAGCGGCAGTGGCTTCAG 241 ACCACGGCCGAACGCGGGAACGCCAAGTTCGCGATGATGACGTGCGAG TGGTGCCGGCTTGCGCCCTTGCGGTTCAAGCGCTACTACTGCACGCTC
Navicula veneta	1 GTGACTTCATTAACAACTACTTCGGCTATTTCACCTTGCAAGTGTCAAGAGTGATTGAAT CACTGAAGTAATTGTTGATGAAGCCGATAAAGTGGAACGTTCACAGTTCTCACTAACTTA 61 GGTCCGGTCTGTTGCATTGCTGCTATCTTGTACAGATGTTCTTCGCCAAGATCTCTGGCC CCAGGCCAGACAACGTAACGACGATAGAACATGTCTACAAGAAGCGGTTCTAGAGACCGG 121 AGGGACTCGAAACAAAGGAAGAACCCCGTACTGCCGTTCAGAACTTGTTTTTCTGGACTC TCCCTGAGCTTTGTTTCCTTCTTGGGGCATGACGGCAAGTCTTGAACAAAAAGACCTGAG 181 GAGTTATTATGTCACTTGCAATTCTTGTATTTTCTTTCGCCGTTACTCTATATGCCCTCT CTCAATAATACAGTGAACGTTAAGAACATAAAAGAAAGCGGCAATGAGATATACGGGAGA 241 TCCATGGCCAGACTACCATGTGGCCCGGCGTCCCTAATGCTGCCGCGGTTACCCTCTTCT AGGTACCGGTCTGATGGTACACCGGGCCGCAGGGATTACGACGGCGCCAATGGGAGAAGA 301 TTGTCTTCATGGCCATTGTTGGTATGCTTGAGGGAATGCAAATTGCATTCTTTGCTGTGG AACAGAAGTACCGGTAACAACCATACGAACTCCCTTACGTTTAACGTAAGAAACGACACC 361 CAAAAATGACCGAGGAAGAGCGTGCAGCTCATCCATGGGCCAAGAAAACTGCGA GTTTTTACTGGCTCCTTCTCGCACGTCGAGTAGGTACCCGGTTCTTTTGACGCT

Table S3. *Cont.*

Diatom Species	Silicic Acid Transporter Gene (*SIT*) [Sequence 5' → 3']
Nitzschia dissipata	1 GAATTCTCCGGACTGTTGCATGCTTCCTACCTCCTTGAAATGATGGTTTGCAGCATGGCT CTTAAGAGGCCTGACAACGTACGAAGGATGGAGGAACTTTACTACCAAACGTCGTACCGA 61 GGACAACCCAAGGTTAGCAACGAACCCCCTCGCAGTGCCGTGGCCAATCTCTTCTTCTGG CCTGTTGGGTTCCAATCGTTGCTTGGGGGAGCGTCACGGCACCGGTTAGAGAAGAAGACC 121 GGACGATGCCTCTTCTCTTTCGCCGTCGTGTGCTTTTGCGCGGCCGTCACCATGAGCACT CCTGCTACGGAGAAGAGAAAGCGGCAGCACACGAAAACGCGCCGGCAGTGGTACTCGTGA 181 CTCTTCAACGAACAAACCACCGTCTGGGAGGGAATCCCCAAGGGAATTGTGCTTGTCCTT GAGAAGTTGCTTGTTTGGTGGCAGACCCTCCCTTAGGGGTTCCCTTAACACGAACAGGAA 241 TTCGTGGTGTTGTTCTGCGTCGTTGGTTTGTTGGAGGCCATGCAAATCGCCTTTTTCGCT AAGCACCACAACAAGACGCAGCAACCAAACAACCTCCGGTACGTTTAGCGGAAAAAGCGA 301 GTTGCCAAGATCCGCGAGTCGGAACG CAACGGTTCTAGGCGCTCAGAATTGC
Nitzschia palea	1 GCAACTTTGGTGGCCCTGTTCAATGGACAGACCACCATGTGGGAGGGTGTTCCCAACGGT CGTTGAAACCACCGGGACAAGTTACCTGTCTGGTGGTACACCCTCCCACAAGGGTTGCCA 61 GTCGCCGTCCTTGTTTTCTTCCTTCTTATGGCGGTCGTAGGAATGTTGGAAGGAATGCAA CAGCGGCAGGAACAAAAGAAGGAAGAATACCGCCAGCATCCTTACAACCTTCCTTACGTT 121 ATCGCCTTTTTNTCTGTATCCNGAATCCCCGAGGATGAACGTGGNGACTCCTNGANTGCC TAGCGGAAAAAANAGACATAGGNCTTAGGGGCTCCTACTTGCACCNCTGAGGANCTNACGG 181 AAGAAAGTANGCAA TTCTTTCATNCGTT

Table S3. *Cont.*

Diatom Species	Elongation Factor Gene (eEF1-a) [Sequence 5' → 3']
Achnanthidium minutissimum	1 TCCGCCGGACCCGGAAACTCGGTTGGTATGTCCATTAGTGGTATTGCCAAGGAAGAGAAG AGGCGGCCTGGGCCTTTGAGCCAACCATACAGGTAATCACCATAACGGTTCCTTCTCTTC 61 GTCCAGCCCGGAGATATCATTTACGTCGAGAAGGAAGGTGAACTCAAGCCCGTCAAGGCT CAGGTCGGGCCTCTATAGTAAATGCAGCTCTTCCTTCCACTTGAGTTCGGGCAGTTCCGA 121 TTCACCGCCATGGTCGCCGTCCAGGAACACCCCGGAGTGCTCAAGGTCGGATACTGTCCT AAGTGGCGGTACCAGCGGCAGGTCCTTGTGGGGCCTCACGAGTTCCAGCCTATGACAGGA 181 GTTATTTTCTGCCGTACCGCCAAGGTTGCCTGCAAGATGACCAAGATCTTGTGGAAGCAG CAATAAAAGACGGCATGGCGGTTCCAACGGACGTTCTACTGGTTCTAGAACACCTTCGTC 241 TCCAAGAAGACCGGAGGTGCCAAGTTGGAGAACCCCCCGGAACTGTCACAGTACGAAAAC AGGTTCTTCTGGCCTCCACGGTTCAACCTCTTGGGGGGCCTTGACAGTGTCATGCTTTTG 301 GCTGAAGTCGAATTCGAACCCACCGCCCCCTTGTTCGTCGAGCCCTTTGAGGTCTGTGCA CGACTTCAGCTTAAGCTTGGGTGGCGGGGGAACAAGCAGCTCGGGAAACTCCAGACACGT
Craticula halophila	1 CACAAGAAGGTCCTTGACTCGGCCGGACCAGGAAACTCGGTCGGCATGTCCATCAAGGGT GTGTTCTTCCAGGAACTGAGCCGGCCTGGTCCTTTGAGCCAGCCGTACAGGTAGTTCCCA 61 ATTGCCAAGGACGAGAAGGTACAGCCTGGAGACATTATCTACCTTGAAAAGGAAGGTCAC TAACGGTTCCTGCTCTTCCATGTCGGACCTCTGTAATAGATGGAACTTTTCCTTCCAGTG 121 CTCAAGCCCGTCAAGTCGTTCACTGCCTTTGTCGCCGTCCAAGAGCATCCCGGTGTCCTC GAGTTCGGGCAGTTCAGCAAGTGACGGAAACAGCGGCAGGTTCTCGTAGGGCCACAGGAG 181 AAGCCTGGTTACTGCCCTGTCATTTTCTCTCGTACCGCCAAGGTTGCCTGCAAGATGACC TTCGGACCAATGACGGGACAGTAAAAGAGAGCATGGCGGTTCCAACGGACGTTCTACTGG 241 AAGATTTTGTGGAAGCAGTCCAAGAAGACGGGAGGNGCCAAGGTCGATAACCCTCCCGAA TTCTAAAACACCTTCGTCAGGTTCTTCTGCCCTCCNCGGTTCCAGCTATTGGGAGGGCTT 301 CTGTCTCAGTTTGAATCCGCCGAGGTCGAATTCGAACCCACTGCCCCCTTGTTCTTGGAA GACAGAGTCAAACTTAGGCGGCTCCAGCTTAAGCTTGGGTGACGGGGGAACAAGAACCTT 361 CCCTTTGAGACATGTGCCGC GGGAAACTCTGTACACGGCG
Cyclotella meneghiniana	1 GTCCAGAAAGAGGGAGAACTCAAGCCCATTAAGTCTTTCACTGCCATGGTTGCCGTTCAA CAGGTCTTTCTCCCTCTTGAGTTCGGGTAATTCAGAAAGTGACGGTACCAACGGCAAGTT 61 GAACATCCTGGTGTCCTGAAGCCTGGTTACACTCCTGTTGTCTTCTGCCGTACTGCCAAA CTTGTAGGACCACAGGACTTCGGACCAATGTGAGGACAACAGAAGACGGCATGACGGTTT 121 GTTGCTTGCAAGATGACCAAGATCTTGTGGAAGATGGCCAAGAAGACTGGAGGGCAGAAG CAACGAACGTTCTACTGGTTCTAGAACACCTTCTACCGGTTCTTCTGACCTCCCGTCTTC 181 GTAGAGAATCCCCCGGAACTTTCCCAATATGAGAATGCTGAGGTTGAGTTCGTACCAAGT CATCTCTTAGGGGGCCTTGAAAGGGTTATACTCTTACGACTCCAACTCAAGCATGGTTCA 241 CAGCCACTCTTTGTTGAGCCCTTTGAAACATGTGCGGCTCTTGGACGTATTGCTGTTATG GTCGGTGAGAAACAACTCGGGAAACTTTGTACACGCCGAGAACCTGCATAACGACAATAC 301 GATTCCAAC CTAAGGTTG

Table S3. *Cont.*

Diatom Species	Elongation Factor Gene (eEF1-a) [Sequence 5' → 3']
Eolimna minima	1 CACAAGAAGGTCCTTGACTCGGCCGGACCAGGAAACTCGGTCGGCATGTCCATCAAGGGT GTGTTCTTCCAGGAACTGAGCCGGCCTGGTCCTTTGAGCCAGCCGTACAGGTAGTTCCCA 61 ATTGCCAAGGACGAGAAGGTACAGCCTGGAGACATTATCTACCTTGAAAAGGAAGGTCAC TAACGGTTCCTGCTCTTCCATGTCGGACCTCTGTAATAGATGGAACTTTTCCTTCCAGTG 121 CTCAAGCCCGTCAAGTCGTTCACTGCCTTTGTCGCCGTCCAAGAGCATCCCGGTGTCCTC GAGTTCGGGCAGTTCAGCAAGTGACGGAAACAGCGGCAGGTTCTCGTAGGGCCACAGGAG 181 AAGCCTGGTTACTGCCCTGTCATTTTCTCTCGTACCGCCAAGGTGGCCTGCAAGATGACC TTCGGACCAATGACGGGACAGTAAAAGAGAGCATGGCGGTTCCACCGGACGTTCTACTGG 241 AAGATTTTGTGGAAGCAGTCCAAGAAGACGGGAGGTGCCAAGGTCGATAACCCTCCCGAA TTCTAAAACACCTTCGTCAGGTTCTTCTGCCCTCCACGGTTCCAGCTATTGGGAGGGCTT 301 CTGTCTCAGTTTGAATCCGCCGAGGTCGAATTCGAACCCACTGCCC GACAGAGTCAAACTTAGGCGGCTCCAGCTTAAGCTTGGGTGACGGG
Mayamaea permitis	1 CAAGAAGGTCCTTGAATCCGCCGGACCCGGTAACTCCGTTGGTCTTTCCATCAAGGGTAT GTTCTTCCAGGAACTTAGGCGGCCTGGGCCATTGAGGCAACCAGAAAGGTAGTTCCCATA 61 TGCCAAGGATGAGAAGGTCAACCCTGGTGACATCATCTACCTTGAAAAGGAAGGTGAACT ACGGTTCCTACTCTTCCAGTTGGGACCACTGTAGTAGATGGAACTTTTCCTTCCACTTGA 121 CAAGCCCATCAAGTCTTTCACCGCTTTGGTCGCTGTTCAGGAGCACCCCGGTGTCCTCAA GTTCGGGTAGTTCAGAAAGTGGCGAAACCAGCGACAAGTCCTCGTGGGGCCACAGGAGTT 181 GCCCGGTTACTGTCCAGTCATCTTCTCTCGTACCGCCAAGGTTGCCTGCAAGATGACCAA CGGGCCAATGACAGGNCAGTAGAAGAGAGCATGGCGGTTCCAACGGACGTTCTACTGGTT 241 GATCCTCTGGAAGCAGTCCAAGAAGACCGGTGGTGCCAAGGTTGACAACCCTCCGGAACT CTAGGAGACCTTCGTCAGGTTCTTCTGGCCACCACGGTTCCAACTGTTGGGAGGCCTTGA 301 CTCGCAGTT GAGCGTCAA
Navicula veneta	1 GACTCGGCCGGACCAGGAAACTCGGTCGGCATGTCCATCAAGGGTATTGCCAAGGACGAG CTGAGCCGGCCTGGTCCTTTGAGCCAGCCGTACAGGTAGTTCCCATAACGGTTCCTGCTC 61 AAGGTACAGCCTGGAGACATTATCTACCTTGAAAAGGAAGGTCACCTCAAGCCCGTCAAG TTCCATGTCGGACCTCTGTAATAGATGGAACTTTTCCTTCCAGTGGAGTTCGGGCAGTTC 121 TCGTTCACTGCCTTTGTCGCCGTCCAAGAGCATCCCGGTGTCCTCAAGCCTGGTTACTGC AGCAAGTGACGGAAACAGCGGCAGGTTCTCGTAGGGCCACAGGAGTTCGGACCAATGACG 181 CCCGTCATTTTCTCTCGTACCGCCAAGGTGGCCTGCAAGATGACCAAGATTTTGTGGAAG GGGCAGTAAAAGAGAGCATGGCGGTTCCACCGGACGTTCTACTGGTTCTAAAACACCTTC 241 CAGTCCAAGAAGACGGGAGGTGCCAAGGTCGATAACCCTCCCGAACTGTCTCAGTTTGAA GTCAGGTTCTTCTGCCCTCCACGGTTCCAGCTATTGGGAGGGCTTGACAGAGTCAAACTT 301 TCCGCCGAGGTCGAATTCGAACCCACTGCCNNCCTTGTTCTTGGAACCT AGGCGGCTCCAGCTTAAGCTTGGGTGACGGNNGGAACAAGAACCTTGGA

Table S3. *Cont.*

Diatom Species	Elongation Factor Gene (eEF1-a) [Sequence 5' → 3']
Nitzschia dissipata	1 AGAAGGTCCTTGACTCTGCCGGACCCGGAAACTCTGTCGGTATGTCCATCAGGGGTATTG TCTTCCAGGAACTGAGACGGCCTGGGCCTTTGAGACAGCCATACAGGTAGTCCCCATAAC 61 CCAAGGAAGAGAAGGTTCAGCCCGGAGATATCATCTACGTCGAAAAGGAGGGTGAACTCA GGTTCCTTCTCTTCCAAGTCGGGCCTCTATAGTAGATGCAGCTTTTCCTCCCACTTGAGT 121 AGCCCGTCAAGAGTTTCACTGCCATGGTCGCCGTCCAGGAACACCCCGGAGTTCTCAAGG TCGGGCAGTTCTCAAAGTGACGGTACCAGCGGCAGGTCCTTGTGGGGCCTCAAGAGTTCC 181 TTGGATACTGTCCTGTTATTTTCTGCCGTACCGCCAAGGTTGCGTGCAAAATGACCAAGA AACCTATGACAGGACAATAAAAGACGGCATGGCGGTTCCAACGCACGTTTTACTGGTTCT 241 TCTTGTGGAAGCAGTCCAAGAAGACCGGAGGTGCCAAGTTGGAAAATCCCCCGGAACTGT AGAACACCTTCGTCAGGTTCTTCTGGCCTCCACGGTTCAACCTTTTAGGGGGCCTTGACA 301 CACAGTACGAAAACGCCGAAGTCGAATTCGAACCCACTGCCCCCTTGTTCGTCGA GTGTCATGCTTTTGCGGCTTCAGCTTAAGCTTGGGTGACGGGGGAACAAGCAGCT
Nitzschia palea	1 TTATCGAACAACACAAGAAGGTTCTTGACTCCGCCGGACCAGGAAACTCTGTTGGTATGT AATAGCTTGTTGTGTTCTTCCAAGAACTGAGGCGGCCTGGTCCTTTGAGACAACCATACA 61 CCGTCAAGGGTATTGGAAAGGACGAAAAGGTCAACCCCGGAGACATCATCTTCCTGGAGA GGCAGTTCCCATAACCTTTCCTGCTTTTCCAGTTGGGGCCTCTGTAGTAGAAGGACCTCT 121 AGGAGGGTGCATTGAAGCCCATCAAGTCCTTCACTGCCCTTGTTGCCGTCCAAGAGCACC TCCTCCCACGTAACTTCGGGTAGTTCAGGAAGTGACGGGAACAACGGCAGGTTCTCGTGG 181 CTGGTGTCCTCAAGCCTGGATACTGTCCCATCATTTTCTCACGTACCGCCAAAGTTGCGT GACCACAGGAGTTCGGACCTATGACAGGGTAGTAAAAGAGTGCATGGCGGTTTCAACGCA 241 GCAAAATGACCAAGATTCTTTGGAAGCAATCGAAGAAGACGGGAGGTGCCAAGGTCGACA CGTTTTACTGGTTCTAAGAAACCTTCGTTAGCTTCTTCTGCCCTCCACGGTTCCAGCTGT 301 ACCCCCCAGAACTTTCCCAGTTCGAATCCGCCGAAGTTGAGTTCGAACCCACTGCCCCGC TGGGGGGTCTTGAAAGGGTCAAGCTTAGGCGGCTTCAACTCAAGCTTGGGTGACGGGGCG 361 TTTTCGTCGAGCC AAAAGCAGCTCGG
Surirella angusta	1 GAACAACACAAGAAGGTCCTTGACTCGGCCGGACCAGGAAACTCGGTCGGCATGTCCATC CTTGTTGTGTTCTTCCAGGAACTGAGCCGGCCTGGTCCTTTGAGCCAGCCGTACAGGTAG 61 AAGGGTATTGCCAAGGACGAGAAGGTACAGCCTGGAGACATTATCTACCTTGAAAAGGAA TTCCCATAACGGTTCCTGCTCTTCCATGTCGGACCTCTGTAATAGATGGAACTTTTCCTT 121 GGTCACCTCAAGCCCGTCAAGTCGTTCACTGCCTTTGTCGCCGTCCAAGAGCATCCCGGT CCAGTGGAGTTCGGGCAGTTCAGCAAGTGACGGAAACAGCGGCAGGTTCTCGTAGGGCCA 181 GTCCTCAAGCCTGGTTACTGCCCTGTCATTTTCTCTCGTACCGCCAAGGTTGCCTGCAAG CAGGAGTTCGGACCAATGACGGGACAGTAAAAGAGAGCATGGCGGTTCCAACGGACGTTC 241 ATGACCAAGATTTTGTGGAAGCAGTCCAAGAAGACGGGAGGTGCCAAGGTCGATAACCCT TACTGGTTCTAAAACACCTTCGTCAGGTTCTTCTGCCCTCCACGGTTCCAGCTATTGGGA 301 CCCGAACTGTCTCAGTTTGAATCCGCCGAGGTCGAATTCGAACCCACTGCCCCCTTGTTC GGGCTTGACAGAGTCAAACTTAGGCGCCTCCAGCTTAAGCTTGGGTGACGGGGGAACAAG 361 TTGGAACCCTTTGAGACATGTGCCGC AACCTTGGGAAACTCTGTACACGGCG