

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/11

OBSERVER's NAME AKEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%) R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Undetermined (nearly barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehtyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagiliariopsis cylindrus
Fragiliariopsis dolioilus
Fragiliariopsis fossilis
Fragiliariopsis oceanica
Fragiliariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semipinna*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeustrupii
Shionodiscus tritullus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira tempera
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Th. sp 7 (P)

Diatom zones (NPD)

NPD12

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417D-2H-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 20/3/ June/11

OBSERVER'S NAME AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus IF T (P)
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyophala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseaui
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus (P)
Coscinodiscus marginatus F (P)
Coscinodiscus oculus-iridis (P)
Coscinodiscus radiatus (P)
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariaopsis cylindrus
Fragilariaopsis dololus
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis plocana
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Koizumiella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae (P)
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis* IF T (P)
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praerbergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii F (P)
Shionodiscus praecoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica T (P)
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira grvida (P)
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae (P)
Thalassiosira leptopus
Thalassiosira lineata F (P)
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

closed cupula +
Act. sp. T (P)
Th. sp. IF (P)

Rest. spore -

Chaetoceros Resting Spores 1 (P)

TOTAL of VEGETATIVE CELLS 36

Diatom zones (NPD)

NPD 12 ?

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (2%), B (no diatoms)

① nearly barren

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Actinocyclus curvatulus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Cocconodiscus asteromphalus
- Cocconodiscus marginatus
- Cocconodiscus oculus-iridis
- Cocconodiscus radiatus
- Cocconodiscus rhombicus
- Cocconodiscus symbolophorus
- Cosmidiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella

Th. sp. II ②
open copula +

Core, section, interval (cm)

U14172 3H-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Fragilaropsis dolioles
- Fragilaropsis fossilis
- Fragilaria oceanica
- Fragilaria plocena
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kolzumia tatsunokuchlensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica
- Neodenticula kolzumii
- Neodenticula seminae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

DATE: 2013/June/11

OBSERVER'S NAME: AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praebergonii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praeoestrupii
- Shionodiscus trifidulus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravis
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperlei
- Thalassiosira umaolensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Volcanic ash sample?

Diatom zones (NPD)

NPD 12?

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Actinocyclus curvatus* F
- Actinocyclus ellipticus* (P)
- Actinocyclus ingens**
- Actinocyclus ingens f. nodus**
- Actinocyclus ingens f. planus**
- Actinocyclus oculatus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus senarius*
- Actinocyclus vulgaris*
- Araniscus lewisianus*
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenicus*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis* (P)
- Coscinodiscus radiatus* (P)
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis**
- Crucidentacula ikebei*
- Crucidentacula kanayae*
- Crucidentacula nicobarica*
- Crucidentacula paranicobarica*
- Crucidentacula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surella*

Closed copula
Th. sp. T (P)

Core, section, interval (cm)

147D - 4H - CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

- Denticulopsis crassa**
- Denticulopsis dimorpha var. dimorpha**
- Denticulopsis dimorpha var. areolata**
- Denticulopsis hustedii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha var. minor**
- Denticulopsis praedimorpha var. praedimorpha**
- Denticulopsis praehyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelata**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praerupta var. praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagillariopsis cylindrus*
- Fragillariopsis dololus**
- Fragillariopsis fossilis**
- Fragillariopsis oceanica*
- Fragillariopsis pilocena**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis**
- Kozloviella minor*
- Lisizinia ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula koizumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae**
- Rhaphoneis amphicerus*

Rest. spore -

DATE:

2013/ June/11

OBSERVER'S NAME

AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Rhizosolenia hebelata f. hiemalis*
- Rhizosolenia hebelata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praebergonii**
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii** (P)
- Shionodiscus praeeostrupii**
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum*
- Thalassionema nitzschioides var. parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderei**
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica* F (P)
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praeefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperlei**
- Thalassiosira umaolensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

(P)

Diatom zones (NPD)

NPD12

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1917D-54-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/11

OBSERVER'S NAME AFEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica

Achnanthes inflata

Achnanthes lanceolata

Achnanthes lineariformis

39 *Actinocyclus curvatus*

Actinocyclus ellipticus

Actinocyclus ingens

Actinocyclus ingens f. nodus

Actinocyclus ingens f. planus

Actinocyclus oculatus

Actinocyclus ochotensis

22 *Actinocyclus octonarius*

Actinocyclus robustus

Actinocyclus tsugaruensis

Actinocyclus senarius

Actinocyclus vulgaris

Araniscus lewisianus

Asteromphalus darwinii

Asteromphalus oligocenicus

Asteromphalus parvulus

Asteromphalus robustus

Azpeitia biradiata

Azpeitia komurae

Azpeitia nodulifera

Azpeitia oligocenica

Azpeitia praenodulifera

Azpeitia salisburyana

Azpeitia tabularis

Azpeitia vetustissima

Bacterosira bathyomphala

Bacterosira fragilis

Cavitatus exiguus

Cavitatus jouseanus

Cavitatus lanceolatus

Cavitatus linearis

Cavitatus miocenicus

Cavitatus rectus

Cestodiscus kugleri

Cestodiscus trochus

Cocconeis californica

Cocconeis costata

Cocconeis scutellum

Coscinodiscus asteromphalus

Coscinodiscus marginatus

Coscinodiscus oculus-iridis

Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symbolophorus

Cosmidiscus insignis

Crucidenticula ikebei

Crucidenticula kanayae

Crucidenticula nicobarica

Crucidenticula paranicobarica

Crucidenticula sawamurae

Cyclotella striata

Cyclotella meneghiniana

Cymbella cistula

Cymbella minuta

Cymbella subaequalis

Delphineis angustata

Delphineis ischaboensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonsenii

Delphineis surirella

Denticulopsis crassa

Denticulopsis dimorpha var. dimorpha

Denticulopsis dimorpha var. areolata

Denticulopsis hustedii

Denticulopsis hyalina

Denticulopsis katayamae

Denticulopsis lauta

Denticulopsis praedimorpha var. minor

Denticulopsis praedimorpha var. praedimorpha

Denticulopsis praeahyalina

Denticulopsis praekatayamae

Denticulopsis praelauta

Denticulopsis simonsenii

Denticulopsis tanimurae

Denticulopsis vulgaris

Diploneis bombus

Diploneis puella

Diploneis smithii

Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol

Eunotia pectinalis var. minor

Eunotia praerupta var. praerupta

Fragilaria construens (Ehrenberg) Grunow

Fragilariopsis cylindrus

Fragilariopsis doliofus

Fragilariopsis fossilis

Fragilariopsis oceanica

Fragilariopsis plocena

Goniothecium decoratum

Goniothecium rogersii

Halamphora costata

Hyalodiscus obsoletus

Ikebea tenuis

Kisseleviella carina

Kisseleviella ezoensis

Koizumia tatsunokuchensis

Kozloviella minor

Lisitzinia ornata

Medlaria magna

Medlaria splendida

Melosira albicans

Navicula elginensis

Navicula lyroides

Navicula menisculus

Navicula salinarum

Neodenticula kamtschatica

Neodenticula koizumii

Neodenticula seminiae

Nitzschia challengerii

Nitzschia cylindrica

Nitzschia jouseae

Nitzschia palea

Nitzschia reinholdii

Nitzschia rolandii

Odontella aurita

Paralia sulcata

Podosira stelligera

Porosira glacialis

Proboscia barboi

Proboscia curvirostris

Proboscia interposita

Proboscia praearboi

Pseudodimmergramma elegans

Pseudonitzschia seriata

Pseudopyxilla americana

Pseudotriceratium radiosreticulatum

Pyxidula zabelinae

Rhaphoneis amphiceros

Rhizosolenia hebelata f. hiemalis

Rhizosolenia hebelata f. semispina

Rhizosolenia norvegica

Rhizosolenia praeborgonii

Rhizosolenia setigera

Roperia tessellata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifidulus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschioides

Thalassionema nitzschioides var. incurvatum

Thalassionema nitzschioides var. inflatum

Thalassionema nitzschioides var. parvum

Thalassionema pseudonitzschioides

Thalassionema schraderei

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravis

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregulara

Thalassiosira jacksonii

Thalassiosira jouseae

Thalassiosira leptopus

Thalassiosira lineata

Thalassiosira lusca

Thalassiosira manifesta

Thalassiosira marujamica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praeffraga

Thalassiosira praenidulus

Thalassiosira praeyabei

Thalassiosira robusta

Thalassiosira sancettae

Thalassiosira singularis

Thalassiosira temperae

Thalassiosira umaolensis

Thalassiosira undulosa

Thalassiosira yabei

Trachyneis aspera

Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

0
100

2 Th. sp. + (R)

closed copula f

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
 F (2-5%), R (<2%), B (no diatoms)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidenticula ikebei
- Crucidenticula kanayae
- Crucidenticula nicobarica
- Crucidenticula paranicobarica
- Crucidenticula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella

Core, section, interval (cm)

1417D-6H-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. minor
- Eunotia praeprupta var. praeprupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Fragilariopsis dolioles
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kolzumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Mediaria magna
- Mediaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kantschatka
- Neodenticula koizumii
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

DATE:

2013/June/11

OBSERVER'S NAME

AKEMZ

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
 F (>1 vlv/10FOVs & <1 vlv/10FOVs)
 R (>3 vlv/traverse & <1 vlv/10FOVs)
 X (present), B (barren)

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norwegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecostrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderei
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperi
- Thalassiosira umaotensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

0
 43

Loxod copulans
 1 Acc-sp. - (P)
 7 Th. sp. - (P)
 1 Hyalodiscus sp. - (P)

Diatom zones (NPD)

Core, section, interval (cm)

1417. D. 7H 1W, 120cm

DATE: 13. 6. 2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula parnicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceris

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravis
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1817. D. 7H2W. 144cm

DATE: 13. 6. 2013

OBSERVER'S NAME KOGUNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora sp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelleae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horrida
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarid
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
 F (2-5%), R (<2%), B (no diatoms)

Barnes

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

closed copula

Core, section, interval (cm)

1917D-7H-cc

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praeahalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocana
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

DATE: 2013/June/11

OBSERVER'S NAME AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
 F (>1 vlv/10FOVs & <1 vlv/10FOVs)
 R (>3 vlv/traverse & <1 vlv/10FOVs)
 X (present), B (barren)

Rhizosolenia hebelata f. *hiemalis*
Rhizosolenia hebelata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praeinitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraederi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira graviora
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 11

Core, section, interval (cm)

1417. D. SH3W. 120cm

DATE: 13.6.2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- R Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligogenicus
- Asteromphalus parvulus
- R Asteromphalus robustus +
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus +
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmlodiscus insignis
- Crucidenticula ikebei
- Crucidenticula kanayae
- Crucidenticula nicobarica
- Crucidenticula paranicobarica
- Crucidenticula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturatis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praeurupta var. praeurupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dollolus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kolzumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula karnschaltica
- Neodenticula kozumii
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- R Proboscia barbot
- R Proboscia curvirostris
- Proboscia interposita
- Proboscia praerbarbot
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelleae
- Raphoneis amphicerus

- R Rhizosolenia hebetata f. hiemalis +
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouda californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- R Thalassiosira eccentrica +
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregularata
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praepraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- R Thalassiothrix longissima ,F
- R Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

silico T
closed cupula +

19

Diatom zones (NPD)

NPD 11

Core, section, interval (cm)

1417.D. 8H4w.61cm

DATE: 13.6.2013

OBSERVER'S NAME KOVNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatulus IF
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus +
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus IF
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmodiscus insignis
- Crucidentricula ikebei
- Crucidentricula kanayae
- Crucidentricula nicobarica
- Crucidentricula paranicobarica
- Crucidentricula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praeupta var. praeupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dollotus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kantschatka
- Neodenticula kozumii
- Neodenticula seminae
- Nitzschia challengeri
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praerbarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyddicula zabelinae
- Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis +
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praebergonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praeoestrupii
- Shionodiscus trifolius
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima +
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

rifico -
sponge +
Rads +

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 13.6.2013

OBSERVER'S NAME KONO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/Traverse & <1 vlv/10FOVs)
X (present), B (barren)

1417. D. 8145W 123cm

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitizina ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horrida
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamka
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Sponge T

3-20

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Barren!

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

141700-811-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praeahalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dolioles
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumil
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidcula zabelinae
Rhaphoneis amphiceros

DATE:

2013/June/11

OBSERVER'S NAME

AFEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraederi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praeфрага
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanzettiae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaomensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPP 10 (+11?)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

U1W7D 9M-3W, 80cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013 / June / 13

OBSERVER'S NAME ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlv/traverse & <1 vlw/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmioliscus insignis
- Crucidentricula ikebei
- Crucidentricula kanayae
- Crucidentricula nicobarica
- Crucidentricula paranicobarica
- Crucidentricula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella

Handwritten notes: 52, F2, NPD10, Roubatis 11, A.P.

- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelaeta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. minor
- Eunotia praeurupta var. praeurupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Fragilariopsis dololus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis plocena
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchiensis
- Kozioviella minor
- Lisitzinia ornata
- Mediaria magna
- Mediaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica
- Neodenticula kolzumii
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

Handwritten note: NPD10/11

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulata
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praeфрага
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperel
- Thalassiosira umaolensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

21.0

Silicos

Handwritten numbers: 5, 100

Diatom zones (NPD)

NPD 11 (103)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

U147D 9H-4, 103 cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/13

OBSERVER'S NAME TSUKI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 vlv/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- R Achnanthes inflata +
- Achnanthes lanceolata
- Achnanthes lineariformis
- R Actinocyclus curvatus IF 4
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- R Actinocyclus oculatus 7
- Actinocyclus ochotensis - (A) CTSPIE
- Actinocyclus oclonarius 1
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus reclus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- R Coscinodiscus marginatus - 1
- R Coscinodiscus oculus-iridis
- R Coscinodiscus radiatus +
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidenticula ikebei
- Crucidenticula kanayae
- Crucidenticula nicobarica
- Crucidenticula paranicobarica
- Crucidenticula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella



- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Fragilariopsis dollotus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Goniotheceum decoratum
- Goniotheceum rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tanus
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozloviella minor
- Lisitzinia ornata
- Mediaria magna
- Mediaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica 40
- Neodenticula kozumii
- Neodenticula seminiae C
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- R Proboscia barbol 2
- R Proboscia curvirostris 1
- Proboscia interposita
- Proboscia praeborboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotraceratium radiosoreticulatum
- Pyxidicula zabellinae
- Raphoneis amphicerus

- F Rhizosolenia hebetata f. hiemalis (A) (A) (A) (A) (A) (A) 23
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- R Shionodiscus oestrupii + 2
- R Shionodiscus praecostrupii
- R Shionodiscus trifidulus T 2
- R Stephanopyxis dimorpha
- R Stephanopyxis horridus ? +
- Stephanopyxis turris
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- F Thalassiosira eccentrica IF 8
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravis
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulata
- Thalassiosira jacksonii
- R Thalassiosira jouseae - 1 R Th. SP IF 4
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediacconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperei
- Thalassiosira umaolensis
- Thalassiosira undulosa
- R Thalassiosira yabei IF 4
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores IF 9
TOTAL OF VEGETATIVE CELLS

closed cap

7.0

Achnanthes (86.2, 7.0)

Silicas

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Bjorn

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Flagiliariopsis cylindrus
Fragiliariopsis dollotus
Fragiliariopsis fossilis
Fragiliariopsis oceanica
Fragiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Litsitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praerbarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

DATE:

2013/June/11

OBSERVER'S NAME

AEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderei
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravis
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira lepopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD 11 (10?) U1417D 10M-3W, 50cm

Core, section, interval (cm)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%); R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/13

OBSERVER'S NAME: I TSUKI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens*
- Actinocyclus ingens f. nodus*
- Actinocyclus ingens f. planus*
- Actinocyclus ocellatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Araniscus lewisianus*
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Azpeitia biradiata*
- Azpeitia komurae*
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Cavitatus exiguus*
- Cavitatus jouseanus*
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis*
- Crucidentricula ikebei*
- Crucidentricula kanayae*
- Crucidentricula nicobarica*
- Crucidentricula paranicobarica*
- Crucidentricula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischabovens*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii*
- Delphineis surirella*

- Denticulopsis crassa*
- Denticulopsis dimorpha var. dimorpha*
- Denticulopsis dimorpha var. areolata*
- Denticulopsis hustedii*
- Denticulopsis hyalina*
- Denticulopsis katayamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha var. minor*
- Denticulopsis praedimorpha var. praedimorpha*
- Denticulopsis praeahyalina*
- Denticulopsis praekatayamae*
- Denticulopsis praelaeta*
- Denticulopsis simonsenii*
- Denticulopsis tanimurae*
- Denticulopsis vulgaris*
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praerupta var. praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagilariopsis cylindrus*
- Flagilariopsis doliolus*
- Flagilariopsis fossilis*
- Flagilariopsis oceanica*
- Flagilariopsis pilocena*
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis*
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchensis*
- Kozloviella minor*
- Lisitzinia ornata*
- Mediaria magna*
- Mediaria splendida*
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica*
- Neodenticula koizumii*
- Neodenticula seminiae*
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae*
- Nitzschia palea*
- Nitzschia reinholdii*
- Nitzschia rolandii*
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi*
- Proboscia curvirostris*
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidula zabelinae*
- Rhaphoneis amphiceros*

- Rhizosolenia hebetata f. hiemalis*
- Rhizosolenia hebetata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praebergonii*
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica*
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii*
- Shionodiscus praeoestrupii*
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus*
- Stephanopyxis turris*
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum*
- Thalassionema nitzschioides var. parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderei*
- Thalassiosira antiqua*
- Thalassiosira bioculata*
- Thalassiosira castanea*
- Thalassiosira convexa*
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii*
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii*
- Thalassiosira jouseae*
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica*
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima*
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis*
- Thalassiosira temperei*
- Thalassiosira umaoniensis*
- Thalassiosira undulosa*
- Thalassiosira yabei*
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

A 68

Handwritten scribbles and notes.

A.R. OCU 7/13/13
PT 2

Handwritten initials.

Handwritten note: (R) Steph. sp.

NPD 11

closed

10.0

Diatom zones (NPD)

NPD II

TOTAL ABUNDANCE: M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

W1417D, 10H-6W, 16cm

TOTAL PRESERVATION G (good), M (moderate), P (poor)

DATE: 2013 June 13

OBSERVER'S NAME TSUKI

RELATIVE ABUNDANCE of EACH TAXON A (>10 valves/FOV), C (1-10 vlv/FOV) F (>1 vlv/10FOVs & <1 vlv/10FOVs) R (>3 vlv/traverse & <1 vlv/10FOVs) X (present), B (barren)

Achnanthes groenlandica

Achnanthes inflata

Achnanthes lanceolata

Achnanthes lineariformis

Actinocyclus curvatus

Actinocyclus ellipticus

Actinocyclus ingens

Actinocyclus ingens f. nodus

Actinocyclus ingens f. planus

Actinocyclus oculatus

Actinocyclus ochotensis

Actinocyclus octonarius

Actinocyclus robustus

Actinocyclus tsugaruensis

Actinocyclus senarius

Actinocyclus vulgaris

Araniscus lewisianus

Asteromphalus darwinii

Asteromphalus oligocenicus

Asteromphalus parvulus

Asteromphalus robustus

Azpeitia biradiata

Azpeitia komurae

Azpeitia nodulifera

Azpeitia oligocenica

Azpeitia praenodulifera

Azpeitia salisburyana

Azpeitia tabularis

Azpeitia vetustissima

Bacterosira bathyomphala

Bacterosira fragilis

Cavitatus exiguus

Cavitatus jouseanus

Cavitatus lanceolatus

Cavitatus linearis

Cavitatus miocenicus

Cavitatus rectus

Cestodiscus kugleri

Cestodiscus trochus

Cocconeis californica

Cocconeis costata

Cocconeis scutellum

Coscinodiscus asteromphalus

Coscinodiscus marginatus

Coscinodiscus oculus-iridis

Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symbolophorus

Cosmidiscus insignis

Crucidentacula ikebei

Crucidentacula kanayae

Crucidentacula nicobarica

Crucidentacula paranicobarica

Crucidentacula sawamurae

Cyclotella striata

Cyclotella meneghiniana

Cymbella cistula

Cymbella minuta

Cymbella subaequalis

Delphineis angustata

Delphineis ischaboensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonsenii

Delphineis surirella

Denticulopsis crassa

Denticulopsis dimorpha var. dimorpha

Denticulopsis dimorpha var. areolata

Denticulopsis hustedii

Denticulopsis hyalina

Denticulopsis katayamae

Denticulopsis lauta

Denticulopsis praedimorpha var. minor

Denticulopsis praedimorpha var. praedimorpha

Denticulopsis praeahyalina

Denticulopsis praekatayamae

Denticulopsis praelaeta

Denticulopsis simonsenii

Denticulopsis tanimurae

Denticulopsis vulgaris

Diploneis bombus

Diploneis puella

Diploneis smithii

Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol

Eunotia pectinalis var. minor

Eunotia praeupta var. praeupta

Fragilaria construens (Ehrenberg) Grunow

Fragilariopsis cylindrus

Fragilariopsis dolioles

Fragilariopsis fossilis

Fragilariopsis oceanica

Fragilariopsis plocena

Goniothecium decoratum

Goniothecium rogersii

Halamphora costata

Hyalodiscus obsoletus

Ikebea tenuis

Kisseleviella carina

Kisseleviella ezoensis

Kolzumia tatsunokuchensis

Kozloviella minor

Lisitinia ornata

Medlaria magna

Medlaria splendida

Melosira albicans

Navicula elginensis

Navicula lyroides

Navicula menisculus

Navicula salinarum

Neodenticula kamtschatica

Neodenticula kolzumii

Neodenticula seminiae

Nitzschia challengerii

Nitzschia cylindrica

Nitzschia jouseae

Nitzschia palea

Nitzschia reinholdii

Nitzschia rolandii

Odontella aurita

Paralia sulcata

Podosira stelligera

Porosira glacialis

Proboscia barboi

Proboscia curvirostris

Proboscia interposita

Proboscia praebarboi

Pseudodimmerogramma elegans

Pseudonitzschia seriata

Pseudopyxilla americana

Pseudotriceratium radiosoreticulatum

Pyxidicula zabelinae

Rhaphoneis amphicros

R Rhizosolenia hebetata f. hiemalis # 9

Rhizosolenia hebetata f. semispina

Rhizosolenia norvegica

Rhizosolenia praebergonii

Rhizosolenia setigera

Roperia tessellata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

R Shionodiscus oestrupii # 2

Shionodiscus praeoestrupii

Shionodiscus trifidulus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschioides - 1

Thalassionema nitzschioides var. incurvatum

Thalassionema nitzschioides var. inflatum

Thalassionema nitzschioides var. parvum

Thalassionema pseudonitzschioides

Thalassionema schraderi

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica F 3

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravis

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregularata

Thalassiosira jacksonii

Thalassiosira jouseae

Thalassiosira leptopus

Thalassiosira lineata

Thalassiosira lusca

Thalassiosira manifesta

Thalassiosira marujamica

Thalassiosira mediacconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeyabei

Thalassiosira robusta

Thalassiosira sancettae

Thalassiosira singularis

Thalassiosira temperai

Thalassiosira umaotensis

Thalassiosira undulosa

Thalassiosira yabei

F Thalassiothrix longissima # 5

Trachyneis aspera

Yoshidaia divergens

Chaetoceros Resting Spores # 11-9

TOTAL of VEGETATIVE CELLS 100

(A.S.P) Actocystis

(R) Actospora

3

1

66

NPD II?

closed +

100

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/11

OBSERVER'S NAME AKEM Z

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis (R)
Actinocyclus curvatus (R)
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis (R)
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Undetermined (possibly Barren)

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praeupta var. praeupta
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilaropsis dololus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchlensis
Kozloviella minor
Litsitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraederi
Thalassiosira antiqua
Thalassiosira bloculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa (R)
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira graviora
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praepraeprae
Thalassiosira praenidulosa
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaotensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores 01
TOTAL of VEGETATIVE CELLS 5

Pse-e spore -

Diatom zones (NPD)

NPD 10

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

- Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

closed asp

Ac oculatus 78% T 2
(SP:)

7.0

Core, section, interval (cm)

114-170, 11H-2W, 67cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

- Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Flagiliariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchlensis
Kozloviella minor
Litsitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaponeis amphiceros

A Neodenticula seminiae (handwritten notes)

RR Proboscia barboi (handwritten notes)

DATE: 2013/June/13

OBSERVER'S NAME /TSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

- Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praerbergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravis
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaotensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

R Shionodiscus oestrupii (handwritten notes)

R Thalassiosira eccentrica (handwritten notes)

R Thalassiosira jouseae (handwritten notes)

R Thalassiothrix longissima (handwritten notes)

Chaetoceros Resting Spores (handwritten notes)

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
 F (2-5%), R (<2%), B (no diatoms)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranticobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Act. sp. T

Sponge T

Core, section, interval (cm)

1417. P. 114CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praeilauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolioilus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratum radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

DATE: 12. 6. 2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vls/FOV)
 F (>1 vlv/10FOVs & <1 vlv/10FOVs)
 R (>3 vlv/traverse & <1 vlv/10FOVs)
 X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia lesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolita
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praeifraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaioensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 11

Core, section, interval (cm)

147D-124-CC

DATE: 2013/June/12

OBSERVER'S NAME TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%) B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustodii</i>	R	<i>Rhizosolenia hebetata</i> f. <i>hiemalis</i> IET 7
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>		<i>Rhizosolenia hebetata</i> f. <i>semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>		<i>Rhizosolenia norvegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>		<i>Rhizosolenia praeborgonii</i>
<i>Achnanthes</i> spp.	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>		<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i> EIT IET	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>		<i>Rhizosolenia</i> spp.
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praehyalina</i>		<i>Roperia tessellata</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praekatayamae</i>		<i>Rocella gelida</i>
<i>Actinocyclus Ingens</i> f. <i>nodus</i>	<i>Denticulopsis praelauta</i>		<i>Rocella praenitida</i>
<i>Actinocyclus Ingens</i> f. <i>planus</i>	<i>Denticulopsis simonsenii</i>		<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis tanimurae</i>		<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>		<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis</i> sp.		<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>		<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>		<i>Rouxia naviculoides</i>
<i>Actinocyclus</i> spp.	<i>Diploneis smithii</i>		<i>Rouxia obesa</i>
<i>Actinoptychus senarius</i>	<i>Diploneis suborbicularis</i>	R	<i>Shionodiscus oestrupii</i> T 2
<i>Actinoptychus vulgaris</i>	<i>Diploneis</i> sp.		<i>Shionodiscus praecoestrupii</i>
<i>Actinoptychus</i> spp.	<i>Distephanosira architecturalis</i>		<i>Shionodiscus infultus</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira</i> sp.		<i>Stephanopyxis dimorpha</i>
<i>Araniscus</i> spp.	<i>Ellerbeckia sol</i>		<i>Stephanopyxis horridus</i>
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia</i> sp.		<i>Stephanopyxis turris</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	R	<i>Stephanopyxis</i> spp. T 2
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta</i> var. <i>praerupta</i>	R	<i>Thalassionema bacillaris</i>
<i>Asteromphalus robustus</i>	<i>Eunotia</i> sp.	R	<i>Thalassionema nitzschioides</i> T 2
<i>Asteromphalus</i> spp.	<i>Fragilaria construens</i>		<i>Thalassionema nitzschioides</i> var. <i>incurvatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria</i> sp.		<i>Thalassionema nitzschioides</i> var. <i>inflatum</i>
<i>Azpeitia komurae</i>	<i>Fragilariopsis cylindrus</i>		<i>Thalassionema nitzschioides</i> var. <i>parvum</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis dollotus</i>		<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia oligocenica</i>	<i>Fragilariopsis fossilis</i>		<i>Thalassionema schraderi</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis oceanica</i>		<i>Thalassionema</i> spp.
<i>Azpeitia salisburyana</i>	<i>Fragilariopsis plocena</i>		<i>Thalassiosira antiqua</i>
<i>Azpeitia tabularis</i>	<i>Fragilariopsis</i> spp.		<i>Thalassiosira bioculata</i>
<i>Azpeitia vetustissima</i>	<i>Goniothecium decoratum</i>		<i>Thalassiosira castanea</i>
<i>Azpeitia</i> spp.	<i>Goniothecium rogersii</i>		<i>Thalassiosira convexa</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium</i> spp.		<i>Thalassiosira decipiens</i> - 1
<i>Bacterosira fragilis</i>	<i>Grammatophora</i> spp.	R	<i>Thalassiosira dubiosa</i>
<i>Bacterosira</i> spp.	<i>Halamphora costata</i>	R	<i>Thalassiosira eccentrica</i> IET IET 5
<i>Cavitatus exiguus</i>	<i>Hyalodiscus obsoletus</i>		<i>Thalassiosira fasciculata</i>
<i>Cavitatus jouseanus</i>	<i>Hyalodiscus</i> spp.		<i>Thalassiosira fraga</i>
<i>Cavitatus lanceolatus</i>	<i>Ikebea tenuis</i>		<i>Thalassiosira gravida</i>
<i>Cavitatus linearis</i>	<i>Kisseleviella carina</i>		<i>Thalassiosira grunowii</i>
<i>Cavitatus miocenicus</i>	<i>Kisseleviella ezoensis</i>		<i>Thalassiosira hyalina</i>
<i>Cavitatus rectus</i>	<i>Kozumia tatsunokuchiensis</i>		<i>Thalassiosira irregularata</i>
<i>Cavitatus</i> spp.	<i>Kozioviella minor</i>		<i>Thalassiosira jacksonii</i>
<i>Cestodiscus kugleri</i>	<i>Lisitzinia ornata</i>	R	<i>Thalassiosira jouseae</i> - 1
<i>Cestodiscus trochus</i>	<i>Medlaria magna</i>	R	<i>Thalassiosira leptopus</i> F 4
<i>Cestodiscus</i> spp.	<i>Medlaria splendida</i>		<i>Thalassiosira lineata</i>
<i>Cocconeis californica</i>	<i>Melosira albicans</i>		<i>Thalassiosira lusca</i>
<i>Cocconeis costata</i>	<i>Navicula elginensis</i>		<i>Thalassiosira manifesta</i>
<i>Cocconeis scutellum</i>	<i>Navicula lyroides</i>		<i>Thalassiosira marumica</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>		<i>Thalassiosira mediacconvexa</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>		<i>Thalassiosira minutissima</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamschatica</i>		<i>Thalassiosira miocenica</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>		<i>Thalassiosira nordenskiöldii</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminiae</i> IET 7		<i>Thalassiosira orientalis</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>		<i>Thalassiosira praepraga</i>
<i>Cosmidiscus insignis</i>	<i>Nitzschia cylindrica</i>		<i>Thalassiosira praenidulus</i>
<i>Crucidentacula ikebei</i>	<i>Nitzschia jouseae</i>		<i>Thalassiosira praeyabei</i>
<i>Crucidentacula kanayae</i>	<i>Nitzschia palea</i>		<i>Thalassiosira robusta</i>
<i>Crucidentacula nicobarica</i>	<i>Nitzschia reinholdii</i>		<i>Thalassiosira sancettae</i>
<i>Crucidentacula paranicobarica</i>	<i>Nitzschia rolandii</i>		<i>Thalassiosira singularis</i>
<i>Crucidentacula sawamurae</i>	<i>Odontella aurita</i> - 1		<i>Thalassiosira temperi</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>		<i>Thalassiosira umaensis</i>
<i>Cyclotella meneghiniana</i>	<i>Paralia</i> spp.		<i>Thalassiosira undulosa</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>		<i>Thalassiosira yabei</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>		<i>Thalassiosira</i> spp.
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	R	<i>Thalassiothrix longissima</i> IET 5
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i> (F) 3		<i>Thalassiothrix</i> spp.
<i>Delphineis ischaboensis</i>	<i>Proboscia interposita</i>		<i>Trachyneis aspera</i>
<i>Delphineis kippae</i>	<i>Proboscia praeboroli</i>		<i>Trachyneis</i> spp.
<i>Delphineis sachalinensis</i>	<i>Pseudodimmerogramma elegans</i>		<i>Yoshidaia divergens</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia seriata</i>		<i>Yoshidaia</i> spp.
<i>Delphineis surella</i>	<i>Pseudopyxilla americana</i>		
<i>Denticulopsis crassa</i>	<i>Pseudotraceratium radiosoreticulatum</i>		
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Pyxidula zabelinae</i>		
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>	<i>Rhaphoneis amphiceros</i>		

Chaetoceros Resting Spores IET 9
TOTAL of VEGETATIVE CELLS

100

8.0 9.0 10.0 11.0 12.0

R Th sp IET 5
R Ac sp - 1
Th. jouseae (F 8.0, 8.2)

Diatom zones (NPD)

NPD 10

Core, section, interval (cm)

1417, P, 13HZW, 102

DATE: 13.6.2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatulus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmioliscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praeprupta var. praeprupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dolotus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchensis
- Kozloviella minor
- Lisizinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatcica
- Neodenticula kozumil
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidula zabelinae
- Rhaphoneis amphiceros

- R 4 Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praegeronii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Roudia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillarum
- Thalassionema nitzschoides
- Thalassionema nitzschoides var. incurvatum
- Thalassionema nitzschoides var. inflatum
- Thalassionema nitzschoides var. parvum
- Thalassionema pseudonitzschoides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
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- Thalassiosira dubiosa
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- Thalassiosira miocenicica
- Thalassiosira nordenskioldii
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- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

R 6

R

R

C 45

C 25

R

R

R

R

sponge T

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1417 D, 13H3W, 29

DATE: 13, 6 2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
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X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
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- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
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- Actinocyclus ochotensis
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- Actinocyclus tsugaruensis
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- Actinoptychus spp.
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- Araniscus spp.
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- Asteromphalus parvulus
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- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
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- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmioliscus insignis
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- Crucidentricula kanayae
- Crucidentricula nicobarica
- Crucidentricula paranicobarica
- Crucidentricula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
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- Denticulopsis dimorpha var. areolata

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- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praeupta var. praeupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dolotus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kolzumia tatsunokuchensis
- Kozloviella minor
- Lisitzinia ornata
- Mediaria magna
- Mediaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatcica
- Neodenticula kolzumii
- Neodenticula seminae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praeoestrupii
- Shionodiscus trifuitus
- Stephanopyxis dimorpha
- Stephanopyxis homidus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamca
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperlei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

F 96

R

sponge T

Rads IT

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

3 7

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis (B)
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

1417.D. 13H cc

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolotulus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboti
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicros

DATE: 12.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia seligera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praеоestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderei
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge T

Diatom zones (NPD)

NPD II

TOTAL ABUNDANCE:
M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1477 D. 1470 C

TOTAL PRESERVATION
G (good), M (moderate), P (poor)

DATE: 12.6.2013

OBSERVER's NAME KONO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- > Actinocyclus curvatulus T
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- 2 Actinocyclus ochotensis T
- Actinocyclus oclonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Coccinodiscus costata
- Cocconeis scutellum
- Coccinodiscus asteromphalus
- Coccinodiscus marginatus F
- Coccinodiscus oculus-iridis
- Coccinodiscus radiatus
- Coccinodiscus rhombicus
- Coccinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula parancobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboenis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella

- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelata
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Flagilariopsis dololus
- Flagilariopsis fossilis
- Flagilariopsis oceanica
- Flagilariopsis plicocena
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchiensis
- Kozloviella minor
- Lisitizina ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica
- Neodenticula koizumii
- 24 Neodenticula seminiae FEFIF
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- 2 Paralia sulcata T
- Podosira stelligera
- Porosira glacialis
- 1 Proboscia barbol
- 1 Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarbol
- Pseudodimerozogramma elegans
- Pseudonitzschia senata
- Pseudopyxilla americana
- Pseudotraceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

- 10 Rhizosolenia hebetata f. hiemalis FIF
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praebergonii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifidulus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Thalassionema bacillar
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schradert
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperi
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- 9 Thalassiothrix longissima FIF
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

68

19-3

8 9 A. t. sp FIF
sponge FIF
closed cupura +

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

381-4447D, 15H-1A, 33cm

DATE: 2013/June/13

OBSERVER'S NAME

ITSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%) B (no diatoms)

TRACE

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens f. nodus**
- Actinocyclus ingens f. planus**
- Actinocyclus oculatus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinopterychus senarius*
- Actinopterychus vulgaris*
- Actinopterychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenic*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia velutissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus reclus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surirella*
- Denticulopsis crassa**
- Denticulopsis dimorpha var. dimorpha**
- Denticulopsis dimorpha var. areolata**

- Denticulopsis hustedtii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha var. minor**
- Denticulopsis praedimorpha var. praedimorpha**
- Denticulopsis praealyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelauta**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praeprupta var. praeprupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagilariopsis cylindrus*
- Flagilariopsis dolioleus**
- Flagilariopsis fossilis**
- Flagilariopsis oceanica*
- Flagilariopsis plocena**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchensis**
- Koizumiella minor*
- Lisitzinia ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatkica**
- Neodenticula koizumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praeparboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotraceratium radiosoreticulatum*
- Pyxidicula zabelinae**
- Rhaphoneis amphicerus*

- Rhizosolenia hebetata f. hiemalis*
- Rhizosolenia hebetata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praerbergonii**
- Rhizosolenia setigera*
- Roperia lesselata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia calliformica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praeoestrupii**
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillaris*
- Thalassionema nitzschoioides*
- Thalassionema nitzschoioides var. incurvatum*
- Thalassionema nitzschoioides var. inflatum*
- Thalassionema nitzschoioides var. parvum*
- Thalassionema pseudonitzschoioides*
- Thalassionema schraderi**
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenic*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperi**
- Thalassiosira umaolensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

closed copula

Diatom zones (NPD)

NPD 9 (or 10?) 1x47D-15H-3A, 130cm

TOTAL ABUNDANCE: M (>60%), A (20-60%), C (5-20%), F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

TOTAL PRESERVATION G (good), M (moderate), P (poor)

DATE: 2013/June/16 OBSERVER'S NAME: TSVIC

RELATIVE ABUNDANCE of EACH TAXON A (>10 valves/FOV), C (1-10 vlvs/FOV), F (>1 vlv/10FOVs & <1 vlv/10FOVs), R (>3 vlv/traverse & <1 vlv/10FOVs), X (present), B (barren)

- Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwini
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligogenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis asteromphalus
Cocconeis marginatus
Cocconeis oculus-iridis
Cocconeis radiatus
Cocconeis rhombicus
Cocconeis symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praeakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Fragilaria cylindrus
Fragilaria dolotus
Fragilaria fossilis
Fragilaria oceanica
Fragilaria plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozuviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaponeis amphiceros

- Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praerbergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschoides
Thalassionema nitzschoides var. incurvatum
Thalassionema nitzschoides var. inflatum
Thalassionema nitzschoides var. parvum
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

closed -

130

Th. sp T 2

R Rhizosolenia hebetata f. hiemalis F 3

R Shionodiscus oestrupii F 3

R Shionodiscus trifultus T 2
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris - 1

F Thalassiosira fraga F 7 9

R Thalassiosira jouseae T 2

R Porosira glacialis - 1 NPD 11/10

R Thalassiosira yabei - 1

Chaetoceros Resting Spores F
TOTAL of VEGETATIVE CELLS 100

Accuratus ooze!

Diatom zones (NPD)

Core, section, interval (cm)

NPD 9 (or 10?) W1x170.15H-5A 85cm

DATE: 2013/June 14

OBSERVER'S NAME I TSUKI

TOTAL ABUNDANCE: M (>60%), A (20-60%), C (5-20%), F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION C (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON A (>10 valves/FOV), C (1-10 vls/FOV), F (>1 vlv/10FOVs & <1 vlv/10FOVs), R (>3 vlv/traverse & <1 vlv/10FOVs), X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus

Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris

Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.

Diploneis bombus
Diploneis puella

Araniscus lewisianus
Araniscus sp.

Diploneis smithii
Diploneis suborbicularis

Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus

Distephanosira architecturalis

Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae

Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow

Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.

Flagiliopsis cylindrus
Fragilariopsis dolohus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.

Halamphora costata
Hyalodiscus obsoletus

Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata

Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.

Mediaria magna
Mediaria splendida

Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum

Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis

Neodenticula kantschatka
Neodenticula koizumii
Neodenticula saminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii

Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae

Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira sp.

Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis

Rhododictyon
Rhopilema elegans
Pseudonitzschia seriata
Pseudonitzschia yucana
Pseudonitzschia diosoreticulatum
Pyxidictyon
Rhopilema sp.

Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaoniensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores + R
TOTAL OF VEGETATIVE CELLS /100

Distephanus sp. + (silic) closed

ifso

Diatom zones (NPD) *Near Barren*
undetermined

Core, section, interval (cm)
U147D-15H-7, 77-82 cm
bottom

DATE: *2013 June / 42*

OBSERVER'S NAME *TSUKI*

TOTAL ABUNDANCE:
M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION
G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON
A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norvegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praebergonii</i>
<i>Achnanthes spp.</i>	<i>Denticulopsis praedimorpha var. minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha var. praedimorpha</i>	<i>Rhizosolenia spp.</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praeahyalina</i>	<i>Roperia tessellata</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella gelida</i>
<i>Actinocyclus Ingens f. nodus</i>	<i>Denticulopsis praelauta</i>	<i>Rocella praenitida</i>
<i>Actinocyclus Ingens f. planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis sp.</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus spp.</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinoplychus senarius</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupii</i>
<i>Actinoplychus vulgaris</i>	<i>Diploneis sp.</i>	<i>Shionodiscus praeoestrupii</i>
<i>Actinoplychus spp.</i>	<i>Distephanosira architecturalis</i>	<i>Shionodiscus influitus</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira sp.</i>	<i>Stephanopyxis dimorpha</i>
<i>Araniscus spp.</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sp.</i>	<i>Stephanopyxis turris</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis var. minor</i>	<i>Stephanopyxis spp.</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praeprupta var. praeprupta</i>	<i>Thalassionema bacillaris</i>
<i>Asteromphalus robustus</i>	<i>Eunotia sp.</i>	<i>Thalassionema nitzschioides</i>
<i>Asteromphalus spp.</i>	<i>Fragilaria construens</i>	<i>Thalassionema nitzschioides var. incurvatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria sp.</i>	<i>Thalassionema nitzschioides var. inflatum</i>
<i>Azpeitia komurae</i>	<i>Fragilariaopsis cylindrus</i>	<i>Thalassionema nitzschioides var. parvum</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariaopsis dolitulus</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia oligocenic</i>	<i>Fragilariaopsis fossilis</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariaopsis oceanica</i>	<i>Thalassionema spp.</i>
<i>Azpeitia salisburyana</i>	<i>Fragilariaopsis pilocena</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia tabularis</i>	<i>Fragilariaopsis spp.</i>	<i>Thalassiosira bioculata</i>
<i>Azpeitia vetustissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia spp.</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira convexa</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium spp.</i>	<i>Thalassiosira decipiens</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora spp.</i>	<i>Thalassiosira dubiosa</i>
<i>Bacterosira spp.</i>	<i>Halamphora costata</i>	<i>Thalassiosira eccentrica</i>
<i>Cavitatus exiguus</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira fasciculata</i>
<i>Cavitatus jouseanus</i>	<i>Hyalodiscus spp.</i>	<i>Thalassiosira fraga</i>
<i>Cavitatus lanceolatus</i>	<i>Ikebea tenulis</i>	<i>Thalassiosira gravida</i>
<i>Cavitatus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira grunowii</i>
<i>Cavitatus miocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira hyalina</i>
<i>Cavitatus reclus</i>	<i>Kolzumia tatsunokuchiensis</i>	<i>Thalassiosira irregularata</i>
<i>Cavitatus spp.</i>	<i>Kozloviella minor</i>	<i>Thalassiosira jacksonii</i>
<i>Cestodiscus kugleri</i>	<i>Listizinia ornata</i>	<i>Thalassiosira jouseae</i>
<i>Cestodiscus trochus</i>	<i>Medlaria magna</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus spp.</i>	<i>Medlaria splendida</i>	<i>Thalassiosira lineata</i>
<i>Cocconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira lusca</i>
<i>Cocconeis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira manifesta</i>
<i>Cocconeis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira marjamica</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira mediacconvexa</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatica</i>	<i>Thalassiosira miocena</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminiae</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengerii</i>	<i>Thalassiosira praeprupta</i>
<i>Cosmidiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praenidulus</i>
<i>Crucidentacula ikebei</i>	<i>Nitzschia jouseae</i>	<i>Thalassiosira praeyabei</i>
<i>Crucidentacula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira robusta</i>
<i>Crucidentacula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira sancettae</i>
<i>Crucidentacula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira singularis</i>
<i>Crucidentacula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira temperii</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira umaensis</i>
<i>Cyclotella meneghiniana</i>	<i>Paralia spp.</i>	<i>Thalassiosira undulosa</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira yabei</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>	<i>Thalassiosira spp.</i>
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiothrix longissima</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Thalassiothrix spp.</i>
<i>Delphineis ischaboensis</i>	<i>Proboscia interposita</i>	<i>Trachyneis aspera</i>
<i>Delphineis kippae</i>	<i>Proboscia praebarboi</i>	<i>Trachyneis spp.</i>
<i>Delphineis sachalinensis</i>	<i>Pseudodimmerogramma elegans</i>	<i>Yoshidaia divergens</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia seriata</i>	<i>Yoshidaia spp.</i>
<i>Delphineis surirella</i>	<i>Pseudopyxilla americana</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotraceratium radiosreticulatum</i>	
<i>Denticulopsis dimorpha var. dimorpha</i>	<i>Pyxidicula zabelinae</i>	
<i>Denticulopsis dimorpha var. areolata</i>	<i>Rhaphoneis amphicerus</i>	

→ ← ↔
120 12.5 130

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

W14170-16H-1W 99cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/14

OBSERVER'S NAME

ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. **dimorpha**
Denticulopsis dimorpha var. **areolata**

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. **minor**
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. **minor**
Eunotia praerupta var. **praerupta**
Fragilaria construens (Ehrenberg) Grunow

Flageliariopsis cylindrus
Flageliariopsis doikolus
Flageliariopsis fossilis
Flageliariopsis oceanica
Flageliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbot
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. **hiemalis**
Rhizosolenia hebetata f. **semispina**
Rhizosolenia norwegica
Rhizosolenia praebergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. **incurvatum**
Thalassionema nitzschioides var. **inflatum**
Thalassionema nitzschioides var. **parvum**
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularia
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umauiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

1417D 16H-3W 58cm

DATE: 2013/June/14

OBSERVER'S NAME

/TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 vlv/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis huatodtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flageliopsis cylindrus
Flageliopsis dololus
Flageliopsis fossilis
Flageliopsis oceanica
Flageliopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella excoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitziina ornata

Medleria magna
Medleria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praeinitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praеоestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaoniensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

ボカレ

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

1417D-16H-5W, 131cm

DATE: 2013/June/14

OBSERVER'S NAME (TSUKI)

TOTAL ABUNDANCE:

A (>60%), B (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 vlv/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens* f. **nodus**
- Actinocyclus ingens* f. **planus**
- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinoplychus senarius*
- Actinoplychus vulgaris*
- Actinoplychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenic*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surirella*
- Denticulopsis crassa**
- Denticulopsis dimorpha* var. **dimorpha**
- Denticulopsis dimorpha* var. **areolata**

- Denticulopsis hustedii**
- Denticulopsis hyalina*
- Denticulopsis katayamae**
- Denticulopsis lauta*
- Denticulopsis praedimorpha* var. **minor**
- Denticulopsis praedimorpha* var. **praedimorpha**
- Denticulopsis praehyalina*
- Denticulopsis praekatayamae*
- Denticulopsis praelauta*
- Denticulopsis simonsenii*
- Denticulopsis tanimurae*
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis* var. **minor**
- Eunotia praerupta* var. **praerupta**
- Fragilaria construens* (Ehrenberg) Grunow
- Flagiliopsis cylindrus*
- Flagiliopsis dololus**
- Flagiliopsis fossilis*
- Flagiliopsis oceanica*
- Flagiliopsis plocana**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchensis**
- Kozumia minor*
- Lisitziina ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula alginensis*
- Navicula tyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatica**
- Neodenticula kozumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbot**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarbot*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae**
- Raphoneis amphicerus*

- Rhizosolenia hebetata* f. **hiemalis**
- Rhizosolenia hebetata* f. **semispina**
- Rhizosolenia norwegica*
- Rhizosolenia praerbergonii**
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praеоestrupii**
- Shionodiscus trifolius*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. **incurvatum**
- Thalassionema nitzschioides* var. **inflatum**
- Thalassionema nitzschioides* var. **parvum**
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi**
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenic*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temporei**
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 4 (or 70)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417.D. 16HCC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 12.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens f. nodus**
- Actinocyclus ingens f. planus**
- Actinocyclus oculatus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Araniscus lewisianus*
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cocconeis californica*
- Coscinodiscus costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis**
- Crucidentacula ikebei*
- Crucidentacula kanayae*
- Crucidentacula nicobarica*
- Crucidentacula paranicobarica*
- Crucidentacula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surirella*

- Denticulopsis crassa**
- Denticulopsis dimorpha** var. *dimorpha*
- Denticulopsis dimorpha** var. *areolata*
- Denticulopsis hustedii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha** var. *minor*
- Denticulopsis praedimorpha** var. *praedimorpha*
- Denticulopsis praehyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelauta**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Fragilariopsis cylindrus*
- Fragilariopsis dollotus**
- Fragilariopsis fossilis**
- Fragilariopsis oceanica*
- Fragilariopsis plocena**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Medaria magna**
- Medaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatica**
- Neodenticula koizumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbot**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboti*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabelinae**
- Rhaphoneis amphiceros*

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praeborgonii**
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praeoestrupii**
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi**
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperai**
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge -

closed copypay

Diatom zones (NPD)

NPD 9 (or 10?)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

U-1417D-17H-2W, 112cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/14

OBSERVER'S NAME: ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens***
- Actinocyclus ingens f. nodus***
- Actinocyclus ingens f. planus***
- R ***Actinocyclus oculatus*** +
- Actinocyclus ochotensis*
- R *Actinocyclus octonarius* +
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Araniscus lewisianus*
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Azpeitia biradiata*
- Azpeitia komurae***
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- R *Coscinodiscus oculus-iridis* +
- Coscinodiscus radiatus* +
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis***
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii***
- Delphineis surirella*

NPD 10

- Denticulopsis crassa***
- Denticulopsis dimorpha var. dimorpha***
- Denticulopsis dimorpha var. areolata***
- Denticulopsis hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
- Denticulopsis praedimorpha var. minor***
- Denticulopsis praedimorpha var. praedimorpha***
- Denticulopsis prae-hyalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praeupta var. praeupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagilariopsis cylindrus*
- Fragilariopsis dololus***
- Fragilariopsis fossilis***
- Fragilariopsis oceanica*
- Fragilariopsis plicocena***
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchensis***
- Koizumiella minor*
- Lisitzinia ornata*
- Medlaria magna***
- Medlaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- A ***Neodenticula kamtschatica***
- A ***Neodenticula koizumii*** → 851
- F ***Neodenticula seminiae*** IET
- Nitzschia challengeri*
- Nitzschia cylindrica*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- R ***Proboscia barboi*** F
- R ***Proboscia curvirostris*** F T → NPD 10?
- Proboscia interposita*
- Proboscia praearboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae***
- Raphoneis amphiceros*

- Rhizosolenia hebetata f. hiemalis*
- Rhizosolenia hebetata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praebergonii***
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica***
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoidea*
- Rouxia obesa*
- R ***Shionodiscus oestrupii*** -
- R ***Shionodiscus praeoestrupii***
- R *Shionodiscus trifidulus* -
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- R *Stephanopyxis turris* +
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum*
- Thalassionema nitzschioides var. parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraederi***
- Thalassiosira antiqua***
- Thalassiosira bioculata*
- Thalassiosira castanea***
- Thalassiosira convexa***
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- R *Thalassiosira eccentrica* +
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravis*
- Thalassiosira grunowii***
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii***
- Thalassiosira jouseae***
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamca***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praeфрага*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperlei***
- Thalassiosira umoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- R *Thalassiothrix longissima* +
- Trachyneis aspera*
- Yoshidaia divergens*

closed cap -

N. koizumii & seminiae の小穴を封入剤を交えて check 可能なか
 ← 11.0 N. koizumii (sec. pseudosop か - 2 at a) は 2 型 (小穴) の 1-1.5 μm と
 ⇒ N. seminiae の小穴の 2 型 (小穴) の 1.5 μm と 1.0 μm と

A ***Chaetoceros* Resting Spores** F
 TOTAL of VEGETATIVE CELLS 100

トクハルトニ70C 2757分取

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

11447D-17H-3W 60cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Fragilaria construens (Ehrenberg) Grunow
Flagiliariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

DATE: 2013/June/14

OBSERVER'S NAME / TSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

ノスルルル=7012 → 7717分0152

Diatom zones (NPD)

BARREN?

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens f. nodus**
- Actinocyclus ingens f. planus**
- Actinocyclus oculatus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus senarius*
- Actinocyclus vulgaris*
- Araniscus lewisianus*
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocena*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginalis*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surirella*

Core, section, interval (cm)

U147D-174-5W, 106cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

- Denticulopsis crassa**
- Denticulopsis dimorpha var. dimorpha**
- Denticulopsis dimorpha var. areolata**
- Denticulopsis hustedtii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha var. minor**
- Denticulopsis praedimorpha var. praedimorpha**
- Denticulopsis praehyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelaeta**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praerupta var. praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagiliariopsis cylindrus*
- Fragiliariopsis dololus**
- Fragiliariopsis fossilis**
- Fragiliariopsis oceanica*
- Fragiliariopsis pilocena**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitizina ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatica**
- Neodenticula koizumii**
- Neodenticula seminiae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praearboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae**
- Rhaphoneis amphiceros*

DATE: 2013/June/14

OBSERVER'S NAME /TSUKI/

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Rhizosolenia hebelata f. hiemalis*
- Rhizosolenia hebelata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praeborgonii**
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praecoestrupii**
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum*
- Thalassionema nitzschioides var. parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderei**
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira graviora*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediacconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocena*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperai**
- Thalassiosira umaoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN 3

Core, section, interval (cm)

17044-71L 17044-71L
17417D-17H-6W. 116cm

DATE: 2013/June/14

OBSERVER'S NAME /TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitiznia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umauiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 9

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417-D-17HCC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 12.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Actinocyclus curvatus ET
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia prae-nodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Coccinodiscus costata
- Cocconeis scutellum
- Coccinodiscus asteromphalus
- Coccinodiscus marginatus
- Coccinodiscus oculus-iridis
- Coccinodiscus radiatus
- Coccinodiscus rhombicus
- Coccinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboenis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella

- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis prae-hyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis lanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. minor
- Eunotia prae-rupta var. prae-rupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Fragilariopsis dolitulus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis plocena
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Mediaria magna
- Mediaria splendida
- Melosira albicans
- Navicula etginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatkica
- Neodenticula koizumii
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidula zabelinae
- Rhaphoneis amphicerus

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifidulus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregularia
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

9 Act.sp
closed copulat
sponge, I-
open copulat

Rads 7

7-8

Diatom zones (NPD)

Core, section, interval (cm)

NPD 9 (or 10?) U1470-18H-2W, 113cm

DATE: 2013/June/14

OBSERVER's NAME TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatulus
- Actinocyclus ellipticus
- Actinocyclus Ingens
- Actinocyclus Ingens f. nodus
- Actinocyclus Ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinocyclus senarius
- Actinocyclus vulgaris
- Actinocyclus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia velutissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmodiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praeatayamae
- Denticulopsis praelaeta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dollotus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis plocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchlensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatica
- Neodenticula kotzumii
- Neodenticula seminae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barbol
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praeparboi
- Pseudodimmerograma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotraceratium radiosreticulatum
- Pyxidicula zabellinae
- Rhaphoneis amphicerus

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norwegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis homidus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregularata
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamca
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperlei
- Thalassiosira umaotensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

Chaetoceros Resting Spores 6
TOTAL of VEGETATIVE CELLS 100

Comment: D-17-2, 192 & 191

Diatom zones (NPD)

BARPEN?

Core, section, interval (cm)

U1417D-184-YW 25 cm

DATE: 2013/ June / 14

OBSERVER'S NAME ITSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioliscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Koizumiella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriat
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillar
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamika
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARRER

Core, section, interval (cm)

1417.D 1846w 57

DATE: 14.6.2013

OBSERVER'S NAME KOMPONO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriala
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis homidus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

M1417D, 18H-7.51-56

DATE: 2013/June/12

OBSERVER'S NAME: TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

TRACE

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedii</i>	<i>Rhizosolenia hebetata</i> f. <i>hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata</i> f. <i>semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norvegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praeborgonii</i>
<i>Achnanthes</i> spp.	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Rhizosolenia</i> spp.
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praehyalina</i>	<i>Roperia tessellata</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens</i> f. <i>nodus</i>	<i>Denticulopsis praelauta</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens</i> f. <i>planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis</i> sp.	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus</i> spp.	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinoptychus senarius</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupii</i>
<i>Actinoptychus vulgaris</i>	<i>Diploneis</i> sp.	<i>Shionodiscus praecoestrupii</i>
<i>Actinoptychus</i> spp.	<i>Distephanosira architecturalis</i>	<i>Shionodiscus trifidus</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira</i> sp.	<i>Stephanopyxis dimorpha</i>
<i>Araniscus</i> spp.	<i>Ellerbeckia sol</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia</i> sp.	<i>Stephanopyxis turris</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis</i> spp.
<i>Asteromphalus parvulus</i>	<i>Eunotia praeprupta</i> var. <i>praeprupta</i>	<i>Thalassionema bacillans</i>
<i>Asteromphalus robustus</i>	<i>Eunotia</i> sp.	<i>Thalassionema nitzschioides</i>
<i>Asteromphalus</i> spp.	<i>Fragilaria construens</i>	<i>Thalassionema nitzschioides</i> var. <i>incurvatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria</i> sp.	<i>Thalassionema nitzschioides</i> var. <i>inflatum</i>
<i>Azpeitia komurae</i>	<i>Fragilaropsis cylindrus</i>	<i>Thalassionema nitzschioides</i> var. <i>parvum</i>
<i>Azpeitia nodulifera</i>	<i>Fragilaropsis dollotus</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia oligocenic</i>	<i>Fragilaropsis fossilis</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilaropsis oceanica</i>	<i>Thalassionema</i> spp.
<i>Azpeitia salisburyana</i>	<i>Fragilaropsis plocena</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia tabularis</i>	<i>Fragilaropsis</i> spp.	<i>Thalassiosira bioculata</i>
<i>Azpeitia vetustissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia</i> spp.	<i>Goniothecium rogersii</i>	<i>Thalassiosira convexa</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium</i> spp.	<i>Thalassiosira decipiens</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora</i> spp.	<i>Thalassiosira dubiosa</i>
<i>Bacterosira</i> spp.	<i>Halamphora costata</i>	<i>Thalassiosira eccentrica</i>
<i>Cavitatus exiguus</i>	<i>Hyalodiscus obsolatus</i>	<i>Thalassiosira fasciculata</i>
<i>Cavitatus jouseanus</i>	<i>Hyalodiscus</i> spp.	<i>Thalassiosira fraga</i>
<i>Cavitatus lanceolatus</i>	<i>Ikebea tenuis</i>	<i>Thalassiosira gravida</i>
<i>Cavitatus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira grunowii</i>
<i>Cavitatus miocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira hyalina</i>
<i>Cavitatus rectus</i>	<i>Kozumia tatsunokuchiensis</i>	<i>Thalassiosira irregularia</i>
<i>Cavitatus</i> spp.	<i>Kozloviella minor</i>	<i>Thalassiosira jacksonii</i>
<i>Cestodiscus kugleri</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira jouseae</i>
<i>Cestodiscus trochus</i>	<i>Mediana magna</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus</i> spp.	<i>Mediana splendida</i>	<i>Thalassiosira lineata</i>
<i>Coconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira lusca</i>
<i>Coconeis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira manifesta</i>
<i>Coconeis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira marujamica</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira mediaconvexa</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatica</i>	<i>Thalassiosira miocenica</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kozumii</i>	<i>Thalassiosira nordenskiöldii</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminae</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengerii</i>	<i>Thalassiosira praefraga</i>
<i>Cosmidiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praenidulus</i>
<i>Crucidenticula ikebei</i>	<i>Nitzschia jouseae</i>	<i>Thalassiosira praeyabei</i>
<i>Crucidenticula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira robusta</i>
<i>Crucidenticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira sancettae</i>
<i>Crucidenticula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira singularis</i>
<i>Crucidenticula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira temperis</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira umaensis</i>
<i>Cyclotella meneghiniana</i>	<i>Paralia</i> spp.	<i>Thalassiosira undulosa</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira yabei</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>	<i>Thalassiosira</i> spp.
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiothrix longissima</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Thalassiothrix</i> spp.
<i>Delphineis ischaboensis</i>	<i>Proboscia interposita</i>	<i>Trachyneis aspera</i>
<i>Delphineis kippae</i>	<i>Proboscia praeborboi</i>	<i>Trachyneis</i> spp.
<i>Delphineis sachalinensis</i>	<i>Pseudodimmerogramma elegans</i>	<i>Yoshidaia divergens</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia seriata</i>	<i>Yoshidaia</i> spp.
<i>Delphineis surella</i>	<i>Pseudopyxilla americana</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotraceratium radiosoreticulatum</i>	
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Pyxidicula zabelinae</i>	
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>	<i>Rhaphoneis amphiceros</i>	

Sponge spicule +
Tuff

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

W477D 194-CC

DATE: 2013/June/12

OBSERVER'S NAME TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedii</i>	<i>Rhizosolenia hebetata</i> f. <i>hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata</i> f. <i>semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norvegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praeborgonii</i>
<i>Achnanthes</i> spp.	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Rhizosolenia</i> spp.
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praehyalina</i>	<i>Roperia tessellata</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella gelida</i>
<i>Actinocyclus Ingens</i> f. <i>nodus</i>	<i>Denticulopsis praelaeta</i>	<i>Rocella praenitida</i>
<i>Actinocyclus Ingens</i> f. <i>planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis</i> sp.	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus</i> spp.	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinopychus senarius</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupii</i>
<i>Actinopychus vulgaris</i>	<i>Diploneis</i> sp.	<i>Shionodiscus praecoestrupii</i>
<i>Actinopychus</i> spp.	<i>Dislephanosira architecturalis</i>	<i>Shionodiscus trifidulus</i>
<i>Araniscus lewisianus</i>	<i>Dislephanosira</i> sp.	<i>Stephanopyxis dimorpha</i>
<i>Araniscus</i> spp.	<i>Ellerbeckia sol</i>	<i>Stephanopyxis homfdus</i>
<i>Asteromphalus darwini</i>	<i>Ellerbeckia</i> sp.	<i>Stephanopyxis turris</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis</i> spp.
<i>Asteromphalus parvulus</i>	<i>Eunotia praeprupta</i> var. <i>praeprupta</i>	<i>Thalassionema bacillarum</i>
<i>Asteromphalus robustus</i>	<i>Eunotia</i> sp.	<i>Thalassionema nitzschioides</i>
<i>Asteromphalus</i> spp.	<i>Fragilaria construens</i>	<i>Thalassionema nitzschioides</i> var. <i>incurvatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria</i> sp.	<i>Thalassionema nitzschioides</i> var. <i>inflatum</i>
<i>Azpeitia komurae</i>	<i>Fragilariopsis cylindrus</i>	<i>Thalassionema nitzschioides</i> var. <i>parvum</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis dolioius</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia oligocenicca</i>	<i>Fragilariopsis fossilis</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema</i> spp.
<i>Azpeitia salisburyana</i>	<i>Fragilariopsis pilocena</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia tabularis</i>	<i>Fragilariopsis</i> spp.	<i>Thalassiosira bioculata</i>
<i>Azpeitia vetustissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia</i> spp.	<i>Goniothecium rogersii</i>	<i>Thalassiosira convexa</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium</i> spp.	<i>Thalassiosira decipiens</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora</i> spp.	<i>Thalassiosira dubiosa</i>
<i>Bacterosira</i> spp.	<i>Halamphora costata</i>	<i>Thalassiosira eccentrica</i>
<i>Cavitatus exiguus</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira fasciculata</i>
<i>Cavitatus jouseanus</i>	<i>Hyalodiscus</i> spp.	<i>Thalassiosira fraga</i>
<i>Cavitatus lanceolatus</i>	<i>Ikebea tenuis</i>	<i>Thalassiosira gravida</i>
<i>Cavitatus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira grunowii</i>
<i>Cavitatus miocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira hyalina</i>
<i>Cavitatus rectus</i>	<i>Kolzumia tatsunokuchlensis</i>	<i>Thalassiosira irregularata</i>
<i>Cavitatus</i> spp.	<i>Kozloviella minor</i>	<i>Thalassiosira jacksonii</i>
<i>Cestodiscus kugleri</i>	<i>Lisitizina ornata</i>	<i>Thalassiosira jouseae</i>
<i>Cestodiscus trochus</i>	<i>Medlaria magna</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus</i> spp.	<i>Medlaria splendida</i>	<i>Thalassiosira lineata</i>
<i>Cocconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira lusca</i>
<i>Cocconeis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira manifesta</i>
<i>Cocconeis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira marjamicca</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira mediacconvexa</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kantschatica</i>	<i>Thalassiosira miocena</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminiae</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira praeprupta</i>
<i>Cosmidiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praenidulus</i>
<i>Crucidentacula ikebei</i>	<i>Nitzschia jouseae</i>	<i>Thalassiosira praeyabei</i>
<i>Crucidentacula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira robusta</i>
<i>Crucidentacula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira sancettae</i>
<i>Crucidentacula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira singularis</i>
<i>Crucidentacula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira temperlei</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira umaensis</i>
<i>Cyclotella meneghiniana</i>	<i>Paralia</i> spp.	<i>Thalassiosira undulosa</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira yabei</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>	<i>Thalassiosira</i> spp.
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiothrix longissima</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Thalassiothrix</i> spp.
<i>Delphineis ischaboensis</i>	<i>Proboscia interposita</i>	<i>Trachyneis aspera</i>
<i>Delphineis kippae</i>	<i>Proboscia praeborboi</i>	<i>Trachyneis</i> spp.
<i>Delphineis sachalinensis</i>	<i>Pseudodimmerogramma elegans</i>	<i>Yoshidaia divergens</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia seriata</i>	<i>Yoshidaia</i> spp.
<i>Delphineis surirella</i>	<i>Pseudopyxilla americana</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotraceratium radiosreticulatum</i>	
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Pyxidicula zabelinae</i>	
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>	<i>Rhaphoneis amphicerus</i>	

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD9
 TOTAL ABUNDANCE:
 M (>60%), A (20-60%), C (5-20%)
 F (2-5%), R (<2%), B (no diatoms)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Actinocyclus curvatus (P)
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus (P)
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinoptychus senarius
- Actinoptychus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Coscinodiscus costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus (P)
- Coscinodiscus marginatus (P)
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella

Act sp (P)
 sponge III-III-
 Rads F

Core, section, interval (cm)

1417. D, 20HCC

TOTAL PRESERVATION
 G (good), M (moderate), P (poor)

- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata
- Denticulopsis hustedtii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia peclinalis var. minor
- Eunotia praerupta var. praerupta
- Fragilaria construens (Ehrenberg) Grunow
- Flagilariopsis cylindrus
- Flagilariopsis dololus
- Flagilariopsis fossilis
- Flagilariopsis oceanica
- Flagilariopsis plocena
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Medaria magna
- Medaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatica (P)
- Neodenticula koizumii (P)
- Neodenticula seminiae (P)
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- Proboscia barbol (P)
- Proboscia curvirostris (P)
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotraceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphicerus

DATE: 12.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
 F (>1 vlv/10FOVs & <1 vlv/10FOVs)
 R (>3 vlv/traverse & <1 vlv/10FOVs)
 X (present), B (barren)

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norwegica
- Rhizosolenia praeborgii
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temporalis
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

3 → 20

Diatom zones (NPD)

Core, section, interval (cm)

1417.D.22H/w117

DATE: 14.6.2013

OBSERVER'S NAME KOJUNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus Jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus Insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia Jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabellinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roudia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira Jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamka
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis doliolus
Fragilariopsis fossills
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora sp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozioviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriala
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifuitus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschoides
Thalassionema nitzschoides var. *incurvatum*
Thalassionema nitzschoides var. *inflatum*
Thalassionema nitzschoides var. *parvum*
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spo
TOTAL of VEGETATIVE I

Sponge -

NO Data in DL?

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/ June 12
OBSERVER's NAME: AICEMZ

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Actinocyclus curvatulus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus senarius
- Actinocyclus vulgaris
- Araniscus lewisianus
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Azpeitia biradiata
- Azpeitia komurae**
- Azpeitia nodulifera
- Azpeitia oligocena
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Bacterosira bathyomphala
- Bacterosira fragilis
- Cavitatus exiguus
- Cavitatus jouseanui**
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cestodiscus kugleri
- Cestodiscus trochus
- Cocconeis californica
- Coccinodiscus costata
- Cocconeis scutellum
- Coccinodiscus asteromphalus
- Coccinodiscus marginatus
- Coccinodiscus oculus-iridis
- Coccinodiscus radiatus
- Coccinodiscus rhombicus
- Coccinodiscus symbolophorus
- Cosmidiscus Insignis**
- Crucidenticula ikebei
- Crucidenticula kanayae
- Crucidenticula nicobarica
- Crucidenticula paranicobarica
- Crucidenticula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonensis**
- Delphineis surella

- Denticulopsis crassa**
- Denticulopsis dimorpha** var. *dimorpha*
- Denticulopsis dimorpha** var. *areolata*
- Denticulopsis hustedii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha** var. *minor*
- Denticulopsis praedimorpha** var. *praedimorpha*
- Denticulopsis praehyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelauta**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Distephanosira architecturalis
- Ellerbeckia sol
- Eunotia pectinalis var. *minor*
- Eunotia praerupta var. *praerupta*
- Fragilaria construens (Ehrenberg) Grunow
- Flagilaropsis cylindrus
- Flagilaropsis dolotulus**
- Flagilaropsis fossilis**
- Flagilaropsis oceanica
- Flagilaropsis plocena**
- Goniothecium decoratum
- Goniothecium rogersii
- Halamphora costata
- Hyalodiscus obsoletus
- Ikebea tenuis**
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchiensis**
- Kozloviella minor
- Lisitzinia ornata
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica**
- Neodenticula koizumii**
- Neodenticula seminiae**
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae**
- Nitzschia palea
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita
- Paralia sulcata
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosreticulatum
- Pyxidicula zabelinae**
- Rhaphoneis amphicerus

- Rhizosolenia hebetata f. *hiemalis*
- Rhizosolenia hebetata f. *semispina*
- Rhizosolenia norwegica
- Rhizosolenia praebergonii**
- Rhizosolenia setigera
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica**
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii**
- Shionodiscus praеоestrupii**
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus**
- Stephanopyxis turris
- Thalassionema bacillarlis
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. *incurvatum*
- Thalassionema nitzschioides var. *inflatum*
- Thalassionema nitzschioides var. *parvum*
- Thalassionema pseudonitzschioides
- Thalassionema schraderi**
- Thalassiosira antiqua**
- Thalassiosira bioculata
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii**
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa
- Thalassiosira minutissima**
- Thalassiosira miocenica
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis**
- Thalassiosira temperlei**
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei**
- Thalassiothrix longissima
- Trachyneis aspera
- Yoshidaia divergens

open copula
closed copula

← 1.0
→ 2.0
← 3.0
→ 4.0
F 5.0
→ 6.0
← 7.0
→ 8.0

4 Acc. sp. TF (P)
1 Rhiz. sp. (P)
2 Asc. sp. TF (P)

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417 D. 234 16.73

DATE: 14. 6. 2013

OBSERVER's NAME KOVNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioliscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Eilerbeckia sol
Eilerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeurpta var. *praeurpta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Listizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula karmtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roudia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Cheetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER'S NAME KORUO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praeborbot
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeobergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoponica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeustrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularita
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.D, 2314-2410

DATE: 14.6.2013

OBSERVER's NAME KOKUNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioliscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatca
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborboi
Pseudodimmerogramma elegans
Pseudonitzschia seriat
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis homidus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

1417.D.244.12110

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozlovella minor
Lisitizina ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatcica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschoides
Thalassionema nitzschoides var. *incurvatum*
Thalassionema nitzschoides var. *inflatum*
Thalassionema nitzschoides var. *parvum*
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.D, 2443W176

DATE: 14 6 2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus Jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praeatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia Jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboti
Pseudodimmerogramma elegans
Pseudonitzschia seriala
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelleae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira Jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamika
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Undetermined

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia prae-nodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coccinodiscus costata
Cocconeis scutellum
Coccinodiscus asteromphalus
Coccinodiscus marginatus
Coccinodiscus oculus-iridis
Coccinodiscus radiatus
Coccinodiscus rhombicus
Coccinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

1417D29H-C C

TOTAL PRESERVATION

G (good) / M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis doliodus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocana
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

DATE: 2013/June/12

OBSERVER'S NAME: AFEM

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praerbergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeustrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antyca
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores 2

TOTAL of VEGETATIVE CELLS 16

Rest spores 7 (B)

Diatom zones (NPD)

NPD 9

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417.25H1W72

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 14.6.2013

OBSERVER'S NAME KONO

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus Ingens
- Actinocyclus Ingens f. nodus
- Actinocyclus Ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus otonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocena
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia velutissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmirodiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dollotus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchensis
- Kozloviella minor
- Lisizinia ornata
- Medlarina magna
- Medlarina splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatca
- Neodenticula koizumii
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barbol
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarbol
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphicerus

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norwegica
- Rhizosolenia praebergonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praeeostrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillarum
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocena
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperlei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

R1
F13

R1

C5
F5

R1

F21

T

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

sponge -
closed copula
open copula

RACs +

3 → 8

Diatom zones (NPD)

Core, section, interval (cm)

14/17.25H/W106

DATE: 14.6.203

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praeakayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis doliofus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

spurge -

Diatom zones (NPD)

NPD 9

Core, section, interval (cm)

1417.D 25H2W80

DATE: 14.6.2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocena
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmodiscus insignis
- Crucidenticula ikebei
- Crucidenticula kanayae
- Crucidenticula nicobarica
- Crucidenticula paranicobarica
- Crucidenticula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praeurupta var. praeurupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilaropsis cylindrus
- Fragilaropsis dollolus
- Fragilaropsis fossilis
- Fragilaropsis oceanica
- Fragilaropsis plocena
- Fragilaropsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenulis
- Kisseleviella carina
- Kisseleviella ezoensis
- Koizumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatka
- Neodenticula koizumii
- Neodenticula seminae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barbol
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praeboroli
- Pseudodimeroforma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praeestrupii
- Shionodiscus trifidulus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schradert
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocena
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperal
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

R 1
C 30

C 56
R 4

R 3

R 6

closed copulat
open copulat

Rads-
sponge-

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

74

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER's NAME KOMMO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozioviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umacensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Under-recovered

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

nearly barren

Core, section, interval (cm)

147D-25H-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2015/June/12

OBSERVER's NAME AFENZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinopychus senarius
Actinopychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Parafia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
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Shionodiscus praeeostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 9

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417.D. 26H/W47

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 14 6 2017

OBSERVER'S NAME KOMURO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatulus*
- Actinocyclus ellipticus*
- Actinocyclus ingens***
- Actinocyclus ingens* f. *nodus***
- Actinocyclus ingens* f. *planus***
- Actinocyclus oculatus***
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinoplychus senarius*
- Actinoplychus vulgaris*
- Actinoplychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae***
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis***
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii***
- Delphineis surirella*
- Denticulopsis crassa***
- Denticulopsis dimorpha* var. *dimorpha***
- Denticulopsis dimorpha* var. *areolata***

- Denticulopsis hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
- Denticulopsis praedimorpha* var. *minor***
- Denticulopsis praedimorpha* var. *praedimorpha***
- Denticulopsis praeahalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagiliariopsis cylindrus*
- Fragiliariopsis dololus***
- Fragiliariopsis fossilis***
- Fragiliariopsis oceanica*
- Fragiliariopsis plocena***
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebes tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchlensis***
- Koizoviella minor*
- Lisitziina ornata*
- Mediaria magna***
- Mediaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kantschatka***
- Neodenticula koizumii***
- Neodenticula seminiae***
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbot***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praebarbot*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae***
- Rhaphoneis amphicerus*

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norwegica*
- Rhizosolenia praerbergonii***
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica***
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii***
- Shionodiscus praecoestrupii***
- Shionodiscus triflutus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi***
- Thalassiosira antiqua***
- Thalassiosira bioculata*
- Thalassiosira castanea***
- Thalassiosira convexa***
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii***
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii***
- Thalassiosira jouseae***
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperlei***
- Thalassiosira umaoniensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

closed copurat
Sponge

Grammatophora sp.
Th sp.

7-9 未入カ?

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Burren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinopychus senarius
Actinopychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

1417D-26H-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dolotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicata
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

DATE: 2013/June/12

OBSERVER's NAME AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaioensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praeleuta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia peclinalis var. *minor*
Eunotia praeurupta var. *praeurupta*
Fragilaria construens (Ehrenberg) Grunow

Flagilariopsis cylindrus
Flagilariopsis dolotus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchensis
Kozumiella minor
Lisitzinia ornata

Medlaria magna
Medlaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

DATE:

14.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii

Rhizosolenia setigera
Ropenia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifullus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoniensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

1477D-277F-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dolioiulus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Parafia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyridicula zabelinae
Rhaphoneis amphiceros

DATE: 2013/June/12

OBSERVER's NAME AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praeborgii
Rhizosolenia seligera
Roperia fesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

11L-211-370 6L8+9

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

41V17D28H-1W 5cm

DATE: 2013/ June / 14

OBSERVER's NAME IYUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. **dimorpha**
Denticulopsis dimorpha var. **areolata**

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. **minor**
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. **minor**
Eunotia praeurupta var. **praeurupta**
Fragilaria construens (Ehrenberg) Grunow

Flagillariopsis cylindrus
Flagillariopsis dolotus
Flagillariopsis fossilis
Flagillariopsis oceanica
Flagillariopsis plocana
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata

Medlaria magna
Medlaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatkai
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. **hiemalis**
Rhizosolenia hebetata f. **semispina**
Rhizosolenia norvegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Ropenia tessellata
Rocella gelida
Rocella praeinitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifullus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. **incurvatum**
Thalassionema nitzschioides var. **inflatum**
Thalassionema nitzschioides var. **parvum**
Thalassionema pseudonitzschioides
Thalassionema schraderei
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaomensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia prae-nodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanui
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coccinodiscus costata
Cocconeis scutellum
Coccinodiscus asteromphalus
Coccinodiscus marginatus
Coccinodiscus oculus-iridis
Coccinodiscus radiatus
Coccinodiscus rhombicus
Coccinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

1470-284-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flageliopsis cylindrus
Fragiliopsis dololus
Fragiliopsis fossilis
Fragiliopsis oceanica
Fragiliopsis plocana
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicros

DATE: 2013/June/12

OBSERVER's NAME A/EMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vls/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella viglans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U1417 D 29H-2W 123cm

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

2013/June/14

OBSERVER'S NAME

ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenicus
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praeurupta var. praeurupta
Fragilaria construens (Ehrenberg) Grunow

Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Porosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborboi
Pseudodimmerogramma elegans
Pseudonitzschia seriala
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praeborbonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschoides
Thalassionema nitzschoides var. incurvatum
Thalassionema nitzschoides var. inflatum
Thalassionema nitzschoides var. parvum
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicus
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U1417D 29H-3W. 45cm

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

OBSERVER'S NAME

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehtyalina
Denticulopsis praehtyalina
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia peclinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flagiliopsis cylindrus
Flagiliopsis dolotus
Flagiliopsis fossilis
Flagiliopsis oceanica
Flagiliopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitziina ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoniensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Lawson

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1419D - 29H - CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2012/June/12

OBSERVER'S NAME AKEMZ

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia prae-nodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coccinodiscus costata
Cocconeis scutellum
Coccinodiscus asteromphalus
Coccinodiscus marginatus
Coccinodiscus oculus-iridis
Coccinodiscus radiatus
Coccinodiscus rhombicus
Coccinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploëis bombus
Diploëis puella
Diploëis smithii
Diploëis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Flagiliariopsis cylindrus
Flagiliariopsis dolotus
Flagiliariopsis fossilis
Flagiliariopsis oceanica
Flagiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praeborboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praeborboi
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella prae-nitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417D-30F-2W

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

2013/June/19

OBSERVER'S NAME

AKEMI KOJUNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatulus*
- Actinocyclus ellipticus*
- Actinocyclus ingens***
- Actinocyclus ingens* f. **nodus**
- Actinocyclus ingens* f. **planus**
- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinocyclus senarius*
- Actinocyclus vulgaris*
- Actinocyclus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligogenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae***
- Azpeitia nodulifera*
- Azpeitia oligogenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus reclus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis***
- Crucidentricula ikebei*
- Crucidentricula kanayae*
- Crucidentricula nicobarica*
- Crucidentricula paranicobarica*
- Crucidentricula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii***
- Delphineis surella*
- Denticulopsis crassa***
- Denticulopsis dimorpha* var. *dimorpha***
- Denticulopsis dimorpha* var. *areolata***

- Denticulopsis hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
- Denticulopsis praedimorpha* var. *minor***
- Denticulopsis praedimorpha* var. *praedimorpha***
- Denticulopsis praealyalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagiliariopsis cylindrus*
- Fragiliariopsis dololus***
- Fragiliariopsis fossilis***
- Fragiliariopsis oceanica*
- Fragiliariopsis plocena***
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis***
- Kozloviella minor*
- Lisitzinia ornata*
- Mediaria magna***
- Mediaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kantschatka***
- Neodenticula kozumii***
- Neodenticula seminiae***
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praerbarbol*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidula zabelinae***
- Rhaphoneis amphicros*

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praerbergonii***
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia calliformica***
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii***
- Shionodiscus praeoestrupii***
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi***
- Thalassiosira antiqua***
- Thalassiosira bioculata*
- Thalassiosira castanea***
- Thalassiosira convexa***
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii***
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii***
- Thalassiosira jouseae***
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenic*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperi***
- Thalassiosira umaouiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

← 0.0
→ 1.0
← 2.0

closed copula
R / Th. sp. -
Rads t
sponge -

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

147D-30H-3W, 84cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

2013/June/14

OBSERVER's NAME

ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlw/10FOVs & <1 vlw/10FOVs)
R (>3 vlw/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwini
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligogenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria-construens (Ehrenberg) Grunow

Flagilariopsis cylindrus
Flagilariopsis dolotus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediana splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatkae
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbolii
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komuræ
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconodiscus costata
Cocconeis scutellum
Cocconodiscus asteromphalus
Cocconodiscus marginatus
Cocconodiscus oculus-iridis
Cocconodiscus radiatus
Cocconodiscus rhombicus
Cocconodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimuræ
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariaopsis cylindrus
Fragilariaopsis dololus
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis plicata
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikabea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminata
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

DATE:

2012/June/12

OBSERVER's NAME

A. B. M.

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vls/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praetidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaotensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Noarly
Diatom zones (NPD)
BARREN

Core, section, interval (cm)
U1417D - 31H-2W, 23cm

DATE: 2013/June 14
OBSERVER's NAME IT SVK

TOTAL ABUNDANCE:
M (>60%), A (20-80%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION
G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON
A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

TRACE

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphicostis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia peclinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flagiliariopsis cylindrus
Flagiliariopsis dolotus
Flagiliariopsis fossilis
Flagiliariopsis oceanica
Flagiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitziina ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboli
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia calliformica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.D.31HCC

DATE: 13.6.2013

OBSERVER's NAME KOMURO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus (2)
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praeakayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatcica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horrida
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge 正正正正正正正正

70

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER'S NAME KOMURO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata +
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiolodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. **dimorpha**
Denticulopsis dimorpha var. **areolata**

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. **minor**
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. **minor**
Eunotia praerupta var. **praerupta**
Fragilaria construens (Ehrenberg) Grunow

Flageliariopsis cylindrus
Fragiliariopsis dolibolus
Fragiliariopsis fossilis
Fragiliariopsis oceanica
Fragiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebae tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. **hiemalis**
Rhizosolenia hebetata f. **semispina**
Rhizosolenia norwegica
Rhizosolenia praeborgonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. **incurvatum**
Thalassionema nitzschioides var. **inflatum**
Thalassionema nitzschioides var. **parvum**
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Sponge f
fragment

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER'S NAME KOONO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 viv/10FOVs & <1 vlw/10FOVs)
R (>3 viv/traverse & <1 vlw/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus ocellatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow

Flagiliariopsis cylindrus
Flagiliariopsis dololus
Flagiliariopsis fossilis
Flagiliariopsis oceanica
Flagiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtechatca
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praeinilida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus triflutus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqva

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge +

diatom fragment

Diatom zones (N)

Core, section, interval (cm)

DATE: 13 6 2013

OBSERVER'S NAME KOUHO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (nodiatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sof
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis doliofus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozioviella minor
Lisitizina ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabellinae
Rhaphoneis amphiceros

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge F

4 → 20

Diatom zones (NPD)

Core, section, interval (cm)

1417.D.334 1w44

DATE: 14.6.2013

OBSERVER's NAME K. MNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flagiliariopsis cylindrus
Flagiliariopsis dololus
Flagiliariopsis fossilis
Flagiliariopsis oceanica
Flagiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebes tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praeinilida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praesostrupii

Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqva

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zone:

Core, section, interval (cm)

DATE: 13. 6. 2013

OBSERVER'S NAME FOPNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligogenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeiayalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossills
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol ? - (2)
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenfioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulata
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

sponge -

Rods -

20 → 3

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

W14+7D 344-1W 117cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

2013/June/14

OBSERVER'S NAME

TTSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/10FOVs & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. ***nodus***
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbotophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flagiliariopsis cylindrus
Fragiliariopsis dolikous
Fragiliariopsis fossilis
Fragiliariopsis oceanica
Fragiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea

Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifluttus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca

Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicus
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

***Cheetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

U1417D-34H-2W, 80cm

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

2013/June 14

OBSERVER's NAME

ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 viv/10FOVs & <1 viv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbiophorus
Cosmioliscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flagiliariopsis cylindrus
Fragiliariopsis dololus
Fragiliariopsis fossilis
Fragiliariopsis oceanica
Fragiliariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zebellinae
Rhaphoneis amphicros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii

Rhizosolenia setigera
Roperia lesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus triflutus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujemica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaotensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

SPONGE

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 13.6.2013

OBSERVER'S NAME Komno

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitizina ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoponica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulosa
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417.0 35HWS2

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 14.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/10FOVs & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. **nodus**
Actinocyclus ingens 1. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus isugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbotophorus
Cosmioliscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. **dimorpha**
Denticulopsis dimorpha var. **areolata**

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. **minor**
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia peclinalis var. **minor**
Eunotia praeurupta var. **praeurupta**
Fragilaria construens (Ehrenberg) Grunow

Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisztinia ornata

Medlaria magna
Medlaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kotzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. **hiemalis**
Rhizosolenia hebetata f. **semispina**
Rhizosolenia norvegica
Rhizosolenia praebargonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. **incurvatum**
Thalassionema nitzschioides var. **inflatum**
Thalassionema nitzschioides var. **parvum**
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamiae
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 13. 6. 2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/10FOVs & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
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Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
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Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
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Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1817.D.364cc

DATE: 13.6.2013
OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praeinitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperii
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 13.6.2018

OBSERVER'S NAME K. ANNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/transpose & <1 vlv/10FOVs)
X (present), B (barren)

1417.12.37HCC

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeerupta var. *praeerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora sp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbot
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulosa
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 17. 6. 2013

OBSERVER'S NAME KONOVO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeiayamae
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschoides
Thalassionema nitzschoides var. *incurvatum*
Thalassionema nitzschoides var. *inflatum*
Thalassionema nitzschoides var. *parvum*
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/13

OBSERVER'S NAME AFEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsolitus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidcula zabelleae
Rhaphoneis amphicerus

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifluttus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/15

OBSERVER'S NAME AFEM2

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Barren!

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus otonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioliscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeerupta var. *praeerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora sp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbot
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 vlv/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulosa
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/13

OBSERVER's NAME AKEAKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

K17D 4X - CC

Undetermined

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioliscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praeupta var. praeupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicros

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horrida
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

← 1.0

Losed spore

Th. sp - 1

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/13

OBSERVER'S NAME AFEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

K17D-42X-CC

Bumerl

RELATIVE ABUNDANCE of EACH TAXON

A (>10 vlv/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/10FOVs & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radlatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabellinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praerbergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperelii
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER'S NAME KONDO

TOTAL ABUNDANCE:

M (>80%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

1417.D.43x00

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabellinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeborgii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaotensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14.6.2013

OBSERVER'S NAME Kanno

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossills
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozioviella minor
Lisitinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulosa
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.D.45XCC

DATE: 14.6.2013

OBSERVER'S NAME Kodur

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Fragilaria construens (Ehrenberg) Grunow

Flagillariopsis cylindrus
Flagillariopsis dolotus
Flagillariopsis fossilis
Flagillariopsis oceanica
Flagillariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoidea

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeeostrupii

Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horndius
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschoioides
Thalassionema nitzschoioides var. *incurvatum*
Thalassionema nitzschoioides var. *inflatum*
Thalassionema nitzschoioides var. *parvum*
Thalassionema pseudonitzschoioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira manjarimica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

***Chesteroceros* Resting Spores**
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.12.46XCC

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

OBSERVER'S NAME

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. **dimorpha**
Denticulopsis dimorpha var. **areolata**

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. **minor**
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praehyalina
Denticulopsis praekatyamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. **minor**
Eunotia praerupta var. **praerupta**
Fragilaria construens (Ehrenberg) Grunow

Flageliopsis cylindrus
Flageliopsis dololus
Flageliopsis fossilis
Flageliopsis oceanica
Flageliopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisztinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula tyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula koltzumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis

Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. **hiemalis**
Rhizosolenia hebetata f. **semispina**
Rhizosolenia norvegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. **incurvatum**
Thalassionema nitzschioides var. **inflatum**
Thalassionema nitzschioides var. **parvum**
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica

Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

フー片再入り?

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1817.D. 47x CC

DATE: 14.6.2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus **RA**
Coscinodiscus oculus-tridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana **R**
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. **dimorpha**
Denticulopsis dimorpha var. **areolata**

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. **minor**
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia peclinalis var. **minor**
Eunotia praerupta var. **praerupta**
Fragilaria construens (Ehrenberg) Grunow

Flagiliariopsis cylindrus
Fragilariopsis dolioles
Fragilariopsis fossilla
Fragilariopsis oceanica
Fragilariopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata **RA**
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicros

Rhizosolenia hebetata f. **hiemalis**
Rhizosolenia hebetata f. **semispina**
Rhizosolenia norvegica
Rhizosolenia praerbergonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praecoestrupii

Shionodiscus triflutus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillarum
Thalassionema nitzschoides
Thalassionema nitzschoides var. **incurvatum**
Thalassionema nitzschoides var. **inflatum**
Thalassionema nitzschoides var. **parvum**
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Sponge F

Rads -

3

Diatom zones (NPD)

Core, section, interval (cm)

1417.D. 40XCC

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 14.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. **nodus**
Actinocyclus ingens f. **planus**
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiala
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow

Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

Mediaria magna
Mediaria splendida

Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebartoli
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii

Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus triflutus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2018/June/13

OBSERVER's NAME AKEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 viv/10FOVs & <1 viv/10FOVs)
R (>3 vlvs/traverse & <1 viv/10FOVs)
X (present), B (barren)

Undetermined

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens f. nodus**
- Actinocyclus ingens f. planus**
- Actinocyclus oculus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinoplychus senarius*
- Actinoplychus vulgaris*
- Actinoplychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia bradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocena*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-tridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmioliscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surirella*
- Denticulopsis crassa**
- Denticulopsis dimorpha var. dimorpha**
- Denticulopsis dimorpha var. areolata**

- Denticulopsis hustedii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha var. minor**
- Denticulopsis praedimorpha var. praedimorpha**
- Denticulopsis praehyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelauta**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praerupta var. praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagiliariopsis cylindrus*
- Flagiliariopsis dolioles**
- Flagiliariopsis fossilis**
- Flagiliariopsis oceanica*
- Flagiliariopsis plocena**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kotzumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kotzumii**
- Neodenticula seminiae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabelinae**
- Rhaphoneis amphicerus*

- Rhizosolenia hebetata f. hiemalis*
- Rhizosolenia hebetata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praebergonii**
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praeinitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praeoestrupii**
- Shionodiscus trifluter*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum*
- Thalassionema nitzschioides var. parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi**
- Thalassiosira antiqua**

- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**

- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamca**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temporalis**
- Thalassiosira umaiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

th. sp - (P)

≤ 1.0
→ 2.0

REST. SPORE T (A)

Triceratium? sp. - (P)
X: 98.8 Y: 7.0

Triceratium sp. AKEMZ 2018

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 15. 6. 2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes* spp.*Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens* f. *nodus**Actinocyclus ingens* f. *planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus* spp.*Actinoptychus senarius**Actinoptychus vulgaris**Actinoptychus* spp.*Araniscus lewisianus**Araniscus* spp.*Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus* spp.*Azpeitia biradiata**Azpeitia komurae**Azpeitia nodulifera**Azpeitia oligocena**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Azpeitia* spp.*Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira* spp.*Cavitatus exiguus**Cavitatus jouseanus**Cavitatus lanceolatus**Cavitatus linearis**Cavitatus miocenicus**Cavitatus rectus**Cavitatus* spp.*Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus* spp.*Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmodiscus insignis**Crucidentacula ikebei**Crucidentacula kanayae**Crucidentacula nicobarica**Crucidentacula paranicobarica**Crucidentacula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praelauta**Denticulopsis simonsenii**Denticulopsis tanimuriae**Denticulopsis vulgaris**Denticulopsis* spp.*Diploneis bombus**Diploneis puella**Diploneis smilthii**Diploneis suborbicularis**Diploneis* sp.*Distephanosira architecturalis**Distephanosira* sp.*Ellerbeckia sol**Ellerbeckia* sp.*Eunotia pectinalis* var. *minor**Eunotia praepraeupta* var. *praepraeupta**Eunotia* sp.*Fragilaria construens**Fragilaria* sp.*Fragilariopsis cylindrus**Fragilariopsis dollotus**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis plocena**Fragilariopsis* spp.*Goniothecium decoratum**Goniothecium rogersii**Goniothecium* spp.*Grammatophora* spp.*Halamphora costata**Hyalodiscus obsoletus**Hyalodiscus* spp.*Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kozumia tatsunokuchiensis**Kozloviella minor**Lisitinia ornata**Medlaria magna**Medlaria splendida**Melosira albicans**Navicula elginensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamschatica**Neodenticula kozumii**Neodenticula seminiae**Nitzschia challengerii**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia* spp.*Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praebarbol**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopyxilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabelinae**Rhaphoneis amphiceris**Rhizosolenia hebetata* f. *hiemalis**Rhizosolenia hebetata* f. *semispina**Rhizosolenia norvegica**Rhizosolenia praeborgonii**Rhizosolenia setigera**Rhizosolenia* spp.*Ropenia tessellata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii**Shionodiscus praeeostrupii**Shionodiscus trifidulus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Stephanopyxis* spp.*Thalassionema bacillariss**Thalassionema nitzschioides**Thalassionema nitzschioides* var. *incurvatum**Thalassionema nitzschioides* var. *inflatum**Thalassionema nitzschioides* var. *parvum**Thalassionema pseudonitzschioides**Thalassionema schraderi**Thalassionema* spp.*Thalassiosira antiqua**Thalassiosira bioculata**Thalassiosira castanea**Thalassiosira convexa**Thalassiosira decipiens**Thalassiosira dubiosa**Thalassiosira eccentrica**Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularata**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocena**Thalassiosira nordenskiöldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sancettae**Thalassiosira singularis**Thalassiosira temperi**Thalassiosira umaensis**Thalassiosira undulosa**Thalassiosira yabei**Thalassiosira* spp.*Thalassiothrix longissima**Thalassiothrix* spp.*Trachyneis aspera**Trachyneis* spp.*Yoshidaia divergens**Yoshidaia* spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.D. 50x2w/03

DATE: 15.6.2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolioleus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia serata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
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Thalassiothrix spp.
Trachyneis aspera
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Yoshidaia spp.

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 15 6 2013

OBSERVER'S NAME KOIVUO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

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Achnanthes inflata
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Achnanthes spp.
Actinocyclus curvatulus
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Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
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Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
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Cestodiscus kugleri
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Denticulopsis praehtyalina
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Denticulopsis vulgaris
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Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
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Distephanosira sp.
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Ellerbeckia sp.
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Eunotia praerupta var. *praerupta*
Eunotia sp.
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Fragilaria sp.
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Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora sp.
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Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
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Nitzschia palea
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Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
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Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

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Rhizosolenia hebetata f. *semispina*
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Rhizosolenia praeborgonii
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Rocella semigelida
Rocella vigilans
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Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
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Thalassiosira castanea
Thalassiosira convexa
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Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

2013 June 13

DATE:

OBSERVER's NAME

A. F. E. M. Z.

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Undetermined

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens***
- Actinocyclus ingens* f. *nodus***
- Actinocyclus ingens* f. *planus***
- Actinocyclus oculatus***
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinoplychus senarius*
- Actinoplychus vulgaris*
- Actinoplychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae***
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis***
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii***
- Delphineis surirella*
- Denticulopsis crassa***
- Denticulopsis dimorpha* var. *dimorpha***
- Denticulopsis dimorpha* var. *areolata***

- Denticulopsis hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
-
- Denticulopsis praedimorpha* var. *minor***
- Denticulopsis praedimorpha* var. *praedimorpha***
- Denticulopsis praehyalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Diploneis bombus*
- Diploneis puella*
-
- Diploneis smithii*
- Diploneis suborbicularis*
-
- Distephanosira architecturalis*
-
- Ellerbeckia sol*
- Eunotia peclinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
-
- Flagiliariopsis cylindrus*
- Flagiliariopsis dolotus***
- Flagiliariopsis fossilis***
- Flagiliariopsis oceanica*
- Flagiliariopsis plocena***
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
-
- Halamphora costata*
- Hyalodiscus obsoletus*
-
- Ikebea tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kolzumia tatsunokuchiensis***
- Kozloviella minor*
- Lisitzinia ornata*
-
- Mediaria magna***
- Mediaria splendida***
-
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica***
- Neodenticula kolzumii***
- Neodenticula seminiae***
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praearboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabelinae***
- Rhaphoneis amphicros*

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praerbergonii***
-
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praeinilida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica***
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
-
- Rouxia obesa*
- Shionodiscus oestrupii***
-
- Shionodiscus praecoestrupii***
-
- Shionodiscus trifolius*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
-
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi***
- Thalassiosira antiqua***
-
- Thalassiosira bioculata*
- Thalassiosira castanea***
-
- Thalassiosira convexa***
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
-
- Thalassiosira gravida*
- Thalassiosira grunowii***
-
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii***
- Thalassiosira jouseae***
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenica*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temporalis***
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Undetermined

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Core, section, interval (cm)

1417.D. 51x1w107

DATE: 15.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranticobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praeprupta var. praeprupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocæna
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminæ
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

20 → 9

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1417.D. 51x2w60

DATE: 15. 6 2013

OBSERVER'S NAME KONOVO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens*
- Actinocyclus ingens* f. *nodus*
- Actinocyclus ingens* f. *planus*
- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus robustus*
- Actinocyclus tugaruensis*
- Actinocyclus* spp.
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Actinoptychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae*
- Azpeitia nodulifera*
- Azpeitia oligocena*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus*
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-indis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis*
- Crucidentacula ikebei*
- Crucidentacula kanayae*
- Crucidentacula nicobarica*
- Crucidentacula paranicobarica*
- Crucidentacula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii*
- Delphineis surirella*
- Denticulopsis crassa*
- Denticulopsis dimorpha* var. *dimorpha*
- Denticulopsis dimorpha* var. *areolata*

- Denticulopsis hustedii*
- Denticulopsis hyalina*
- Denticulopsis katayamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha* var. *minor*
- Denticulopsis praedimorpha* var. *praedimorpha*
- Denticulopsis praehyalina*
- Denticulopsis praekatayamae*
- Denticulopsis praelauta*
- Denticulopsis simonsenii*
- Denticulopsis tanimurae*
- Denticulopsis vulgaris*
- Denticulopsis* spp.
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis* sp.
- Distephanosira architecturalis*
- Distephanosira* sp.
- Ellerbeckia sol*
- Ellerbeckia* sp.
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Eunotia* sp.
- Fragilaria construens*
- Fragilaria* sp.
- Fragilariopsis cylindrus*
- Fragilariopsis dollolus*
- Fragilariopsis fossilis*
- Fragilariopsis oceanica*
- Fragilariopsis plocena*
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis*
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis*
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna*
- Medlaria splendida*
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatica*
- Neodenticula kozumii*
- Neodenticula seminiae*
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae*
- Nitzschia palea*
- Nitzschia reinholdii*
- Nitzschia rolandii*
- Odontella aurita*
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol*
- Proboscia curvirostris*
- Proboscia interposita*
- Proboscia praebarbol*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriala*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae*
- Rhaphoneis amphiceros*

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praebergonii*
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica*
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii*
- Shionodiscus praeoestrupii*
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus*
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi*
- Thalassionema* spp.
- Thalassiosira antiqua*
- Thalassiosira bioculata*
- Thalassiosira castanea*
- Thalassiosira convexa*
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii*
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii*
- Thalassiosira jouseae*
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica*
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima*
- Thalassiosira miocena*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis*
- Thalassiosira temperi*
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei*
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Rads F

3 -> 10

Diatom zones (NPD)

NPD 8

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

Core, section, interval (cm)

1417. D 51 x 4 W 5

DATE: 15. 6. 2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatulus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboenensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimuriae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturata
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dololus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchiensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica
- Neodenticula koizumii
- Neodenticula seminae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barbot
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarbot
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidula zabelinae
- Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifultus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillariss
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderei
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamka
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

R 94

LO of N. kamts

R 3

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

3 → 16

Diatom zones (NPD)

NPD 8 or 7?

Core, section, interval (cm)

1417 P-JX-CC

DATE: 2013 June 13

OBSERVER'S NAME AKEMZ

TOTAL ABUNDANCE: M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON A (>10 valves/FOV), C (1-10 vlv/FOV) F (>1 vlv/10FOVs & <1 vlv/10FOVs) R (>3 vlv/traverse & <1 vlv/10FOVs) X (present), B (barren)

- Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia braidiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velustissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbotophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. minor
Eunotia praeupta var. praeupta
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Goniotheclium decoratum
Goniotheclium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumi
Neodenticula seminiae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Raphoneis amphicerus

- Rhizosolenia hebetata 1. hiemalis
Rhizosolenia hebetata 1. semispina
Rhizosolenia norvegica
Rhizosolenia praerbergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Steph sp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Handwritten notes: <1.0, >2.0, <3.0, >4.0

Handwritten notes: Rest. spores, Rhap. sp., Th. sp., open capula

Handwritten note: N. Kamtschatica X = 105.4 Y = 1.7

Handwritten notes: C. marginatus, 10050605

Chaeoceros Resting Spores 12
TOTAL of VEGETATIVE CELLS 100

Diatom zones (NPD)

NPD 7Bb?

Core, section, interval (cm)

1417. D(2x)W9

DATE:

15.6.2013

OBSERVER'S NAME

KOMMO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatulus
- Actinocyclus ellipticus
- Actinocyclus Ingens
- Actinocyclus Ingens f. nodus
- Actinocyclus Ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwini
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coccinodiscus asteromphalus
- Coccinodiscus marginatus
- Coccinodiscus oculus-iris
- Coccinodiscus radiatus
- Coccinodiscus rhombicus
- Coccinodiscus symbolophorus
- Cosmidiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praeupta var. praeupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dololus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchensis
- Kozloviella minor
- Lisitzinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamtschatica
- Neodenticula kozumii
- Neodenticula seminiae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barbot
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboti
- Pseudodimmerograma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyddicula zabelleae
- Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praeborgonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifidus
- Stephanopyxis dimorpha
- Stephanopyxis homidus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskioldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira temperlei
- Thalassiosira umaiensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Rads - sponge -

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1417. D 52X2w80

DATE: 15.6.2013

OBSERVER'S NAME KONOVA

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozioviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabellinae
Rhaphoneis amphiceros

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Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

3-20

Diatom zones (NPD)

undetermined

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1817. D. 52x3w85

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 15.6.2018

OBSERVER'S NAME KONDO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 viv/10FOVs & <1 viv/10FOVs)
R (>3 viv/traverse & <1 viv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus otonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozoviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 8?

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1412D-52X-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/13

OBSERVER'S NAME AKEMZ

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp. (B)
- Actinocyclus curvatus* (B)
- Actinocyclus ellipticus*
- Actinocyclus ingens*
- Actinocyclus ingens* f. *nodus*
- Actinocyclus ingens* f. *planus*
- Actinocyclus oculus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius* (B)
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinoptychus senarius* (B)
- Actinoptychus vulgaris* (B)
- Actinoptychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae*
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia velutissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus*
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum* (B)
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus* (B)
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus* (B)
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis*
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii*
- Delphineis surirella*
- Denticulopsis crassa*
- Denticulopsis dimorpha* var. *dimorpha*
- Denticulopsis dimorpha* var. *areolata*

- Denticulopsis hustedii*
- Denticulopsis hyalina*
- Denticulopsis katayamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha* var. *minor*
- Denticulopsis praedimorpha* var. *praedimorpha*
- Denticulopsis praehyalina*
- Denticulopsis praekatayamae*
- Denticulopsis praelauta*
- Denticulopsis simonsenii*
- Denticulopsis tanimurae*
- Denticulopsis vulgaris*
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii* (B)
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagilariopsis cylindrus*
- Flagilariopsis dololus*
- Flagilariopsis fossilis*
- Flagilariopsis oceanica*
- Flagilariopsis pilocena*
- Goniothecium decoratum*
- Goniothecium rogersii* (B)
- Grammatophora* spp. (B)
- Halamphora costata*
- Hyalodiscus obsoletus* (B)
- Hyalos* sp. (B)
- Ikebea tenuis* (B)
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis*
- Kozloviella minor*
- Lisitzinia ornata*
- Medleria magna*
- Medleria splendida*
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatka* (B)
- Neodenticula koizumii* (B)
- Neodenticula seminiae* (B)
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae* (B)
- Nitzschia palea*
- Nitzschia reinholdii*
- Nitzschia rolandii*
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi*
- Proboscia curvirostris*
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae*
- Raphoneis amphiceros* (B)

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praerbergonii*
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praeinitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica*
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii* (B)
- Shionodiscus praeoestrupii*
- Shionodiscus trifultus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus*
- Stephanopyxis turris*
- Thalassionema bacillaris* (B)
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum* (B)
- Thalassionema nitzschioides* var. *inflatum* (B)
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi* (B)
- Thalassiosira antiqua* (B)
- Thalassiosira bioculata*
- Thalassiosira castanea*
- Thalassiosira convexa*
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica* (B)
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii*
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii*
- Thalassiosira jouseae*
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica*
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima*
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis*
- Thalassiosira temporei*
- Thalassiosira umaoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei*
- Thalassiothrix longissima* (B)
- Trachyneis aspera*
- Yoshidaia divergens*

< 0.0
→ 1.0
< 2.0

Delph. sp. (B)

Th. sp. IEF (B)

Res. spore IEF (B)

Cyclotella sp. T (B)

Actinop. sp. IEF (B)

? sp. (B)

L x = 101.9 r = 1.3

Chaetoceros Resting Spores 13
TOTAL of VEGETATIVE CELLS 100

1093 T R (C. scutellum)
(A. senarius)

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/15

unidentified UY17D-53X-1, 69cm

OBSERVER'S NAME TSUKI

TOTAL ABUNDANCE: M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON A (>10 valves/FOV), C (1-10 vlv/FOV) F (>1 vlv/10FOVs & <1 vlv/10FOVs) R (>3 vlv/traverse & <1 vlv/10FOVs) X (present), B (barren)

- Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.

PARACHINODISCUS SP fragment +

R T 2

- Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. arsolata

- Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praeurupta var. praeurupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocenica
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudonitzschium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

R Thalassiosira antiqua - 1 (95.7, 14.6)

R Thalassiosira - 1

R Thalassiosira sp - 1

A Thalassiothrix longissima +

Chaetoceros Resting Spores TOTAL of VEGETATIVE CELLS

5.0 6.0 7.0 5.0 ->

184.2. 17.6

全通検鏡したよ

62

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

147D-53X-2W, 23cm

DATE: 2013/June/15

OBSERVER'S NAME /TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligogenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus micocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmioliscus insignis
- Crucidenticula ikebei
- Crucidenticula kanayae
- Crucidenticula nicobarica
- Crucidenticula paranicobarica
- Crucidenticula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praehyalina
- Denticulopsis praekatayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praepraeupta var. praepraeupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dolioleus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis plocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchiensis
- Kozloviella minor
- Lisztinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatka
- Neodenticula kozumil
- Neodenticula seminae
- Nitzschia challengerii
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barboi
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarboi
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceris

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norwegica
- Rhizosolenia praebergonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praecoestrupii
- Shionodiscus trifidulus
- Stephanopyxis dimorpha
- Stephanopyxis horridus
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillaris
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua (79.0, 6.7)
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregulara
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamica
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praeprae
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettae
- Thalassiosira singularis
- Thalassiosira tempera
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

Chaetoceros Resting Spores #F
TOTAL of VEGETATIVE CELLS 15

pyritolyse spore? 全面見下

Diatom zones (NPD)

NPD 090

Core, section, interval (cm)

147D - 53X - CC

DATE: 2013/June/13

OBSERVER's NAME AFEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* sp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens f. nodus**
- Actinocyclus ingens f. planus**
- Actinocyclus oculus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius* (R)
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* sp.
- Actinoplychus senarius* (R)
- Actinoplychus vulgaris*
- Actinoplychus* sp.
- Araniscus lewisianus*
- Araniscus* sp.
- Asteromphalus darwinii*
- Asteromphalus oligogenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* sp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* sp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* sp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* sp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* sp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum* (R)
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus* (R)
- Coscinodiscus oculus-tridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surirella*
- Denticulopsis crassa**
- Denticulopsis dimorpha var. dimorpha**
- Denticulopsis dimorpha var. areolata**

- Denticulopsis hustedii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- Denticulopsis praedimorpha var. minor**
- Denticulopsis praedimorpha var. praedimorpha**
- Denticulopsis praehyalina**
- Denticulopsis praekatayamae**
- Denticulopsis praelauta**
- Denticulopsis simonsenii**
- Denticulopsis tanimurae**
- Denticulopsis vulgaris**
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Distephanosira architecturalis*
- Ellerbeckia sol*
- Eunotia pectinalis var. minor*
- Eunotia praerupta var. praerupta*
- Fragilaria construens* (Ehrenberg) Grunow
- Flagiliariopsis cylindrus*
- Flagiliariopsis dololus**
- Flagiliariopsis fossilis**
- Flagiliariopsis oceanica*
- Flagiliariopsis plocena**
- Goniothecium decoratum*
- Goniothecium rogersii*
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Heala* sp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatica**
- Neodenticula kozumii**
- Neodenticula seminiae**
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Paralia sulcata*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmergramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae**
- Rhaphoneis amphiceros*

- Rhizosolenia hebetata f. hiemalis*
- Rhizosolenia hebetata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praeborgonii**
- Rhizosolenia setigera*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenilida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii** (R)
- Shionodiscus praeestrupii**
- Shionodiscus triflutus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Thalassionema bacillaris*
- Thalassionema nitzschioides* (R)
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum* (R)
- Thalassionema nitzschioides var. parvum* (R)
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi**
- Thalassiosira antiqua** (R)
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica* (R)
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata* (R)
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperi**
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei** (R)
- Thalassiothrix longissima*
- Trachyneis aspera*
- Yoshidaia divergens*

EO, 0
→ 1.0
← 2.0
→ 3.0

Chaetoceros Resting Spores 45
TOTAL of VEGETATIVE CELLS 100

Acc. sp. Thalassiothrix sp. (R) Rest. sp. (R) open copula
 (R) Thalassionema sp. (R)
 Delph. sp. (R)
 Th. sp. (R)
 Cyclotella sp. (R) (C. marginatus)

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 15. 6. 2013

OBSERVER'S NAME K. ONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsolitus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horrida
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1417. D. 55 x CC

DATE: 15. 6. 2013

OBSERVER's NAME RONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimuriae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturata
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praeborbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularia
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

5 -> 6

Diatom zones (NPD)

Unkelp Lined

TOTAL ABUNDANCE:
M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417.D.56xCC

TOTAL PRESERVATION
G (good), M (moderate), P (poor)

DATE: 15.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON
A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica
- Achnanthes inflata
- Achnanthes lanceolata
- Achnanthes lineariformis
- Achnanthes spp.
- Actinocyclus curvatus
- Actinocyclus ellipticus
- Actinocyclus ingens
- Actinocyclus ingens f. nodus
- Actinocyclus ingens f. planus
- Actinocyclus oculatus
- Actinocyclus ochotensis
- Actinocyclus octonarius
- Actinocyclus robustus
- Actinocyclus tsugaruensis
- Actinocyclus spp.
- Actinoptychus senarius
- Actinoptychus vulgaris
- Actinoptychus spp.
- Araniscus lewisianus
- Araniscus spp.
- Asteromphalus darwinii
- Asteromphalus oligocenicus
- Asteromphalus parvulus
- Asteromphalus robustus
- Asteromphalus spp.
- Azpeitia biradiata
- Azpeitia komurae
- Azpeitia nodulifera
- Azpeitia oligocenica
- Azpeitia praenodulifera
- Azpeitia salisburyana
- Azpeitia tabularis
- Azpeitia vetustissima
- Azpeitia spp.
- Bacterosira bathyomphala
- Bacterosira fragilis
- Bacterosira spp.
- Cavitatus exiguus
- Cavitatus jouseanus
- Cavitatus lanceolatus
- Cavitatus linearis
- Cavitatus miocenicus
- Cavitatus rectus
- Cavitatus spp.
- Cestodiscus kugleri
- Cestodiscus trochus
- Cestodiscus spp.
- Cocconeis californica
- Cocconeis costata
- Cocconeis scutellum
- Coscinodiscus asteromphalus
- Coscinodiscus marginatus
- Coscinodiscus oculus-iridis
- Coscinodiscus radiatus
- Coscinodiscus rhombicus
- Coscinodiscus symbolophorus
- Cosmodiscus insignis
- Crucidentacula ikebei
- Crucidentacula kanayae
- Crucidentacula nicobarica
- Crucidentacula paranicobarica
- Crucidentacula sawamurae
- Cyclotella striata
- Cyclotella meneghiniana
- Cymbella cistula
- Cymbella minuta
- Cymbella subaequalis
- Delphineis angustata
- Delphineis ischaboensis
- Delphineis kippae
- Delphineis sachalinensis
- Delphineis simonsenii
- Delphineis surirella
- Denticulopsis crassa
- Denticulopsis dimorpha var. dimorpha
- Denticulopsis dimorpha var. areolata

- Denticulopsis hustedii
- Denticulopsis hyalina
- Denticulopsis katayamae
- Denticulopsis lauta
- Denticulopsis praedimorpha var. minor
- Denticulopsis praedimorpha var. praedimorpha
- Denticulopsis praeahyalina
- Denticulopsis praeakayamae
- Denticulopsis praelauta
- Denticulopsis simonsenii
- Denticulopsis tanimurae
- Denticulopsis vulgaris
- Denticulopsis spp.
- Diploneis bombus
- Diploneis puella
- Diploneis smithii
- Diploneis suborbicularis
- Diploneis sp.
- Distephanosira architecturalis
- Distephanosira sp.
- Ellerbeckia sol
- Ellerbeckia sp.
- Eunotia pectinalis var. minor
- Eunotia praerupta var. praerupta
- Eunotia sp.
- Fragilaria construens
- Fragilaria sp.
- Fragilariopsis cylindrus
- Fragilariopsis dolioilus
- Fragilariopsis fossilis
- Fragilariopsis oceanica
- Fragilariopsis pilocena
- Fragilariopsis spp.
- Goniothecium decoratum
- Goniothecium rogersii
- Goniothecium spp.
- Grammatophora spp.
- Halamphora costata
- Hyalodiscus obsoletus
- Hyalodiscus spp.
- Ikebea tenuis
- Kisseleviella carina
- Kisseleviella ezoensis
- Kozumia tatsunokuchensis
- Kozloviella minor
- Lisizinia ornata
- Medlaria magna
- Medlaria splendida
- Melosira albicans
- Navicula elginensis
- Navicula lyroides
- Navicula menisculus
- Navicula salinarum
- Neodenticula kamschatka
- Neodenticula kozumil
- Neodenticula seminae
- Nitzschia challengeri
- Nitzschia cylindrica
- Nitzschia jouseae
- Nitzschia palea
- Nitzschia reinholdii
- Nitzschia rolandii
- Odontella aurita
- Paralia sulcata
- Paralia spp.
- Podosira stelligera
- Porosira glacialis
- Proboscia barbot
- Proboscia curvirostris
- Proboscia interposita
- Proboscia praebarbot
- Pseudodimmerogramma elegans
- Pseudonitzschia seriata
- Pseudopyxilla americana
- Pseudotriceratium radiosoreticulatum
- Pyxidicula zabelinae
- Rhaphoneis amphiceros

- Rhizosolenia hebetata f. hiemalis
- Rhizosolenia hebetata f. semispina
- Rhizosolenia norvegica
- Rhizosolenia praebergonii
- Rhizosolenia setigera
- Rhizosolenia spp.
- Roperia tessellata
- Rocella gelida
- Rocella praenitida
- Rocella semigelida
- Rocella vigilans
- Rouxia californica
- Rouxia granda
- Rouxia isopolica
- Rouxia naviculoides
- Rouxia obesa
- Shionodiscus oestrupii
- Shionodiscus praeoestrupii
- Shionodiscus trifolius
- Stephanopyxis dimorpha
- Stephanopyxis horrida
- Stephanopyxis turris
- Stephanopyxis spp.
- Thalassionema bacillariss
- Thalassionema nitzschioides
- Thalassionema nitzschioides var. incurvatum
- Thalassionema nitzschioides var. inflatum
- Thalassionema nitzschioides var. parvum
- Thalassionema pseudonitzschioides
- Thalassionema schraderi
- Thalassionema spp.
- Thalassiosira antiqua
- Thalassiosira bioculata
- Thalassiosira castanea
- Thalassiosira convexa
- Thalassiosira decipiens
- Thalassiosira dubiosa
- Thalassiosira eccentrica
- Thalassiosira fasciculata
- Thalassiosira fraga
- Thalassiosira gravida
- Thalassiosira grunowii
- Thalassiosira hyalina
- Thalassiosira irregularata
- Thalassiosira jacksonii
- Thalassiosira jouseae
- Thalassiosira leptopus
- Thalassiosira lineata
- Thalassiosira lusca
- Thalassiosira manifesta
- Thalassiosira marujamka
- Thalassiosira mediaconvexa
- Thalassiosira minutissima
- Thalassiosira miocenica
- Thalassiosira nordenskiöldii
- Thalassiosira orientalis
- Thalassiosira praefraga
- Thalassiosira praenidulus
- Thalassiosira praeyabei
- Thalassiosira robusta
- Thalassiosira sancettiae
- Thalassiosira singularis
- Thalassiosira temperlei
- Thalassiosira umaensis
- Thalassiosira undulosa
- Thalassiosira yabei
- Thalassiosira spp.
- Thalassiothrix longissima
- Thalassiothrix spp.
- Trachyneis aspera
- Trachyneis spp.
- Yoshidaia divergens
- Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

5 Ponget

R1 Nitzschia sp.

5-20

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 15.6.2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia prae-nodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella prae-nitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horrida
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderei
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira prae-fragra
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge -

20 → 3

Diatom zones (NPD)

NPD 7Bb?

Core, section, interval (cm)

1417, D. 58 x CC

DATE: 15.6.2013

OBSERVER'S NAME K. NNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenicus
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis homidus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicus
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Rads

Diatom zones (NPD)

Undetermined

Core, section, interval (cm)

14192-59X-CC

DATE: 2013/ June/15

OBSERVER'S NAME AFEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

nearly barren

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozioviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/16

W147D 60x-7W, 21 cm

OBSERVER'S NAME TSUKI

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabellinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1417D-60X-cc

DATE: 2013/June/15

OBSERVER'S NAME AFEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good)/M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes spp.*
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus Ingens*
- Actinocyclus Ingens f. nodus*
- Actinocyclus Ingens f. planus*
- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus spp.*
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Actinoptychus spp.*
- Araniscus lewisianus*
- Araniscus spp.*
- Asteromphalus darwinii*
- Asteromphalus oligogenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus spp.*
- Azpeitia biradiata*
- Azpeitia komurae*
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia spp.*
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira spp.*
- Cavitatus exiguus*
- Cavitatus jouseanus*
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus spp.*
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus spp.*
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis*
- Crucidentricula ikebei*
- Crucidentricula kanayae*
- Crucidentricula nicobarica*
- Crucidentricula paranicobarica*
- Crucidentricula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Delphineis angustata*
- Delphineis ischaboenis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii*
- Delphineis surirella*
- Denticulopsis crassa*
- Denticulopsis dimorpha var. dimorpha*
- Denticulopsis dimorpha var. areolata*

- Denticulopsis hustedii*
- Denticulopsis hyalina*
- Denticulopsis katayamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha var. minor*
- Denticulopsis praedimorpha var. praedimorpha*
- Denticulopsis praehyalina*
- Denticulopsis praekatayamae*
- Denticulopsis praelauta*
- Denticulopsis simonsenii*
- Denticulopsis tanimurae*
- Denticulopsis vulgaris*
- Denticulopsis spp.*
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis sp.*
- Distephanosira architecturalis*
- Distephanosira sp.*
- Ellerbeckia sol*
- Ellerbeckia sp.*
- Eunotia pectinalis var. minor*
- Eunotia praerupta var. praerupta*
- Eunotia sp.*
- Fragilaria construens*
- Fragilaria sp.*
- Fragilariopsis cylindrus*
- Fragilariopsis dollotus*
- Fragilariopsis fossilis*
- Fragilariopsis oceanica*
- Fragilariopsis pilocena*
- Fragilariopsis spp.*
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium spp.*
- Grammatophora spp.*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus spp.*
- Ikabea tenuis*
- Kisseleviella carina*
- Kisseleviella ozoensis*
- Kozumia tatsunokuchensis*
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna*
- Medlaria splendida*
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatkica*
- Neodenticula kozumii*
- Neodenticula seminiae*
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae*
- Nitzschia palea*
- Nitzschia reinholdii*
- Nitzschia rolandii*
- Odontella aurita*
- Paralia sulcata*
- Paralia spp.*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi*
- Proboscia curvirostris*
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia senata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabellinae*
- Rhaphoneis amphicerus*

- Rhizosolenia hebetata f. hiemalis*
- Rhizosolenia hebetata f. semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praebergonii*
- Rhizosolenia setigera*
- Rhizosolenia spp.*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica*
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii*
- Shionodiscus praeoestrupii*
- Shionodiscus trifidulus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus*
- Stephanopyxis turris*
- Stephanopyxis spp.*
- Thalassionema bacillarum*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides var. incurvatum*
- Thalassionema nitzschioides var. inflatum*
- Thalassionema nitzschioides var. parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi*
- Thalassionema spp.*
- Thalassiosira antiqua*
- Thalassiosira bioculata*
- Thalassiosira castanea*
- Thalassiosira convexa*
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii*
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii*
- Thalassiosira jouseae*
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica*
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima*
- Thalassiosira miocenic*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis*
- Thalassiosira temperel*
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei*
- Thalassiosira spp.*
- Thalassiothrix longissima*
- Thalassiothrix spp.*
- Trachyneis aspera*
- Trachyneis spp.*
- Yoshidaia divergens*
- Yoshidaia spp.*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

C. marginatus (1)

Diatom zones (NPD)

Barren

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

1417D-61X-CC

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE: 2013/June/15

OBSERVER'S NAME AKEM Z

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula parnicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeupta var. *praeupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis homidus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temporel
Thalassiosira umaciensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 16.6.2013

OBSERVER'S NAME KOMURO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsonii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pydicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoniensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 16. 6 2013

OBSERVER's NAME K O N U O

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvs/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praeurupta var. *praeurupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediana magna
Mediana splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboti
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

Core, section, interval (cm)

19170-628-CCP

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

DATE:

2013/June/15

OBSERVER'S NAME

AKEM J

RELATIVE ABUNDANCE of EACH TAXON

A (>10 vlv/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus Insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dollolus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis plocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae
Rhaphoneis amphicerus

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/June/15

OBSERVER'S NAME

AKEMZ

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

nearby Panca

K170-63X-CC

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
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Coscinodiscus asteromphalus
Coscinodiscus marginatus
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Delphineis simonsenii
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Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
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Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
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Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenuis
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Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
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Melosira albicans
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Neodenticula kamschatkica
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Paralia spp.
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Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
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Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 16.6.2013

OBSERVER'S NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

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Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens* f. *nodus
Actinocyclus Ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
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Araniscus lewisianus
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Thalassiosira minutissima
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Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperai
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
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Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undetermined

Core, section, interval (cm)

1417.D.65XCC

DATE: 16.6.2013

OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)

TOTAL PRESERVATION

G (good), M (moderate), P (poor)

RELATIVE ABUNDANCE of EACH TAXON

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X (present), B (barren)

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- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
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- Actinocyclus ellipticus*
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- Actinocyclus Ingens* f. *nodus*
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- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinoptychus senarius*
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- Actinoptychus* spp.
- Araniscus lewisianus*
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- Asteromphalus* spp.
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- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
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- Cavitatus exiguus*
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- Cyclotella striata*
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- Cymbella cistula*
- Cymbella minuta*
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- Denticulopsis dimorpha* var. *dimorpha*
- Denticulopsis dimorpha* var. *areolata*

- Denticulopsis hustedii*
- Denticulopsis hyalina*
- Denticulopsis katayamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha* var. *minor*
- Denticulopsis praedimorpha* var. *praedimorpha*
- Denticulopsis praehyalina*
- Denticulopsis praekatayamae*
- Denticulopsis praelauta*
- Denticulopsis simonsenii*
- Denticulopsis tanimurae*
- Denticulopsis vulgaris*
- Denticulopsis* spp.
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis* sp.
- Distephanosira architecturalis*
- Distephanosira* sp.
- Ellerbeckia sol*
- Ellerbeckia* sp.
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Eunotia* sp.
- Fragilaria construens*
- Fragilaria* sp.
- Fragilariopsis cylindrus*
- Fragilariopsis dollolus*
- Fragilariopsis fossilis*
- Fragilariopsis oceanica*
- Fragilariopsis plocena*
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis*
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis*
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna*
- Medlaria splendida*
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatka*
- Neodenticula kozumil*
- Neodenticula seminae*
- Nitzschia challengerii*
- Nitzschia cylindrica*
- Nitzschia jouseae*
- Nitzschia palea*
- Nitzschia reinholdii*
- Nitzschia rolandii*
- Odontella aurita*
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol*
- Proboscia curvirostris*
- Proboscia interposita*
- Proboscia praebarbol*
- Pseudodimmerograma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae*
- Rhaphoneis amphiceros*

- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praerbergonii*
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Roperia tessellata*
- Rocella gelida*
- Rocella praeintida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica*
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii*
- Shionodiscus praeeostrupii*
- Shionodiscus trifidus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus*
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Thalassionema bacillariss*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi*
- Thalassionema* spp.
- Thalassiosira antiqua*
- Thalassiosira bioculata*
- Thalassiosira castanea*
- Thalassiosira convexa*
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii*
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii*
- Thalassiosira jouseae*
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marjamica*
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima*
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis*
- Thalassiosira temperel*
- Thalassiosira umaicensis*
- Thalassiosira undulosa*
- Thalassiosira yabei*
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.



Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

4 Avlaco. sp. ?
R sponge -