

Diatom zones (NPD)

NPD 92

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 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 lewisiatus
Araniscus spp.
Asteromphalus darvinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidriata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jousseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobaria
Crucidenticula sawamurae
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonensis
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

closed asp. +

2.0

Core, section, interval (cm)

U1418A-1H-1W 102cm

TOTAL PRESERVATION:

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelaeta
Denticulopsis simonensis
Denticulopsis tamimurae
Denticulopsis vulgaris
Dentricolopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eurotia pectinalis var. minor
Eurotia praerupta var. *praerupta*
Eurotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilaria dollos
Fragilaria fossilis
Fragilaria oceanica
Fragilaria plicocena
Fragilaricopsis 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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praubarbei
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopediastrum americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Raphoneis amphiceros

Silica + Rads +

2.0

DATE: 2013/June/24

OBSERVER'S NAME: 175VK1

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 T
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenidida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii T
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides T
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infundibulum*
Thalassionema pseudonitzschioides
Thalassionema schradenii
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira biculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica T
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicica
Thalassiosira mediocconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiosira spp.
Thalassiothrix longissima T
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
 TOTAL OF VEGETATIVE CELLS

IEIEIE- 26
 100

Diatom-zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 18A 1H-2W 36 cm

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bivalvata
Azpeitia komurei
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidiscula ikabei
Crucidiscula kanayae
Crucidiscula nicobarica
Crucidiscula paranicobarica
Crucidiscula sawamuriae
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 praelata
Denticulopsis simonsenii
Denticulopsis tannimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia peclinaria var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolobus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalellidiscus obsoletus
Hyalellidiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kartschatica
Neodenticula kolzumii
Neodenticula seminas
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 praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013/June/24

OBSERVER's NAME: TSVIKI

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 norwegica***Rhizosolenia praesbergonii***Rhizosolenia setigera**Rhoperia tessellata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans***Rouxia californica***Rouxia granda**Rouxia isoploca**Rouxia naviculoides**Rouxia obesa***Shionodiscus oestrupii****Shionodiscus paeoestrupii***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 irregularis***Thalassiosira jacksonii****Thalassiosira jouseae***Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lucsa**Thalassiosira manifesta***Thalassiosira marujamica***Thalassiosira mediaconvexa***Thalassiosira minutissima***Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeybæi**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis***Thalassiosira temperata***Thalassiosira umaoiensis**Thalassiosira undulosa***Thalassiosira yabeli***Thalassiosira spp.**Thalassiothrix longissima**Thalassiothrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidiala divergens**Yoshidiala spp.*C *Chaetoceros Resting Spores*

TOTAL OF VEGETATIVE CELLS

closed

今野くんに 説明して
右の方に石を置くLF

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418.A 1H3W68

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
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.
Cavitas exiguus
Cavitas jouseanus
Cavitas lanceolatus
Cavitas linearis
Cavitas miocenicus
Cavitas rectus
Cavitas spp.
Cestodiscus kugleri
Cestodiscus trochus
Cesiodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurai
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 hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praeseta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellebeckia sol
Ellebeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praeerupta var. *praeerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeoides
Navicula meniscularis
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseanae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboli
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyridicula zabeliae
Raphoneis amphiceros

cycle sp +

closed capra

DATE: 24. 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)

R *Rhizosolenia hebetata* 1. *hiemalis* +
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia preebergoni
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
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
Thalassiosira schraderi
Thalassiosira spp.
Thalassiosira antiqua
Thalassiosira biculata
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores +

TOTAL of VEGETATIVE CELLS

71

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)**1418 A. 1HCC**TOTAL PRESERVATION**G (good), M (moderate), P (poor)
O

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidriata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocerica
Azpeitia praenidulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayaee
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawanuriae
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. *areoleta

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis leuta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praesdimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololutis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula karstschatica
Neodenticula kolzumii
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 barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia serata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 24.6.2013OBSERVER's NAME KONNO**RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 praebergoni
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 praeoestrupii
Shionodiscus trifultus
Stephanopxis dimorpha
Stephanopxis horridus
Stephanopxis turris
Stephanopxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaea divergens
Yoshidaea 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)

Almost BARREN

Achnanthes greenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitas exiguus
Cavitas jouseanus
Cavitas lanceolatus
Cavitas linearis
Cavitas miocenicas
Cavitas rectus
Cavitas spp.
Cestodiscus tugleri
Cestodiscus trochus
Ceslodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmodiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischabensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, interval (cm)

U1418A - 2H - CC

TOTAL PRESERVATION

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

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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Elterbeckia sol
Elterbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrata
Fragilarlopsis dollolus
Fragilarlopsis fossilia
Fragilarlopsis oceanica
Fragilarlopsis plicacea
Fragilarlopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumi
Neodenticula semina
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarböl
Pseudodimerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 28

OBSERVER's NAME TSVK

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 praebergoni
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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira schraderi
Thalassiosira 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 nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umacoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala 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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 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 oligoconica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Caviflatus exiguis
Caviflatus jousseanus
Caviflatus lanceolatus
Caviflatus linearis
Caviflatus miocenicus
Caviflatus rectus
Caviflatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Ceslodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolorhorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischabeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsoni
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, Interval (cm)

U1418A-3H-2W 16 cm

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplothele bombus
Diplothele puelia
Diplothele smithii
Diplothele suborbicularis
Diplothele spp.
Distephanosira architecturalis
Distephanosira spp.
Elterbeckia sol
Elterbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicacea
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Raphoneis amphiceros

DATE: 20/3/2025OBSERVER'S NAME ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praeaurita
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
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira biculata
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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjoramica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaeoceros 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)****U14/18A - 3H - 4W 60cm****TOTAL PRESERVATION**

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

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 tsugarvensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bivalvis
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawanurae
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. arsoletta

DATE: 2013 / June / 25**OBSERVER's NAME ITSUKI****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)

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 spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia declivis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Meiosira albicans
Navicula alginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula semina
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroli
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyridicula zabelinae
Raphoneis amphiceros
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargoni
Rhizosolenia seligera
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 praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *inflatum*
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
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 fusca
Thalassiosira manifesta
Thalassiosira manjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæi
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umiacensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala 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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidriata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavilatus exiguis
Cavilatus jousseanus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus reclus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Ceslodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellatum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorhus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurensis
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. arcuata

Core, section, interval (cm)

U1418A 3H-7W 4xcm

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katsuyamae
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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolotus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozumi
Neodenticula semihae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/25

OBSERVER's NAME ITSVKI

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengoni
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incavatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira biculata
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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediocconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeypabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidella divergens
Yoshidella spp.

Chaeoceros 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)Almost barren*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes spp.**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 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 fabularis**Azpeitia velutissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavatibus exiguus**Cavatibus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cavatitus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Coccoineis californica**Coccoineis costata**Coccoineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus Insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawanurensis**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphinella angustata**Delphinella ischabooensis**Delphinella kippae**Delphinella sachalinensis**Delphinella simonsenii**Delphinella surrella**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata*

Core, section, interval (cm)

VIV18A-3H-CC

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehtyalina
Denticulopsis praehtayamae
Denticulopsis praefulta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilia
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchiensis
Kozloviella minor
Lizitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kantschikata
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Podosira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelinae
Raphoneis amphiceros

DATE: 2013 / June / 24

OBSERVER's NAME ITSOKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 v/lvs/FOV)

F (>1 v/lv/10FOVs & <1 v/lv/10FOVs)

R (>3 v/lv/traverse & <1 v/lv/10FOVs)

X (present), B (barren)

Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia preebergoni
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paoeostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira schraderi
Thalassiosira 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 jouseana
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 praeybægi
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umacostata
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

(82.2.13.3)

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

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)

1418. A 4Hcc

TOTAL PRESERVATION

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

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. T
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidentata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenidulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis T
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus T
Coscinodiscus oculus-iridis
Coscinodiscus radiatus 正正正正正
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidiscula ikebei
Crucidiscula kanayae
Crucidiscula nicobarica
Crucidiscula paranicobarica
Crucidiscula 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. arsoleta

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplothele bombus
Diplothele puelia
Diplothele smithii
Diplothele suborbicularis
Diplothele spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota peclinialis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchensis
Kozumiella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula alginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kartschatica
Neodenticula kozumi
Neodenticula seminas 正正T-
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata ~
Paralia spp.
Podosira stelligera
Podosira glaciata
Proboscia barbolii
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbolii
Pseudodimorphogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 24.6.2013

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)

R 3 *Rhizosolenia hebetata* f. *hiemalis* T
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeburgonii
Rhizosolenia seligera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praelinita
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii T
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 T
Thalassiosira lineata
Thalassiosira lucsa
Thalassiosira manifesta
Thalassiosira manjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperat
Thalassiosira umiacensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp. 正正正一
Thalassiothrix longissima E-
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Chaetoceros Resting Spores EEEEEE

TOTAL of VEGETATIVE CELLS

sponge, F

closed copula?

* ? 全
 R Hemicaulus sp. - 18.2.18.1
 → SP.

21 ~ 5

2860

Diatom zones (NPD)

~~almost BARREN~~

TOTAL ABUNDANCE:

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

~~X~~ Fragments
TRACE

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes spp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens 1. nodus**Actinocyclus Ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugarvensis**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 velutissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavatitus exiguus**Cavatitus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cavatitus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Coccoineis californica**Coccoineis costata**Coccoineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**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)

UX18A - 5H - C

TOTAL PRESERVATION

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

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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
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
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Raphoneis amphiceros

DATE: 2013/June/24

OBSERVER's NAME: ITSUKI SUTO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 valves/FOV)

F (>1 vlv/10FOVs & <1 vlv/10FOVs)

R (>3 vlv/traverse & <1 vlv/10FOVs)

X (present), B (barren)

Rhizosolenia hebetata 1. *hiemalis**Rhizosolenia hebetata* 1. *semispina**Rhizosolenia norwegica**Rhizosolenia praebergoni**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 praesoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Stephanopyxis spp.**Thalassionema bacillaris**X Thalassionema nitzschiooides**Thalassionema nitzschiooides* var. *incurvatum**Thalassionema nitzschiooides* var. *inflatum**Thalassionema nitzschiooides* var. *parvum**Thalassionema pseudonitzschiooides**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 jouseana**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 sanctaeae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.**Thalassiothrix longissima**Thalassiothrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidai divergens**Yoshidai spp.*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge

Diatom zones (NPD)

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

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradialis
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jousseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus 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*

Core, section, interval (cm)

1418. A. 6Hce

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katsayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeyalina
Denticulopsis prakatsayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplolepis bombus
Diplolepis puelta
Diplolepis smithii
Diplolepis suborbicularis
Diplolepis spp.
Distaphanosira architecturalis
Distaphanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikoea tenuis
Kisseleviella carina
Kisseleviella exozensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 24.6.2018

OBSERVER's NAME Konno

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia seligera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoploca
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 irregularis
Thalassiosira jacksonii
Thalassiosira joussea
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 sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sp. no. -

Diatom zones (NPD)**BARREN****TOTAL ABUNDANCE:**

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

TRACE

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 sugaruensis
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 oligocerica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jousseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidicula ikebei
Crucidicula kanayae
Crucidicula nicobarica
Crucidicula paranicobarica
Crucidicula sawanurae
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)**U1418A - 7H-CC****TOTAL PRESERVATION**

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


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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia peclinialis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Meiosira albicans
Navicula alginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschikatza
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearboei
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013/July/24**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)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia seligera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira schraderi
Thalassiosira 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 joussea
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 praeybæli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

X *Chaetoceros Resting Spores*
 TOTAL of VEGETATIVE CELLS

sponge +

Diatom zones (NPD)

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

trace

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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavilatus exiguis
Cavilatus jouseae
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cavilatus spp.
Ceslodiscus kugleri
Ceslodiscus trochus
Ceslodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayaiae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonensis
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *arooluta

Core, section, interval (cm)

1418 A. 8HCC

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis fausta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelauta
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheleis bombus
Diplotheleis pulla
Diplotheleis smithii
Diplotheleis suborbicularis
Diplotheleis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilariaopsis dololus
Fragilariaopsis fossils
Fragilariaopsis oceanica
Fragilariaopsis placentae
Fragilariaopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuila
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
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 interposta
Proboscia praearbarol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelinea
Raphoneis amphiceros

DATE: 24. 6. 2013

OBSERVER's NAME KOMPO

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira biculata
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkielii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

* sponge

Diatom zones (NPD)

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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurea
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitas exiguus
Cavitalus jousseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cavitas spp.
Cestodiscus kugleri
Cestodiscus irochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surrella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)
1418.4, 9H2W 80

DATE: 25.6.2013

OBSERVER's NAME KONRAD

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 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Ropera tesselata
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
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira biculata
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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira manujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporel
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge 1

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)**

1418.A.9-12W85

TOTAL PRESERVATION

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

DATE: 25. 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 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus 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.
Cavatitus exiguis
Cavatitus jousseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus 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
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischabooensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

X COTCO. SP

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeschiarella
Denticulopsis praeplatyamea
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellebeckia sol
Ellebeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztinyia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kantschikata
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis 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)

X Rhizosolenia hebetata 1. hiemalis T
Rhizosolenia hebetata 1. semispina
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paeoestrupii
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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marumajica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

SPONGE +

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

F - C

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus F
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. *nodus*
Actinocyclus Ingens 1. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius —
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
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.
Cavatula exigua
Cavatula jousseaumii
Cavatula lanceolatus
Cavatula linearis
Cavatula miocenicus
Cavatula reclus
Cavatula 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 ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobaria
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonensis
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *arcuata*

Core, section, interval (cm)

U1478A-9H-2W 14Xcm

TOTAL PRESERVATION:

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

C

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheleis bombus
Diplotheleis puella
Diplotheleis smithii
Diplotheleis suborbicularis
Diplotheleis spp.
Distaphanosira architecturalis
Distaphanosira spp.
Elterbeckia sol
Elterbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praeerupta var. *praeerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilariaopsis dolilosa
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis plocena
Fragilariaopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp. —
Halamphora costata
Hyalodiscus obsoletus —
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezenensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liztinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jousseaumii
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata F
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreliculatum
Pyxidicula zabelinae
Raphoneis amphiceros

C 37 F

(R) + Nitzschia grunowii

(81.0, X.3)

F 14 F

DATE: 2013 / June 125

OBSERVER's NAME TSVCI

RELATIVE ABUNDANCE of EACH TAXON

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

R 9

Rhizosolenia hebetata f. *hiemalis* F
Rhizosolenia hebetata f. *semispina*

*Rhizosolenia norwegica****Rhizosolenia praesbergoni****Rhizosolenia setigera**Rhizosolenia* spp.*Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigledia**Rocella vigilans****Rouxia californica****Rouxia granda**Rouxia isopatica**Rouxia naviculoides**Rouxia obesa****Shionodiscus oestrupii*** F***Shionodiscus praeoestrupii****Shionodiscus trifolius* —*Stephanopyxis dimorpha****Stephanopyxis horridus****Stephanopyxis turris**Stephanopyxis* spp. F*Thalassionema bacillaris****Thalassionema nitzschiooides*** F*Thalassionema nitzschiooides* var. *incurvatum**Thalassionema nitzschiooides* var. *inflatum**Thalassionema pseudonitzschiooides****Thalassionema schraderi****Thalassionema* spp.***Thalassiosira antiqua****Thalassiosira bicostata****Thalassiosira castanea******Thalassiosira convexa****Thalassiosira decipiens**Thalassiosira dubiosa****Thalassiosira eccentrica*** F*Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida****Thalassiosira grunowii****Thalassiosira hyalina**Thalassiosira irregularis****Thalassiosira jacksonii******Thalassiosira jousseaumii*** F*Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta****Thalassiosira manjamicana*** —*Thalassiosira mediacoconvexa* —***Thalassiosira minutissima****Thalassiosira miocenica**Thalassiosira nordenskioldii* —*Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeybabei**Thalassiosira robusta**Thalassiosira sanctiae****Thalassiosira singularis******Thalassiosira temperata****Thalassiosira umaoiensis**Thalassiosira undulosa****Thalassiosira yabeli****Thalassiosira* spp. F*Thalassiothrix longissima* —*Thalassiothrix* spp.*Trachyneis aspera**Trachyneis* spp.*Yoshidaiia divergens**Yoshidaiia* spp.*Dino* +*Chaetoceros Resting Spores*TOTAL of VEGETATIVE CELLS

100

45 55
← → ←
4.0 5.0 6.0

Diatom zones (NPD)

NPD/2

TOTAL ABUNDANCE:

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

Core, section, Interval (cm)

UYX18A 9H - NW 60cm

TOTAL PRESERVATION

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

Achnanthes groenlandica
 Achnanthes inflata
 Achnanthes lanceolata
 Achnanthes lineariformis
 Achnanthes spp.
 Actinocyclus curvatus ~~RETF~~
 Actinocyclus ellipticus
 Actinocyclus ingens
 Actinocyclus ingens 1. 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 darwini
 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.
 Cavatula exigua
 Cavatula jouseanaus
 Cavatula lanceolatus
 Cavatula linearis
 Cavatula miocenicus
 Cavatula rectus
 Cavatula spp.
 Cestodiscus kugleri
 Cestodiscus trochus
 Cestodiscus spp.
 Cocconeis californica
 Cocconeis costata
 Cocconeis scutellum
 Coscinodiscus asteromphalus ~~E~~ (905, 3.2)
 Coscinodiscus marginatus
 Coscinodiscus oculus-iridis
 Coscinodiscus radiatus
 Coscinodiscus rhombicus
 Coscinodiscus symbolophorus
 Cosmoldiscus insignis
 Crucidenticula ikabei
 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 surirella
 Denticulopsis crassa
 Denticulopsis dimorpha var. dimorpha
 Denticulopsis dimorpha var. areolata

Denticulopsis hastedti
 Denticulopsis hyalina
 Denticulopsis katsayamae
 Denticulopsis lauta
 Denticulopsis praedimorpha var. minor
 Denticulopsis praedimorpha var. praedimorpha
 Denticulopsis praehyalina
 Denticulopsis praekatayamae
 Denticulopsis praelauta
 Denticulopsis simonsenii
 Denticulopsis tanimurae
 Denticulopsis vulgaris
 Deniculopsis spp.
 Diplolepis bombus
 Diplolepis puella
 Diplolepis smithii
 Diplolepis suborbicularis
 Diplolepis spp.
 Distephanostra architecturalis
 Distephanostra spp.
 Ellerbeckia sol
 Ellerbeckia spp.
 Eunotia pectinalis var. minor
 Eunotia praerupta var. praerupta
 Eunotia spp.
 Fragilaria construens
 Fragilaria spp.
 Fragilariopsis cylindrus
 Fragilariopsis dolilus
 Fragilariopsis fossili
 Fragilariopsis oceanica
 Fragilariopsis plicena
 Fragilariopsis spp.
 Goniothecium decoratum
 Goniothecium rogersii
 Goniothecium spp.
 Grammatophora spp. —
 Halamphora costata
 Hyalodiscus obsoletus ~~T~~
 Hyalodiscus spp.
 Ikebea tenuis
 Kisieleviella carina
 Kisieleviella ezoensis
 Koizuma tatsunokuchiensis
 Koziolviella minor
 Lisitznia ornata
 Mediaria magna
 Mediaria splendida
 Melosira albicans
 Navicula elginiensis
 Navicula lyroides
 Navicula menisculus
 Navicula salinarum
 Neodenticula kamtschatkae
 Neodenticula koizumi
 Neodenticula seminae
 Nitzschia challengerii
 Nitzschia cylindrica
 Nitzschia jouseae
 Nitzschia palea
 Nitzschia reinholdii
 Nitzschia rolandii
 Odontella aurita
 Paralia sulcata
 Paralia spp.
 Podosira stelligera
 Podosira glacialis
 Proboscia barbol
 Proboscia curvirostris
 Proboscia interposita
 Proboscia praearbarol
 Pseudodimorpha elegans
 Pseudonitzschia seriata
 Pseudopyxilla americana
 Pseudotriceratium radiosoreticulatum
 Pyxidicula zabelinae
 Rhaphoneis amphiceros

closed wpt +

Rads + sponge +

Crypto +

5.2 3.7 4.2

42 88

DATE: 2013 / June / 25

OBSERVER's NAME ITSUKI

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)

(R) 9 Rhizosolenia hebetata 1. hemalis ~~TF~~
 Rhizosolenia hebetata 1. semispina

Rhizosolenia norwegica

Rhizosolenia praebengtsonii

Rhizosolenia setigera

Rhizosolenia spp.

Roperia tesselata

Rocella gelida

Rocella praeinida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii ~~TF~~

Shionodiscus praeoestrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Stephanopyxis spp. ~~TF~~

Thalassionema bacillaris

Thalassionema nitzschioides ~~TF~~

Thalassionema nitzschioides var. incurvatum

Thalassionema nitzschioides var. inflatum

Thalassionema nitzschioides var. parvum

Thalassionema pseudonitzschioides

Thalassiosira schraderi

Thalassiosira 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 ~~TF~~

Thalassiosira lineata

Thalassiosira lucsa

Thalassiosira manifesta

Thalassiosira marjamica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeabal

Thalassiosira robusta

Thalassiosira sanctae

Thalassiosira singularis

Thalassiosira temperata

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabel

Thalassiosira spp. ~~TF~~Thalassiothrix longissima ~~TF~~

Trachyneis aspera

Trachyneis spp.

Yoshidai divergens

Yoshidai spp.

1 Th. cf. brunii -

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

100

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 spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurea
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salsburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguis
Cavitatus jousseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobaria
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonsenii
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

141B, A, 9H 6w48

TOTAL PRESERVATION

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

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.
Diplothele bombus
Diplothele puella
Diplothele smithii
Diplothele suborbicularis
Diplothele spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicena
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
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminaea
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 25.6.2013

OBSERVER's NAME Konnu

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupil
Shionodiscus praeostrupil
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *inflatum*
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
Thalassiosira schraderi
Thalassiosira spp.
Thalassiosira antiqua
Thalassiosira biculata
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 joussea
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 sanctae
Thalassiosira singularis
Thalassiosira temperali
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
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)

Core, section, interval (cm)

WY18A - 9H-C

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

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 komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguus
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidiscula ikebei
Crucidiscula kanayae
Crucidiscula nicobarica
Crucidiscula paranicobarica
Crucidiscula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella 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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Elterbeckia sol
Elterbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kermitschatica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarboi
Pseudodimmerogramma elegans
Pseudonitzschia serata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxis zabelinae
Raphoneis amphiceros

DATE: 2013/June/24

OBSERVER's NAME /TSV/KI/

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infundibulum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassiosira schraderi
Thalassiosira 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 nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala 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)

Core, section, interval (cm)

140A.1° HZW10

TOTAL PRESERVATION

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

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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobaria
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatsuyamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puello
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilarlopsis cylindrus
Fragilarlopsis dololls
Fragilarlopsis fossillis
Fragilarlopsis oceanica
Fragilarlopsis plicena
Fragilarlopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozlovella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumi
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 praearborai
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 25.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 valves/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 praesbergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
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
Thalassiosira schraderi
Thalassiosira 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 miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPP12

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 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 lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguus
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis 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 sawanurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonensis
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, Interval (cm)

14/8. A 10H 3W/10

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praesauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilaria dolichus
Fragilaria fossilis
Fragilaria oceanica
Fragilaria plocamea
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyrides
Navicula seminculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozumi
Neodenticula seminae 正正正正
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata 正正正
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyridicula zabeliae
Raphoneis amphiceros

DATE: 25.6.2013OBSERVER'S NAME KORNU

RELATIVE ABUNDANCE of EACH TAXON

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

R *Rhizosolenia hebetata* f. *hiemalis* E/F
R *Rhizosolenia hebetata* f. *semispina*
Rhizosolenia norwegica
R *Rhizosolenia praebergoni*
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
R *Rouxia californica*
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
R *Shionodiscus oestrupii* T
R *Shionodiscus praecostrupii*
Shionodiscus trifultus
Stephanopyxis dimorpha
R *Stephanopyxis horridus*
Stephanopyxis turris
R *Stephanopyxis* spp. F/T
R *Thalassionema bacillaris*
R *Thalassionema nitzschioides* T
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
R *Thalassionema schraderi*
Thalassionema spp.
R *Thalassiosira antiqua*
Thalassiosira bioculata
R *Thalassiosira castanea*
R *Thalassiosira convexa*
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
R *Thalassiosira grunowii*
Thalassiosira hyalina
Thalassiosira irregularis
R *Thalassiosira jacksonii*
R *Thalassiosira jouseae*
Thalassiosira leptopus E
Thalassiosira lineata
Thalassiosira lucsa
Thalassiosira manifesta
R *Thalassiosira manujamica*
Thalassiosira medaconvexa
R *Thalassiosira minutissima*
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
R *Thalassiosira singularis*
R *Thalassiosira temporalis*
Thalassiosira umaoensis
Thalassiosira undulosa
R *Thalassiosira yabeli*
R *Thalassiosira* spp. E/F
R *Thalassiothrix longissima* T
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

C
Chaetoceros Resting Spores 正正正正正正正正
TOTAL of VEGETATIVE CELLS

*closed capitate**silico - pads -**sponge* T*nanopl*

z ~ S

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
 Achnanthes spp.
R 2 Actinocyclus curvatus T
 Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
 Actinocyclus ochotensis
 Actinocyclus octonarius
 Actinocyclus robustus
 Actinocyclus tsugaruensis
 Actinocyclus spp.
 Actinoplychus senarius
 Actinoplychus vulgaris
 Actinoplychus spp.
 Araniscus lewisanus
 Araniscus spp.
 Asteromphalus darwinii
 Asteromphalus oligocenicus
 Asteromphalus parvulus
 Asteromphalus robustus
 Asteromphalus spp.
 Azpeitia biradiata
R 1 Azpeitia komurae -
 Azpeitia nodulifera
 Azpeitia oligocenica
 Azpeitia praenodulifera
 Azpeitia salisburyana
 Azpeitia tabularis
 Azpeitia velutissima
 Azpeitia spp.
 Bacterosira bathyomphala
 Bacterosira fragilis
 Bacterosira spp.
 Cavifatus exiguis
Cavifatus jousseanus
 Cavifatus lanceolatus
 Cavifatus linearis
 Cavifatus miocenicus
 Cavifatus rectus
 Cavifatus spp.
 Cestodiscus kugleri
 Cestodiscus trochus
 Cestodiscus spp.
 Cocconeis californica
X Cocconeis costata *
 Cocconeis scutellum
X 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 simonensis
 Delphineis surrella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

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76
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Core, section, interval (cm)

U1418A - 10H-YW 40 cm

TOTAL PRESERVATION

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

Denticulopsis hustedtii
 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
 Denticulopsis spp.
 Diplolepis boribus
 Diplolepis puella
 Diplolepis smithii
 Diplolepis suborbicularis
 Diplolepis spp.
 Distephanosira architecturalis
 Distephanosira spp.
 Ellerbeckia sol
 Ellerbeckia spp.
 Eunotia pectinalis var. minor
 Eunotia praerupta var. praerupta
 Eunotia spp.
 Fragilaria construens
 Fragilaria spp.
 Fragilariopsis cylindrus
Fragilariopsis dolikos
Fragilariopsis fossili
 Fragilariopsis oceanica
Fragilariopsis pilocema
 Fragilariopsis spp.
 Goniothecum decoratum
 Goniothecum rogersii
 Goniothecum spp.
 Grammatophora spp.
 Halamphora costata -
Hyalodiscus obsoletus -
 Hyalodiscus spp.
Ikeba tenuis
 Kisselviella carina
 Kisselviella ezoensis
Kolzumia tatsunokuchiensis
 Kolzumia minor
 Lisitzinia ornata
Mediaria magna
Mediaria splendida
 Melosira albicans
 Navicula elginiensis
 Navicula lyraeides
 Navicula menisculus
 Navicula salinarum
Neodenticula kamschatkica
Neodenticula kolzumi
Neodenticula seminaiae EEEEEET
 Nitzschia challengerii
 Nitzschia cylindrica
Nitzschia joussea
 Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundii
Odontella aurita T
 Paralia sulcata EEET
 Paralia spp.
 Podosira stelligera
 Porosira glacialis
Proboscia barbol
Proboscia curvirostris
 Proboscia interposita
 Proboscia praearbol
 Pseudodimorpha elegans
 Pseudonitzschia seriata
 Pseudopyxilla americana
 Pseudoriceratium radiosoreticulatum
Pyrdicula zabelinae
 Rhaphoneis amphiceros

Dinos +
 Crypt +

DATE: 2013 / June / 25

OBSERVER'S NAME ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

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

R 2 Rhizosolenia hebetata f. hiemalis T
 Rhizosolenia hebetata f. semispina
 Rhizosolenia norwegica
Rhizosolenia praebengtsonii
 Rhizosolenia setigera
 Rhizosolenia spp.
 Roperia tessellata
 Rocella gelida
 Rocella praenitida
 Rocella semigelida
 Rocella vigilans
Rouxa californica
 Rouxa granda
 Rouxa isopolica
 Rouxia naviculoides
 Rouxia obesa
R 3 Shionodiscus oestrupii F
Shionodiscus praesostrupi
R 1 Shionodiscus trifultus -
 Stephanopyxis dimorpha
Stephanopyxis horridus
 Stephanopyxis turris
R 7 Stephanopyxis spp. III T
 Thalassionema bacillans
R 9 Thalassionema nitzschioides EEF
 Thalassionema nitzschioides var. incurvatum
 Thalassionema nitzschioides var. inflatum
 Thalassionema nitzschioides var. parvum
 Thalassionema pseudonitzschioides
Thalassionema schraderi
 Thalassionema spp.
Thalassiosira antiqua -
 Thalassiosira biculata
Thalassiosira castanea
Thalassiosira convexa
 Thalassiosira decipiens
 Thalassiosira dubiosa
R 8 Thalassiosira eccentrica TE T
 Thalassiosira fasciculata
 Thalassiosira fraga
 Thalassiosira gravida
Thalassiosira grunowii
 Thalassiosira hyalina
 Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira joussea
R 4 Thalassiosira leptopus T
 Thalassiosira lineata
 Thalassiosira lusca
 Thalassiosira manifesta
Thalassiosira marujamica
 Thalassiosira mediaconvexa
Thalassiosira minutissima
 Thalassiosira miocenica
 Thalassiosira nordenskioldii
 Thalassiosira orientalis
 Thalassiosira praefraga
 Thalassiosira praenidulus
 Thalassiosira praeybabei
 Thalassiosira robusta
 Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
 Thalassiosira umaoiensis
 Thalassiosira undulosa
Thalassiosira yabel
 Thalassiosira spp. -
Thalassiothrix longissima -
 Thalassiothrix spp.
 Trachyneis aspera
 Trachyneis spp.
 Yoshidaiia divergens
 Yoshidaiia spp.

R 1 Chaetoceros Resting Spores
 TOTAL OF VEGETATIVE CELLS

101 EEEEEET EEEEEET EEEEEET EEEEEET EEEEEET
 100

Diatom zones (NPD)**BAREN****TOTAL ABUNDANCE:**M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)**Core, section, Interval (cm)**U1418A-10H-6 W 40cm**TOTAL PRESERVATION**

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidentata
Azpeitia komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira balthyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguus
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis 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
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surrella
Dentoculopsis crassa
Dentoculopsis dimorpha var. *dimorpha*
Dentoculopsis dimorpha var. *areolata*

Dentoculopsis hustedtii
Dentoculopsis hyalina
Dentoculopsis katayamiae
Dentoculopsis lauta
Dentoculopsis praedimorpha var. *minor*
Dentoculopsis praedimorpha var. *praedimorpha*
Dentoculopsis praeyalina
Dentoculopsis praekatayamiae
Dentoculopsis praesauta
Dentoculopsis simonsenii
Dentoculopsis tanimurae
Dentoculopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilaria dolikos
Fragilaria fossilis
Fragilaria oceanica
Fragilaria pilocema
Fragilaria 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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkica
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 barbata
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelinae
Raphoneis amphiceros

DATE: 2013 / June 125

OBSERVER's NAME TSVKI**RELATIVE ABUNDANCE OF EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 praesbergonii
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 ostrupii
Shionodiscus praesostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bloculata
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 manujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Sponge Ti

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)

14/18 A. 10HCC

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

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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorphus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonsenii
Delphinis 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 prakatayamae
Denticulopsis praeseta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolikos
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obscurus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia serata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Raphoneis amphiceros

DATE: 24.6.2013

OBSERVER's NAME KONNU

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia ispolica
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
Thalassiosira schraderi
Thalassiosira 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 lucsa
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

ECE.7 BARREN

Core, section, interval (cm)

UT18A - 11H-1W, 50cm

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/25
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)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis crassa</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis dimorpha</i> var. <i>areolata</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis hustedtii</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis hyalina</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis katalayamae</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis lauta</i>
<i>Actinocyclus ingens</i> f. <i>nodus</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>
<i>Actinocyclus ingens</i> f. <i>planus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis praehyalina</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis pækatayamae</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis paelauta</i>
<i>Actinocyclus robustus</i>	<i>Denticulopsis simonsenii</i>
<i>Actinocyclus tsugaruensis</i>	<i>Denticulopsis tamurae</i>
<i>Actinoplychus senarius</i>	<i>Denticulopsis vulgaris</i>
<i>Actinoplychus vulgaris</i>	<i>Diploneis bombus</i>
<i>Araniscus lewisianus</i>	<i>Diploneis puella</i>
<i>Asteromphalus darwinii</i>	<i>Diploneis smithii</i>
<i>Asteromphalus oligocenicus</i>	<i>Diploneis suborbicularis</i>
<i>Asteromphalus parvulus</i>	<i>Distephanosira architecturalis</i>
<i>Asteromphalus robustus</i>	<i>Ellerbeckia sol</i>
<i>Azpeitia biradiata</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>
<i>Azpeitia komurae</i>	<i>Eunotia praerupta</i> var. <i>praerupta</i>
<i>Azpeitia nodulifera</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow
<i>Azpeitia oligocenica</i>	<i>Flagilariopsis cylindrus</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis dolichos</i>
<i>Azpeitia salisburyana</i>	<i>Fragilariopsis fossils</i>
<i>Azpeitia tabularis</i>	<i>Fragilariopsis oceanica</i>
<i>Azpeitia vetustissima</i>	<i>Fragilariopsis pilicena</i>
<i>Bacteriosira balthymophala</i>	<i>Goniothecium decoratum</i>
<i>Bacteriosira fragilis</i>	<i>Goniothecium rogersii</i>
<i>Cavatulus exiguus</i>	<i>Halamphora costata</i>
<i>Cavatulus jousseaumei</i>	<i>Hyalodiscus obsoletus</i>
<i>Cavatulus lanceolatus</i>	<i>Ikebea tenuis</i>
<i>Cavatulus linearis</i>	<i>Kisseleviella carina</i>
<i>Cavatulus miocenicus</i>	<i>Kisseleviella ezoensis</i>
<i>Cavatulus rectus</i>	<i>Kolzumia tatsunokuchiensis</i>
<i>Cestodiscus kugleri</i>	<i>Kozloviella minor</i>
<i>Cestodiscus trochus</i>	<i>Lisitzinia ornata</i>
<i>Coccoeis californica</i>	<i>Medilaria magna</i>
<i>Coccoeis costata</i>	<i>Medilaria splendida</i>
<i>Coccoeis scutellum</i>	<i>Melosira albicans</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula elginensis</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula lyraeides</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Navicula menisculus</i>
<i>Coscinodiscus radiatus</i>	<i>Navicula salinarum</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula kamtschatkae</i>
<i>Coscinodiscus symbolorophus</i>	<i>Neodenticula kolzumii</i>
<i>Cosmoldiscus insignis</i>	<i>Neodenticula seminae</i>
<i>Crucidicula ikebei</i>	<i>Nitzschia challengeri</i>
<i>Crucidicula kanayae</i>	<i>Nitzschia cylindrica</i>
<i>Crucidicula nicobarica</i>	<i>Nitzschia jousseaumei</i>
<i>Crucidicula paranicobarica</i>	<i>Nitzschia palea</i>
<i>Crucidicula sawamurensis</i>	<i>Nitzschia reinholdii</i>
<i>Cyclotella striata</i>	<i>Nitzschia rolandii</i>
<i>Cyclotella meneghiniana</i>	<i>Odontella aurita</i>
<i>Cymbella cistula</i>	<i>Paralia sulcata</i>
<i>Cymbella minuta</i>	<i>Podosira stelligera</i>
<i>Cymbella subaequalis</i>	<i>Porosira glacialis</i>
<i>Delphineis angustata</i>	<i>Proboscia barbol</i>
<i>Delphineis ischaboensis</i>	<i>Proboscia curvirostris</i>
<i>Delphineis kippae</i>	<i>Proboscia interposita</i>
<i>Delphineis sachalinensis</i>	<i>Proboscia praearbarboi</i>
<i>Delphineis simonsenii</i>	<i>Pseudodimerogetrum elegans</i>
<i>Delphineis surirella</i>	<i>Pseudonitzschia seriata</i>
	<i>Pseudopyxilla americana</i>
	<i>Pseudotriceratium radiosoreticulatum</i>
	<i>Pyxidicula zabeliae</i>
	<i>Raphoneis amphiceros</i>

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BAQREN

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1X18A 11H-2W 120cm

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus engens
Actinocyclus engens f. nodus
Actinocyclus engens 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
Cavitalus exiguus
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trachus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicoberica
Crucidenticula paranicoberica
Crucidenticula sawamureae
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 hustedi
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Dislephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liszitinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porsiira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 2031 June (25)

OBSERVER'S NAME ITSVK1

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praebargentii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 manjumica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidai divergens

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)

Fragment myc.

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 lewisiensis
Asteromphalus darwini
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
Cavatula exigua
Cavatula jouseanaus
Cavatula lanceolatus
Cavatula linearis
Cavatula miocenicus
Cavatula rectus
Cestodiscus kugleri
Cestodiscus trachus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
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)

U1418A.11H-3W, +10 cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praeplatyamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Listizinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
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
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratum radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/25

OBSERVER's NAME ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Ropelia tessellata
Roella gelida
Roella praenitida
Roella semigelida
Roella 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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 112

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

USS18A - 11H - 4W, 100 cm

TOTAL PRESERVATION

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

DATE: 2013/June/25

OBSERVER'S NAME ITSVK 1

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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* **Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus lsugaruensis**Actinoprychus senarius**Actinoprychus 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**Cavatitus exiguus**Cavatitus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Ceslodiscus kugleri**Ceslodiscus trochus**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crudenticula ikebei**Crudenticula kanayae**Crudenticula nicobarica**Crudenticula paranicobarica**Crudenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischabensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonisenii**Delphineis surrella**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katoryamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praeplatyamiae**Denticulopsis praelauta**Denticulopsis simonisenii**Denticulopsis tamurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puelia**Diploneis smithii**Diploneis suborbicularis**Distephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilariopsis dololus**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis pilocena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Listiznia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginiensis**Navicula lyraoides**Navicula menisculus**Navicula salinarum**Neodenticula kamschatkae**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseana**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glaciais**Proboscia barbol**Proboscia curvirostris* * (90.8, 5.0)*Proboscia interposita**Proboscia praebarbol**Pseudodimerogetria elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros**Sp. resting spores**Trachyneis aspera**Thalassiosira marjoramica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira nicienica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaea divergens*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge +

全图见下 curvirostris 12.17

Diatom zones (NPD)

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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. *nodus*
Actinocyclus ingens 1. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoplychus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
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.
Cavatus exiguus
Cavatus jouseanus
Cavatus lanceolatus
Cavatus linearis
Cavatus miocenicus
Cavatus rectus
Cavatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccoein scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus insignis
Crucidentula ikebei
Crucidentula kanayae
Crucidentula nicobarica
Crucidentula paranicobaria
Crucidentula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonsenii
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1918-114-CC

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplolepis bombus
Diplolepis puelia
Diplolepis smithii
Diplolepis suborbicularis
Diplolepis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolllus
Fragilariopsis fossili
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozumiella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinboldii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudotaxydium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013/June/24

OBSERVER's NAME ADEMIZ

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengoni
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
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. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassiosira schraderi
Thalassiosira 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)*Bauer***TOTAL ABUNDANCE:**

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

Core, section, interval (cm)

1418A - 13H - 1, 54 cm

TOTAL PRESERVATION

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

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 lewisi
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira balthyomphala
Bacteriosira fragilis
Cavitalus exiguus
Cavitalus jousseaumii
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmoldiscus insignis
Crudenticula ikebei
Crudenticula kanayae
Crudenticula nicobarica
Crudenticula paranicobarica
Crudenticula sawamurae
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella

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 prelauta
Denticulopsis simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dololus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilosena
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 elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jousseaumii
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbolii
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/25

OBSERVER'S NAME *AKEMI***RELATIVE ABUNDANCE OF EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella 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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 jousseaumii
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeabyssi
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiotrichia longissima
Trachyneis aspera
Yoshidaea divergens

Chaetoceros* Resting Spores*TOTAL OF VEGETATIVE CELLS***Spong T*

Diatom zones (NPD)

Unde

TOTAL ABUNDANCE:

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

almost barren

Core, section, interval (cm)

1418A-137-2W, 93 cm

TOTAL PRESERVATION

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

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
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
Cavitalus exiguus
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trachus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamureae
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 hustedti
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis leauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Disiphanoisira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dollopii
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisztingia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porusira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

DATE: 2013/June/25

OBSERVER's NAME AKEMI

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 praesbergonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupli (X)
Shionodiscus praesoestrupli
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 manjimica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiotrix longissima
Trachyneis aspera
Yoshidala divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

stage T

Diatom zones (NPD)*Baren***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**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**Cavitalus exiguum**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccoeis californica**Coccoeis costata**Coccoeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorophorus**Cosmidiscus insignis**Crudenticula ikebei**Crudenticula kanayaiae**Crudenticula nicobarica**Crudenticula paranicobarica**Crudenticula sawamurae**Cyclorella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischabooensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonserii**Delphineis surirella**sponge T**foula m***Core, section, interval (cm)***1918A - 13H - 4m, 26 m***TOTAL PRESERVATION**

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

*Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis kawaiyamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis preakatayamae**Denticulopsis praelauta**Denticulopsis simonserii**Denticulopsis tamurae**Denticulopsis vulgaris**Diplotheis bombus**Diplotheis puella**Diplotheis smithii**Diplotheis 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 plicena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebaea 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 kamtchatkae**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praearbaroi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudoxiphidium americanum**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

DATE: 2013 Aug 25

OBSERVER'S NAME *ADEM***RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 valves/FOV)

F (>1 valve/10FOVs & <1 valve/10FOVs)

R (>3 valves/traverse & <1 valve/10FOVs)

X (present), B (barren)

*Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norvegica**Rhizosolenia praesbergonii**Rhoperia 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 nitzschiooides**Thalassionema nitzschiooides var. incurvatum**Thalassionema nitzschiooides var. inflatum**Thalassionema nitzschiooides var. parvum**Thalassionema pseudonitzschiooides**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 marjoramica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeybabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidiala divergens****Chaetoceros Resting Spores*****TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

Bahan

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**Actinoplychus senarius**Actinoplychus vulgaris**Araniscus lewisianus**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Azpeitia biradiata**Azpeitia komureae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Bacterosira bathyomphala**Bacterosira fragilis**Cavitalus exiguis**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus mioceneus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccineis californica**Coccineis costata**Coccineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmidiscus Insignis**Crucidenticula ikebei**Crucidenticula kanayaee**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)

1418A - 13H - Sur. 29cm

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 paeatakayamae**Denticulopsis paeatauta**Denticulopsis simonsenii**Denticulopsis tamurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis suborbicularis**Distephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Fragilaria construens (Ehrenberg) Grunow**Flagilariopsis cylindrus**Fragilariopsis dololutis**Fragilariopsis fossils**Fragilariopsis oceanica**Fragilariopsis pilocena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikeba tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisitzinia ornata**Mediaria magna**Mediaria splendida**Melosira albicans**Navicula elginensis**Navicula lyraeides**Navicula menisculus**Navicula salinarum**Neodenticula kamtshatica**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praearbaroi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopyxilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

DATE: 2013/June/25

OBSERVER's NAME *Afem*

RELATIVE ABUNDANCE of EACH TAXON

A (> 10 valves/FOV), C (1-10 vlvls/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 praebengonii**Rhizosolenia setigera**Roperia fesselata**Roella gelida**Roella praeinitida**Roella semigelida**Roella 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 nitzschioidea**Thalassionema nitzschioidea var. incurvatum**Thalassionema nitzschioidea var. inflatum**Thalassionema nitzschioidea var. parvum**Thalassionema pseudonitzschioidea**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 praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temperai**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabei**Thalassiothrix longissima**Trachyneis aspera**Yoshidiala divergens**Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Bowen

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

Core, section, interval (cm)

1418A, 19H-6W, 137cm

TOTAL PRESERVATION

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

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
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komureae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenobilis
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavatulus exiguum
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
Cosmiodiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayaee
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 surrella

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 tamimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossalis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenula
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barböl
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: *2013 June 25*

OBSERVER's NAME *AKEMI*

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praesbergonii
Rhizosolenia setigera
Roperia fessilata
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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidalia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

fragments

Diatom zones (NPD)

Bawen

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
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurea
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitatus exiguum
Cavitatus jouseaeus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus Insignis
Crudenticula ikebei
Crudenticula kanayae
Crudenticula nicobarica
Crudenticula paranicobacara
Crudenticula sawamurae
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonserii
Delphineis surirella

Aragonint

Core, section, interval (cm)

1418A - 13H - DW, 98 cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonserii
Denticulopsis tammariae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagellaropsis cylindrus
Flagellaropsis dololutus
Flagellaropsis fossalis
Flagellaropsis oceanica
Flagellaropsis piloscena
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 kamschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
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 praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/25

OBSERVER's NAME *Abenky*

RELATIVE ABUNDANCE of EACH TAXON

A (> 10 valves/FOV), C (1-10 vlvls/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 praesbergonii
Rhizosolenia setigera
Roperia fessilata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
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 praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperae
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidai divergens

Cheiloceras 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)

alnose Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jousseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectius
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurensis
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)

148A - BH - CC

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeyalina
Denticulopsis praeplatyamae
Denticulopsis praeflava
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplolepis bombus
Diplolepis puelia
Diplolepis smithii
Diplolepis suborbicularis
Diplolepis spp.
Distephanostra architecturalis
Distephanostra spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollois
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exozensis
Kolzumia tateunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimorpha elegans
Pseudonitzschia serata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/24

OBSERVER's NAME AKEMI

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 1. hiemalis
Rhizosolenia hebetata 1. semispina
Rhizosolenia norwegica
Rhizosolenia praobergonii
Rhizosolenia seligera
Rhizosolenia spp.
Roperia tesselata
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 nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *inflatum*
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marumica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaeloceros Resting Spores
TOTAL of VEGETATIVE CELLS

sponges F Xcosc. sp. —

O
2

Diatom zones (NPD)*Baren***TOTAL ABUNDANCE:**

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

Core, section, interval (cm)

1918A-15H-2W, 10cm

TOTAL PRESERVATION

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

DATE: 2013/June/25

OBSERVER's NAME *Akemi***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
Actinopylechus senarius
Actinopylechus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenolifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavitatus exiguis
Cavitatus jouseaeus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crudenticula ikebeli
Crudenticula kanayae
Crudenticula nicobarica
Crudenticula paranicobarica
Crudenticula sawamurae
Cyclorella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
Delphineis surrella

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 preakatayamae
Denticulopsis praelauta
Denticulopsis simonisenii
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 dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hydrodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Listzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
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 praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zebelineae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia setigera
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 lucsa
Thalassiosira manifesta
Thalassiosira marjoramica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

*Sponge T**Fragament****Chaetoceros Resting Spores*****TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD12?

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
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komureae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenobilis
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatulus exiguum
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus Insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella

Delp. sp --- \times

closed copula

sponge T

Core, section, interval (cm)

1418A 154-3W, 67cm

TOTAL PRESERVATION

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

(G)

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 tanmurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dololutis
Fragilariopsis fossalis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae — \times
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 20/3/June 125OBSERVER'S NAME AKEMI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praebargentii
Rhizosolenia setigera
Roperia fessilata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupili
Shionodiscus praeostrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Step. sp — \times *Th. sp* — \times *Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

0

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
Achnanthes spp.
Actinocyclus curvulus
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 komurensis
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidentula ikebei
Crucidentula kanayae
Crucidentula nicobarica
Crucidentula paranicobarica
Crucidentula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinea angustata
Delphinea ischaboensis
Delphinea kippae
Delphinea sachalinensis
Delphinea simonsenii
Delphinea surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, interval (cm)

1418A.15H.cc

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

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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota peclinialis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula alginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kozumi
Neodenticula semina
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 25.6.2017OBSERVER'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 praesbergonii
Rhizosolenia seligera
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 praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira 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 nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPDI?

TOTAL ABUNDANCE:

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

Dense Benthos

*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 praenudifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavitalus exiguus**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccoaneis californica**Coccoaneis costata**Coccoaneis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorophus**Cosmoldiscus insignis**Crucidenticula ikebeli**Crucidenticula kanayaee**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboenensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonisenii**Delphineis surrella*

closed copula

Sponge E-

Rads -

Core, section, interval (cm)

1918A-17H-1W, 2cm

TOTAL PRESERVATION

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

(G)

*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedi**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praeflava**Denticulopsis simonisenii**Denticulopsis tamimurae**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 dolloides**Fragilariopsis fossalis**Fragilariopsis oceanica**Fragilariopsis pilocana**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikeba tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozlovialla minor**Lisitzinia ornata**Medaria magna**Medaria splendida**Melosira albicans**Navicula elginensis**Navicula lyraoides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kolzumii**Neodenticula seminae* (X)*Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barböl**Proboscia curvirostris**Proboscia interposta**Proboscia praearboei**Pseudodimeroigrana elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros**Raphoneis amphiceros*

DATE: 2013 June 25

OBSERVER's NAME AKEMZ

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praebengonii**Rhizosolenia setigera**Ropera fesselata**Rocella gelida**Rocella praenilida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii**Shionodiscus praesoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris* — (X)*Thalassionema nitzschiooides**Thalassionema nitzschiooides* var. *incurvatum**Thalassionema nitzschiooides* var. *inflatum**Thalassionema nitzschiooides* var. *parvum**Thalassionema pseudonitzschiooides**Thalassionema schraderi**Thalassiosira antiqua**Thalassiosira bioculata**Thalassiosira castanea**Thalassiosira convexa**Thalassiosira decipiens**Thalassiosira dubiosa**Thalassiosira eccentrica* — (X)*Thalassiosira fasciculata**Thalassiosira fraga* — (X)*Thalassiosira gravida* — (X)*Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularis**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira maritamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenitidulus**Thalassiosira praeabyei**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidalia divergens*

Chaetoceras Resting Spores

TOTAL of VEGETATIVE CELLS

6

Diatom zones (NPD)

NPD(2)

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 IE
 Actinocyclus curvatus IE
 Actinocyclus ellipticus IE
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 komurasae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatulus exiguis
Cavatulus jouseanaus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamureae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

≤ 0
 ≥ 0

closed copele

Core, section, interval (cm)

1918A-1DH-3W, 32

TOTAL PRESERVATION

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

(Q)

DATE: 2013/June/25

OBSERVER'S NAME AKEMI

RELATIVE ABUNDANCE of EACH TAXON

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis leuta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolloides
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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraea
Navicula menisculus
Navicula sinularum
Neodenticula kamtschatkae IE
Neodenticula kolzumii
Neodenticula seminae IE
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glaciis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

(P) *Rhizosolenia hebetata* f. *hiemalis* —/
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
(P) Shilonodiscus oestrupii IE —/
(P) Shilonodiscus praesoestrupii IE —/
Shionodiscus trifultus IE —/
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *inflatum*
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica IE —/
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lucas
Thalassiosira manifesta
Thalassiosira marjamicana
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima T
Trachynels aspera
Yoshidai divergens

Cheiloceras Resting Spores 27

TOTAL of VEGETATIVE CELLS 100

Resting spore IE IE IE F

Diatom zones (NPD)

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

almost 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 biredata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jousseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus 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
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonsenii
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1418A-17H-CC

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

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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolichos
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbori
Pseudodimmerogramma elegans
Pseudonitzschia serata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013 June 12

OBSERVER's NAME AKEMI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 preebergoni
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 oestrupili
Shionodiscus paeoestrupili
Shionodiscus trifultus
Stephanopryxis dimorpha
Stephanopyle horridus
Stephanopryxis turris
Stephanopryxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassiosira schraderi
Thalassiosira 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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira fusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabil
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperoi
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Cheirotoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

sponge? T
fragile?

fragile?

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

F9

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus EF
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 komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatulus exiguus
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trachus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamureae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonensis
Delphinella surirella

closed cop. +

28 74
 5 5.0 9.0

Core, section, interval (cm)

U-X18A 19H-1, 120 cm

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 preakatayamae
Denticulopsis praefluita
Denticulopsis simonensis
Denticulopsis tamimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eurotia pectinalis var. *minor*
Eurotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilaropsis cylindrus
Fragilaropsis dololus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus R + Nau. sp.
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae EEEEEE
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita T
Paralia sulcata
Podosira stelligera
Porusira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 2013/Jme/26

OBSERVER's NAME TSUKI

RELATIVE ABUNDANCE of EACH TAXON

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

F10 Rhizosolenia hebetata f. *hiemalis* EEERhizosolenia hebetata f. *semispina*

Rhizosolenia norvegica

Rhizosolenia praesbergonii

Rhizosolenia setigera

Roperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isoplica

Rouxia naviculoides

Rouxia obesa

R2 Shionodiscus oestrupii T

Shionodiscus praeoestrupii

Shionodiscus trifultus

Stephanopxis dimorpha

Stephanopxis horridus

Stephanopxis turris

Thalassionema bacillaris

R7 Thalassionema nitzschiooides EET.

Thalassionema nitzschiooides var. *incurvatum*Thalassionema nitzschiooides var. *infatum*Thalassionema nitzschiooides var. *parvum*

Thalassionema pseudonitzschiooides

Thalassionema schraderi

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

F10 Thalassiosira eccentrica EEE

Thalassiosira fasciculata

Thalassiosira fraga

R2 Thalassiosira gravida T

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregularis

Thalassiosira jacksonii

Thalassiosira jouseae -

R1 Thalassiosira leptopus -

Thalassiosira lineata -

Thalassiosira lusca

R7 Thalassiosira manifesta EET

Thalassiosira manjimica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenitida

Thalassiosira praeyabei

Thalassiosira robusta

Thalassiosira sanctaeae

Thalassiosira singularis

Thalassiosira temperata

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabei

Thalassiotrichia longissima -

Trachyneis aspera

Yoshidaea divergens

F2 Steph sp EET

closed cop. +

28 74
 5 5.0 9.0

EEET

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

100

Diatom zones (NPD)**NPD 12****TOTAL ABUNDANCE:**M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)**+ Fragments**

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
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurasae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatulus exiguis
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
Cosmoldiscus insignis
Crucidicula ikebei
Crucidicula kanayae
Crucidicula nicobarica
Crucidicula paranicobarica
Crucidicula sawamureae
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)**ULV18A 19H-2W, 26cm****TOTAL PRESERVATION**

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

浅く1Fから1mを53mまで

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
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 praearbarbi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/26**OBSERVER'S NAME 175V1C1****RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 praebargentii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shiromodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 marjamaica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

*R Stephanop. sp T**R Syn. diadema* —**Chaetoceros Resting Spores****TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

F 12

*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**Actinoplychus senarius**Actinoplychus vulgaris**Araniscus lewisiensis**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**Cavitalus exiguus**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccoeis californica**Coccoeis costata**Coccoeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayaee**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurai**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboeensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonisenii**Delphineis surirella*

Crypt.

closed cop*

4.7 ← → 5.5 6.0 6.5

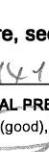
42 89

Core, section, interval (cm)

UW418A - 19H-3W, 38 cm

TOTAL PRESERVATION

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



DATE: 2013/June/26

OBSERVER's NAME ITSUKI

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)

- Denticulopsis crassa*
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonisenii
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 dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis R 1 Nov. sp. —
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae IEIEIEIE
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata IEIEIEF
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
*Pseudodimerogetrum elegans**
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

F-C 23

F-C 23

- R +



- F 12 Rhizosolenia hebetata f. *hiemalis* IEET
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praelivilida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii T
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioidea IE
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *inflatum*
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa ?T
Thalassiosira decipiens ?T
Thalassiosira dubiosa
Thalassiosira eccentrica IE
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida T
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta T
Thalassiosira marumamica
Thalassiosira mediocconvexa —
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidiala divergens

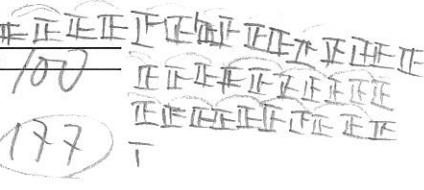
R 6th sp. IE —

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

100

177



Diatom zones (NPD)

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

almost barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurasae
Azpeitia nodulifera
Azpeitia oligoconica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavilatus exiguis
Cavilatus jouseanus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Ceslodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorhus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurensis
Cyclorella striata
Cymbella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella schabensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsonii
Delphinella surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *arcuata*

Core, section, interval (cm)

1418A - 1967-cc

TOTAL PRESERVATION

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

✓

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeplaty whole
Denticulopsis praekatayamae
Denticulopsis praeseta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
Fragilarlopsis oceanica
Fragilarlopsis pliocena
Fragilarlopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exzensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtchatkae
Neodenticula kozumii
Neodenticula seminise
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
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
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Raphoneis amphiceros

DATE:

2018 Dec 12

OBSERVER's NAME

Atsushi

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengtsoni
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
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 nitzschiooides
Thalassionema nitzschiooides var. *incavatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira schraderi
Thalassiosira spp.
Thalassiosira antiqua
Thalassiosira biculata
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 jouseana
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicola
Thalassiosira mediocconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeypabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidella divergens
Yoshidella spp.

Chaetoceros Resting Spores
TOTAL OF VEGETATIVE CELLS

sponge T

fragments

OSCAR slide

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)

W1418A-20H-1, 90cm

TOTAL PRESERVATION

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

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 komurea
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatulus exiguis
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiodiscus insignis
Crudenticula ikebeli
Crudenticula kanayae
Crudenticula nicobarica
Crudenticula paranicobarica
Crudenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella

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 pækatalayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tamurae
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 fossils
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinhardii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barböl
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 26

OBSERVER's NAME /TSVKI

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 praebargentii
Rhizosolenia setigera
Ropertia 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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schradieri
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiotrix longissima
Trachyneis aspera
Yoshidaea 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)

*Trace**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 lewisiensis**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**Cavitalus exiguus**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccoineis californica**Coccoineis costata**Coccoineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawanurens**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)***1418.A.20H2W61***TOTAL PRESERVATION**

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

*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamiae**Denticulopsis lauia**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis preakatayamiae**Denticulopsis praealta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Dislephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis* var. *minor**Eunotia praerupta* var. *praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilariopsis dolloides**Fragilariopsis fossils**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 lyraoides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatkae**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 praearbaroi**Pseudodimerogetrum elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros***DATE: 26.6.2013****OBSERVER's NAME KANNO****RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 praeburgonii**Rhizosolenia setigera**Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopatica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oastrupii**Shionodiscus praeoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschiooides**Thalassionema nitzschiooides* var. *incurvatum**Thalassionema nitzschiooides* var. *inflatum**Thalassionema nitzschiooides* var. *parvum**Thalassionema pseudonitzschiooides**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 lucas**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporei**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens***Chectoceros Resting Spores****TOTAL of VEGETATIVE CELLS***Spring -*

OSCAR Sample

Diatom zones (NPD)

BARRS N

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418A-20H-Y, 31 cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 26

OBSERVER'S NAME ITSVK

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisi
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Bacteriosira balthyomphala
Bacteriosira fragilis
Cavitalus exiguus
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmidiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minutula
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 laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praeplatyamae
Denticulopsis praelauta
Denticulopsis simonisenii
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 pilosana
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztnia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
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 praebarboi
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Roperia tesselata
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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitudus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiotrichia longissima
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418A - 21H-1W, 127 cm

TOTAL PRESERVATION

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

DATE: 2013/June/27

OBSERVER'S NAME ITSVK

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)

F 26

- Achnanthes groenlandica*
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus ~~EEEEE~~
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 lewisi
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira balthymophala
Bacteriosira fragilis
Cavatula exiguus
Cavatula jousseaumii
Cavatula lanceolatus
Cavatula linearis
Cavatula miocenicus
Cavatula reclus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata —
Cocconeis scutellum
Coscinodiscus asteromphalus —
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus *
Coscinodiscus rhombicus
Coscinodiscus symbolorhus
Cosmidiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Sponge spinule —

Dino

Silico

8.0 → ← 8.0

95 80

- Denticulopsis crassa*
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis leuta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis prealta
Denticulopsis simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunolia pectinalis var. *minor*
Eunolia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocrena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus F
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Listiznia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae ~~EE~~
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jousseaumii
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita ~~T~~
Paralia sulcata T
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros +

R 6 Rhizosolenia hebetata f. *hiemalis* ~~EE~~ —Rhizosolenia hebetata f. *semispina*

Rhizosolenia norwegica

Rhizosolenia praeburgonii

Rhizosolenia setigera

Roperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

Shionodiscus *oestrupii* ~~T~~Shionodiscus *praeoestrupii*

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschiooides

Thalassionema nitzschiooides var. *incurvatum*Thalassionema nitzschiooides var. *inflatum*Thalassionema nitzschiooides var. *parvum*

Thalassionema pseudonitzschiooides

Thalassionema schraderi

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica ~~EE~~

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravida

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregularis

Thalassiosira jacksonii

Thalassiosira jousseaumii

Thalassiosira leptopus

Thalassiosira lineata ~~T~~

Thalassiosira lusca

Thalassiosira manifesta ~~T~~

Thalassiosira marujamica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii +

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenitulus

Thalassiosira praeyabei

Thalassiosira robusta

Thalassiosira sanctaeiae

Thalassiosira singularis

Thalassiosira temporalis

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabeli

Thalassiothrix longissima

Trachyneis aspera

Yoshidaia divergens

48 Chaetoceros Resting Spores ~~EEEEE~~ ~~EEEEE~~

TOTAL of VEGETATIVE CELLS

100

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

F 19

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Actinocyclus curvatus* ~~EE~~ FF*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 praenobilis**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Bacterosira bathyomphala**Bacterosira fragilis**Cavitas exiguus**Cavitas jouseanus**Cavitas lanceolatus**Cavitas linearis**Cavitas miocenicus**Cavitas rectus**Cestodiscus kugleri**Cestodiscus trochus**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorhus**Cosmiodiscus 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**Delphinis simonsenii**Delphineis surirella*

closed cap -

Silico -

29 65
 ← → ←
 120 13.0 14.0

Core, section, interval (cm)

U1Y1RA - 21H-1A 143 cm

TOTAL PRESERVATION

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

F

- Denticulopsis crassa*
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praealta
Denticulopsis simonsenii
Denticulopsis tamimurae
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 dololutis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis F
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtshatica
Neodenticula kolzumii
Neodenticula seminae IEEF
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita IET
Paralia sulcata IEF
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

C 22

R 7

R 9

R 10

R 11

R 12

R 13

R 14

R 15

R 16

R 17

R 18

R 19

R 20

R 21

R 22

R 23

R 24

R 25

R 26

R 27

R 28

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R 186

R 187

R 188

R 189

R 190

R 191

R 192

R 193

R 194

R 195

R 196

R 197

R 198

R 199

R 200

R 201

R 202

R 203

R 204

R 205

R 206

R 207

R 208

R 209

R 210

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

(R) + Achnanthes groenlandica
 Achnanthes inflata
 Achnanthes lanceolata SP
 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 jouseaeus
 Cavitatus lanceolatus
 Cavitatus linearicus
 Cavitatus miocenicus
 Cavitatus rectus
 Cestodiscus kugleri
 Cestodiscus trochus
 Cocconeis californica
 Cocconeis costata II-
 Cocconeis scutellum
 Coscinodiscus asteromphalus
 Coscinodiscus marginatus
 Coscinodiscus oculus-iridis
 Coscinodiscus radiatus —
 Coscinodiscus rhombicus
 Coscinodiscus symboloruphoris
 Cosmoldiscus insignis
 Crucidenticula ikebei
 Crucidenticula kanayae
 Crucidenticula nicobarica
 Crucidenticula paranicobarica
 Crucidenticula sawamurensis
 Cyclotella striata
 Cyclotella meneghiniana
 Cymbella cistula
 Cymbella minuta
 Cymbella subaequalis
 Delphineis angustata
 Delphineis ischaboensis
 Delphineis kippae
 Delphineis sachalinensis
 Delphineis simonsenii
 Delphineis surirella

closed cap + silicas
 open capsula -

7.0 8.0 9.0 10.0 11.0

63 94

Core, section, interval (cm)

U1418A - 21H-4W, 2Xcm

TOTAL PRESERVATION

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

DATE: 2013/ June / 27

OBSERVER'S NAME 1750KJ

RELATIVE ABUNDANCE of EACH TAXON

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

R 2 Rhizosolenia hebetata f. hiemalis T

Rhizosolenia hebetata f. semispina

Rhizosolenia norwegica

Rhizosolenia praebargentii

Rhizosolenia setigera

Roperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isoplica

Rouxia naviculoides

Rouxia obesa

R 2 Shionodiscus oestrupii T

Shionodiscus praeoestrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis lurris

Thalassionema bacillaris

R 6 Thalassionema nitzschioides IE-

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

R 7 Thalassiosira eccentrica IE-T

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravida

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregulata

Thalassiosira jacksonii

Thalassiosira jouseae

Thalassiosira leptopus

Thalassiosira lineata ? too small IE

Thalassiosira lusca

R 3 Thalassiosira manifesta T

Thalassiosira marujamica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioeldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeybabei

Thalassiosira robusta

Thalassiosira sanctae

Thalassiosira singularis

Thalassiosira temperata

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabei

Thalassiothrix longissima

Trachyneis aspera

Yoshidaea divergens

R 6 Chaetoceros Resting Spores IE-TIE-TIE-TIE-TIE-TIE-TIE-TIE

TOTAL of VEGETATIVE CELLS

100

Diatom zones (NPD)

NPD (2)

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 spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidentata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jousseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Ingleis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurensis
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonensis
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Sponge T

closed copula

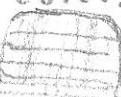
 $\leftarrow 1.0$ $\rightarrow 2.9$ silico -

Core, section, Interval (cm)

1418A-21FF-CC

TOTAL PRESERVATION

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

14.2.11.3 (92.3.3.9)


Denticulopsis hastedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praekhayalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanoisra architecturalis
Distephanoisra spp.
Ellebeckia sol
Ellebeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilia
Fragilariopsis oceanica
Fragilariopsis pilicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Kutzunia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraea
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumi
Neodenticula seminae ~~IEF~~ ~~IEF~~ ~~IEF~~ ~~IEF~~ ~~IEF~~ ~~IEF~~
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea ~~IEF~~ ~~IEF~~ ~~IEF~~
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita ~~+~~ *Odonella sp. T*
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodinmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

cymbella sp. -
 \oplus
 R

Delphineis sp. -

? Pr. praearboi? ~~IEF~~
 (91.0, 7-3)

DATE: 20/3/June/24

OBSERVER's NAME AKEMI

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)

R \oplus *Rhizosolenia hebetata* 1. *hiemalis* T
R \oplus *Rhizosolenia hebetata* 1. *semispina* T
Rhizosolenia norwegica
R \oplus *Rhizosolenia praebergonii* T
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
R \oplus *Shionodiscus oestrupii* ~~IEF~~
R \oplus *Shionodiscus praesoestrupi*
R \oplus *Shionodiscus trifolius* T
Stephanopyxis dimorpha
Stephanopis horridus
Stephanopyxis turris
Stephanopyxis spp. T
Thalassionema bacillaris
R \oplus *Thalassionema nitzschioides* T
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua +
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
R \oplus *Thalassiosira eccentrica* T T
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida T
Thalassiosira grunowii T
Thalassiosira hyalina
Thalassiosira irregularia
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata T
Thalassiosira lucas
R \oplus *Thalassiosira manifesta* ~~+~~
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeypabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

hece. spore ~~IEF~~ ~~IEF~~ ~~IEF~~ ~~IEF~~ ~~IEF~~ ~~IEF~~ \oplus

全面 R.R. P. curvirostris R.7.1.8.4

選集してあると分からいかないが diatom で
何が含まれている? Polarized?

Diatom zones (NPD)

NPD 42

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
Actinoprychus senarius
Actinoprychus vulgaris
Araniscus lewisanus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenobilifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitalus exiguis
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

01448A - 22H-1A 116cm

TOTAL PRESERVATION

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

Fain

DATE: 2013/June/26

OBSERVER'S NAME ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorph
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. incurvatum
Thalassionema nitzschiooides var. inflatum
Thalassionema nitzschiooides var. parvum
Thalassionema pseudonitzschiooides
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 praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporal
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Cheatoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Steph sp -

Diatom zones (NPD)

NPD 12

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

Core, section, interval (cm)

1418. A, 22H2W 69

TOTAL PRESERVATION

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

DATE: 26.6.2013

OBSERVER's NAME KOPUNO

RELATIVE ABUNDANCE of EACH TAXON

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

<i>Achnanthes groenlandica</i>	98	<i>Denticulopsis crassa</i>
<i>Achnanthes inflata</i>		<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>
<i>Achnanthes lanceolata</i>		<i>Denticulopsis dimorpha</i> var. <i>areolata</i>
<i>Achnanthes lineariformis</i>		<i>Denticulopsis hustedtii</i>
<i>Actinocyclus curvatus</i>		<i>Denticulopsis hyalina</i>
<i>Actinocyclus ellipticus</i>		<i>Denticulopsis katoryamae</i>
<i>Actinocyclus ingens</i>		<i>Denticulopsis lauta</i>
<i>Actinocyclus ingens</i> f. <i>nodus</i>		<i>Denticulopsis praedimorpha</i> var. <i>minor</i>
<i>Actinocyclus ingens</i> f. <i>planus</i>		<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>
<i>Actinocyclus oculatus</i>		<i>Denticulopsis praehyalina</i>
<i>Actinocyclus ochotensis</i>		<i>Denticulopsis pækatayamae</i>
<i>Actinocyclus octonarius</i>		<i>Denticulopsis praelauta</i>
<i>Actinocyclus robustus</i>		<i>Denticulopsis simonsenii</i>
<i>Actinocyclus tsugaruensis</i>		<i>Denticulopsis tamurae</i>
<i>Actinoplychus senarius</i>		<i>Denticulopsis vulgaris</i>
<i>Actinoplychus vulgaris</i>		<i>Diploneis bombus</i>
<i>Araniscus lewisianus</i>		<i>Diploneis puella</i>
<i>Asteromphalus darwinii</i>		<i>Diploneis smithii</i>
<i>Asteromphalus oligocenicus</i>		<i>Diploneis suborbicularis</i>
<i>Asteromphalus parvulus</i>		<i>Dislephanosira architecturalis</i>
<i>Asteromphalus robustus</i>		<i>Ellerbeckia sol</i>
<i>Azpeitia biradiata</i>		<i>Eunoia pectinalis</i> var. <i>minor</i>
<i>Azpeitia komurae</i>		<i>Eunoia praerupta</i> var. <i>praerupta</i>
<i>Azpeitia nodulifera</i>		<i>Fragilaria construens</i> (Ehrenberg) Grunow
<i>Azpeitia oligocenica</i>		<i>Fragilariaopsis cylindrus</i>
<i>Azpeitia praenodulifera</i>		<i>Fragilariopsis dolilolus</i>
<i>Azpeitia salisburyana</i>		<i>Fragilariopsis fossilis</i>
<i>Azpeitia tabularis</i>		<i>Fragilariopsis oceanica</i>
<i>Azpeitia vetustissima</i>		<i>Fragilariopsis pilosana</i>
<i>Bacteriosira bathyomphala</i>		<i>Goniothecium decoratum</i>
<i>Bacteriosira fragilis</i>		<i>Goniothecium rogersii</i>
<i>Cavitalus exiguus</i>		<i>Halamphora costata</i>
<i>Cavitalus jouseaeus</i>		<i>Hyalodiscus obsoletus</i>
<i>Cavitalus lanceolatus</i>		<i>Ikeba tenuis</i>
<i>Cavitalus linearis</i>		<i>Kisseleviella carina</i>
<i>Cavitalus miocenicus</i>		<i>Kisseleviella ezoensis</i>
<i>Cavitalus rectus</i>		<i>Kolzumia tatsunokuchiensis</i>
<i>Cestodiscus kugleri</i>		<i>Kozloviella minor</i>
<i>Cestodiscus trachus</i>		<i>Liszitinia ornata</i>
<i>Coccoeis californica</i>		<i>Medilaria magna</i>
<i>Coccoeis costata</i>		<i>Medilaria splendida</i>
<i>Coccoeis scutellum</i>		<i>Melosira albicans</i>
<i>Coscindiscus asteromphalus</i>		<i>Navicula elginensis</i>
<i>Coscindiscus marginatus</i>		<i>Navicula lyraoides</i>
<i>Coscindiscus oculus-iridis</i>		<i>Navicula menisculus</i>
<i>Coscindiscus radiatus</i>		<i>Navicula salinarum</i>
<i>Coscindiscus rhombicus</i>		<i>Neodenticula kamtschatkae</i>
<i>Coscindiscus symbolophorus</i>		<i>Neodenticula kolzumii</i>
<i>Cosmoldiscus insignis</i>		<i>Neodenticula seminae</i>
<i>Crucidencula ikebei</i>		<i>Nitzschia challengeri</i>
<i>Crucidencula kanayae</i>		<i>Nitzschia cylindrica</i>
<i>Crucidencula nicobarica</i>		<i>Nitzschia jouseae</i>
<i>Crucidencula paranicobarica</i>		<i>Nitzschia palea</i>
<i>Crucidencula sawamureae</i>		<i>Nitzschia reinholdii</i>
<i>Cyclotella striata</i>		<i>Nitzschia rolandii</i>
<i>Cyclotella meneghiniana</i>		<i>Odontella aurita</i>
<i>Cymbella cistula</i>		<i>Paralia sulcata</i>
<i>Cymbella minuta</i>		<i>Podosira stelligera</i>
<i>Cymbella subaequalis</i>		<i>Porsira glacialis</i>
<i>Delphineis angustata</i>		<i>Proboscia barbol</i>
<i>Delphineis ischaboensis</i>		<i>Proboscia curvirostris</i>
<i>Delphineis kippae</i>		<i>Proboscia interposita</i>
<i>Delphineis sachalinensis</i>		<i>Proboscia praearborai</i>
<i>Delphineis simonsenii</i>		<i>Pseudodimorpha elegans</i>
<i>Delphineis surirella</i>		<i>Pseudonitzschia seriata</i>
		<i>Pseudopyxilla americana</i>
		<i>Pseudotriceratium radiosoreticulatum</i>
		<i>Pyxidicula zabeliae</i>
		<i>Raphoneis amphiceros</i>

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

step sp -

Th. sp +

Thassiosira manifesta

Thassiosira mediaconvexa

Thassiosira minutissima

Thassiosira miocenica

Thassiosira nordenstkioldii

Thassiosira orientalis

Thassiosira praefraga

Thassiosira praenudulus

Thassiosira praeyabei

Thassiosira robusta

Thassiosira sanctae

Thassiosira singularis

Thassiosira temperata

Thassiosira umaoiensis

Thassiosira undulosa

Thassiosira yabei

Thassiotricha longissima

Trachyneis aspera

Yoshidiala divergens

Diatom zones (NPD)

NPP 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418. A. 2243 w26

TOTAL PRESERVATION

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

*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**Cavatitus exiguus**Cavatitus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Ceslodiscus kugleri**Cestodiscus trochus**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crudenticula ikebei**Crudenticula kanayae**Crudenticula nicobarica**Crudenticula paranicobarica**Crudenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischabensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surrella**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 pækatahayamae**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 dolichos**Fragilariopsis fossili**Fragilariopsis oceanica**Fragilariopsis pilcarena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Listziniaria ornata**Mediaria magna**Mediaria splendida**Melosira albicans**Navicula elginensis**Navicula lyraoides**Navicula menisculus**Navicula salinarum**Neodenticula kamtchatkae**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengeri**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 praearbaroi**Pseudodimerogetrum elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros**closed copula +**sponge -*

DATE: 26.6.2013

OBSERVER'S NAME konno

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praebargentii**Rhizosolenia setigera**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopatica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oastropili**Shionodiscus praecostripili**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioidea**Thalassionema nitzschioidea* var. incurvatum*Thalassionema nitzschioidea* var. inflatum*Thalassionema nitzschioidea* var. parvum*Thalassionema pseudonitzschioidea**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 lucas**Thalassiosira manifesta**Thalassiosira marjamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskiöeldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaea divergens**Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

Happy Birthday!

2 ME

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
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligoceneus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligoconica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia fabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus 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

Core, section, Interval (cm)
U1418A - 22H-CC

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

Denticulopsis hustedtii
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
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilia
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
Kozuma tatsunokuchiensis
Kozloviella minor
Liszitnia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratum radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 25
OBSERVER's NAME: ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
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
Stephanopyxe 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 irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lucas
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia 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)

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biraedita
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salsburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus 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
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonsenii
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1418.A 23H1W30

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katsayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamee
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolichus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kemtschatica
Neodenticula kozumi
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 praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 26.6.2013

OBSERVER's NAME: KENNEDY

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 1. *hiemalis*
Rhizosolenia hebetata 1. *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 oestrupli
Shionodiscus praeoestrupli
Shionodiscus trifolius
Stephanopryxis dimorpha
Stephanopryxis horridus
Stephanopryxis turris
Stephanopryxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassiosira schraderi
Thalassiosira 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 nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala 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)

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

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 lewisiatus
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.
Cavatulus exiguus
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmolodiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinis angustata
Delphinis ischaboensis
Delphinis kippae
Delphinis sachalinensis
Delphinis simonsenii
Delphinis surirella
Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata

Core, section, interval (cm)
WV18A-23H-CC

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilariaopsis dolilus
Fragilariaopsis fossilia
Fragilariaopsis oceanica
Fragilariaopsis phloemae
Fragilariaopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozlovella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozlumi
Neodenticula seminaea
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porusira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis illiana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013 / June / 25

OBSERVER's NAME **ITSVICKI**

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 isopatica
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 irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira manujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala 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)

Trace

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 lewisi
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.
Cavatula exigua
Cavatula jouseae
Cavatula lanceolatus
Cavatula linearis
Cavatula miocenica
Cavatula rectus
Cavatula spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoconeis californica
Coccoconeis costata
Coccoconeis 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
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surrella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, Interval (cm)*140. A. 24H1W3D*

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatsuyamae
Denticulopsis praetexta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilarlopsis dolichus
Fragilarlopsis fossilia
Fragilarlopsis oceanica
Fragilarlopsis placentae
Fragilarlopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kiseleviella carina
Kiseleviella ezoensis
Koizumiya tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkica
Neodenticula koizumi
Neodenticula seminas
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porusira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyridicula zabeliae
Raphoneis amphiceros

DATE: *26. 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 praesbergonii
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 praesoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 manjamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaciensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS***closed copula?*

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
R3 Actinocyclus ingens
 Actinocyclus ingens f. nodus
 Actinocyclus ingens f. planus
 Actinocyclus oculatus
 Actinocyclus ochotensis
 Actinocyclus octonarius
 Actinocyclus robustus
 Actinocyclus isugaruensis
 Actinoptychus senarius —
 Actinoptychus vulgaris
 Araniscus lewisiensis
 Asteromphalus darwinii
 Asteromphalus oligocenicus
 Asteromphalus parvulus
 Asteromphalus robustus
 Azpeitia biradialis
Azpeitia komurae
 Azpeitia nodulifera
 Azpeitia oligocenica
 Azpeitia praenodulifera
 Azpeitia salisburyana
 Azpeitia tabularis
 Azpeitia vetustissima
 Bacterosira bathyomphala
 Bacterosira fragilis
 Cavatatus exiguum
Cavatatus jouseanus
 Cavatatus lanceolatus
 Cavatatus linearis
 Cavatatus miocenicus
 Cavatatus rectus
 Cestodiscus kugleri
 Cestodiscus trochus
 Cocconeis californica
 Cocconeis costata
 Cocconeis scutellum
 Coscinodiscus asteromphalus
 Coscinodiscus marginatus *
 Coscinodiscus oculus-iris
 Coscinodiscus radiatus
 Coscinodiscus rhombicus
 Coscinodiscus symbolorhorus
Cosmiodiscus insignis
 Crucidenticula ikebei
 Crucidenticula kanayae
 Crucidenticula nicobarica
 Crucidenticula paranicobarica
 Crucidenticula sawamurae
 Cyclotella striata
 Cyclotella meneghiniana
 Cymbella cistula
 Cymbella minuta
 Cymbella subaequalis
R+ Delphineis angustata —
 Delphineis ischaboensis
 Delphineis kippae
 Delphineis sachalinensis
Delphineis simonsenii
 Delphineis surirella

Core, section, interval (cm)

W1X18A - 2XH-2W 136cm

TOTAL PRESERVATION

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

Denticulopsis crassa
 Denticulopsis dimorpha var. dimorpha
 Denticulopsis dimorpha var. areolata
 Denticulopsis hustedtii
 Denticulopsis hyalina
 Denticulopsis katsuyamae
 Denticulopsis lauta
 Denticulopsis praedimorpha var. minor
 Denticulopsis praedimorpha var. praedimorpha
 Denticulopsis praehyalina
 Denticulopsis praekatayamae
 Denticulopsis praelafta
 Denticulopsis simonsenii
 Denticulopsis tanimurae
 Denticulopsis vulgaris
 Diploneis bombus
 Diploneis puello
 Diploneis smithii
 Diploneis suborbicularis
 Distephanosira architecturalis
 Ellerbeckia sol
 Eunotia pectinalis var. minor
 Eunotia praerupta var. praerupta
 Fragilaria construens (Ehrenberg) Grunow
 Fragilariopsis cylindrus
R3 Fragilariopsis doliosus
 Fragilariopsis fossilis
 Fragilariopsis oceanica
 Fragilariopsis plicacea
 Goniothecium decoratum
 Goniothecium rogersii
 Halamphora costata
 Hyalodiscus obsoletus
 Ikebaea tenulis
 Kisseleviella carina
 Kisseleviella ezoensis
C 33 Kolzumia tatsunokuchiensis
 Kozloviella minor
 Lisitzinia ornata
Medaria magna
Medaria splendida
 Melosira albicans
 Navicula elginensis
 Navicula lyroides
 Navicula menisculus
 Navicula salinarum
R + Nov. directa? Neodenticula kamtschatkae
 Neodenticula kolzumii
 Neodenticula seminata EEEEEET
 Nitzschia challengeri
 Nitzschia cylindrica
R3 Nitzschia jouseae EEEEEET
 Nitzschia palea
 Nitzschia reinholdii
 Nitzschia rolandii F
 Odontella aurita
 Paralia sulcata EEEEEET
 Podosira stelligera
 Porosira glacialis
 Proboscia barbol
Proboscia curvirostris
 Proboscia interposta
 Proboscia praearbaroi
 Pseudodimmerogramma elegans
 Pseudonitzschia seriata
 Pseudopyxis americana
 Pseudotriceratium radiosoreticulatum
C 35 Pyxidicula zabeliae EEEEEET
 Raphoneis amphiceros

DATE: 2013 / June / 26

OBSERVER's NAME TSVET

RELATIVE ABUNDANCE OF EACH TAXON

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

R6 Rhizosolenia hebetata f. hiemalis EE
 Rhizosolenia hebetata f. semispina

Rhizosolenia norwegica

Rhizosolenia praeburgonii

Rhizosolenia setigera

Roperia tessellata

Roccella gelida

Roccella praenitida

Roccella semigelida

Roccella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

R2 Shionodiscus oestrupii T

Shionodiscus praesoestrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschiooides

Thalassionema nitzschiooides var. incurvatum

Thalassionema nitzschiooides var. inflatum

Thalassionema nitzschiooides var. parvum

Thalassionema pseudonitzschiooides

Thalassionema schraderi

Thalassiosira antiqua

Thalassiosira bioculata

R3 Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica T

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravida

R1 Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregulata

Thalassiosira jacksonii

Thalassiosira jouseae

Thalassiosira leptopus

Thalassiosira lineata

Thalassiosira lusca

Thalassiosira manifesta

R1 Thalassiosira marjamicica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenstkioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenudulus

Thalassiosira praeyabei

Thalassiosira robusta

Thalassiosira sanctae

R1 Thalassiosira singularis

Thalassiosira temperata

Thalassiosira umaoensis

Thalassiosira undulosa

R1 Thalassiosira yabel

Thalassiothrix longissima

Trachyneis aspera

Yoshidalia divergens

R2 Stephan T

R1 Th. sp.

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

EEEEEET
100

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, Interval (cm)

1418, A, 24cc

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biraiana
Azpeitia komaree
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseae
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus mioceneus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoconeis californica
Coccoconeis costata
Coccoconeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebeli
Crucidenticula kanayaee
Crucidenticula nicobarica
Crucidenticula paranicobrica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischabensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella 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 praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolikos
Fragilariopsis fossalis
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 tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kotzumii
Neodenticula seminas *EE* *EE* *EE* *EE*
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata *EE* *T*
Paralia spp.
Podosira stelligera
Porusira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis illamericana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 25. 6. 2013OBSERVER'S NAME KOMNO

RELATIVE ABUNDANCE of EACH TAXON

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

R *3* *Rhizosolenia hebetata* f. *hiemalis* *F*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica

*Rhizosolenia preebergoni**Rhizosolenia setigera**Rhizosolenia* spp.*Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopatica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupli* *T**Shionodiscus praeoestrupli**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Stephanopyxis* spp. *EE* *T**Thalassionema bacillaris**Thalassionema nitzschioiodes* *TT**Thalassionema nitzschioiodes* var. *incurvatum**Thalassionema nitzschioiodes* var. *infundibulum* *F**Thalassionema nitzschioiodes* var. *parvum**Thalassionema pseudonitzschioiodes**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 manjamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temperale**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira* spp. *T**Thalassiothrix longissima* *EE* *T**Thalassiothrix* spp.*Trachyneis aspera**Trachyneis* spp.*Yoshidaia divergens**Yoshidaia* spp.*Chaetoceros Resting Spores* *EE* *F*

TOTAL of VEGETATIVE CELLS

closed copula +
sponge +

* T

Peep SPO or sponge —

R
O

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418A-25H-1W 25 cm

TOTAL PRESERVATION

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

DATE: 2013/June/27

OBSERVER's NAME ITSVK

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 1 *Actinocyclus curvatus* EEF*Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinopeltichthys senarius**Actinopeltichthys vulgaris**Araniscus lewisianus**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Azpeitia biradiata**Azpeitia komarae*R 1 *Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenudifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavitalus exiguis**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Cocconeis californica**Cocconeis costata**Cocconeis scutellum*R 5 *Coscinodiscus asteromphalus* EE*Coscinodiscus marginatus**Coscinodiscus oculus-iridis*R 1 *Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorhus**Cosmiodiscus insignis**Crucidenticula ikebeli**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamureae**Cyclorella striata**Cyclorella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphinella simonisenii**Delphinella surirella*

Rads sponge

125

*Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedi**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis leulta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis preakatayamae**Denticulopsis praelauta**Denticulopsis simonisenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puelia**Diploneis smithii**Diploneis suborbicularis**Disstephanosira architecturalis**Ellerbeckia sol**Eunoia pectinalis var. minor**Eunoia praerupta var. praerupta**Fragilaria construens (Ehrenberg) Grunow**Flagellaropsis cylindrus**Fragilariopsis dolloides**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 elginiensis**Navicula lyraoides**Navicula menisculus**Navicula salinarum**Neodenticula kamtshatica**Neodenticula kolzumii**Neodenticula seminæ*R 29 *EEEEE**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata* EEF*Podosira stelligera**Porosira glaciales**Proboscia barböl**Proboscia curvirostris**Proboscia interposta**Proboscia praearbaroi**Pseudodimerogetrum elegans**Pseudoxanthidium seriatum**Pseudoxanthidium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros**Reticularia longissima**Scapholechia longissima**Schizothrix longissima**Thalassiosira longissima**Thalassiosira marina**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudata**Thalassiosira praeabyssi**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens*R 1 *Rhizosolenia hebetata f. hiemalis* EEF*Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia praebergonii**Rhizosolenia setigera**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isoplica**Rouxia naviculoides**Rouxia obesa*R 6 *Shionodiscus oestrupli* EEF*Shionodiscus praeoestrupli**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioidea**Thalassionema nitzschioidea var. incurvatum**Thalassionema nitzschioidea var. inflatum**Thalassionema nitzschioidea var. parvum**Thalassionema pseudonitzschioidea**Thalassionema schraderi**Thalassiosira antiqua**Thalassiosira bioculata**Thalassiosira castanea**Thalassiosira convexa**Thalassiosira decipiens**Thalassiosira dubiosa**Thalassiosira eccentrica* EEF*Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularis**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lucas**Thalassiosira manifesta**Thalassiosira marjamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudata**Thalassiosira praeabyssi**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens*R 1 *Chaetoceros Resting Spores* EEEEE*TOTAL of VEGETATIVE CELLS*

100

100

100

100

100

100

100

100

Diatom zones (NPD)**BAREN****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 spp.
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 spp.
Aclinoplychus senarius
Aclinoplychus vulgaris
Aclinoplychus 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.
Cavifitlus exiguis
Cavifitlus jousseanus
Cavifitlus lanceolatus
Cavifitlus linearis
Cavifitlus miocenicus
Cavifitlus rectus
Cavifitlus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscindodiscus asterophorus
Coscindodiscus marginatus
Coscindodiscus oculus-iridis
Coscindodiscus radiatus
Coscindodiscus rhombicus
Coscindodiscus symbolophorus
Cosmodiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurensis
Cyclorella striata
Cyclorella 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

Core, section, interval (cm)**W1418A-25H-CC****TOTAL PRESERVATION**

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praetylalna
Denticulopsis prakatayamiae
Denticulopsis praetexta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis subtropica
Diploneis spp.
Distephanoisira architecturalis
Distephanoisira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrata
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
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
Pseudopyxislla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/25

OBSERVER'S NAME: (TSV/KJ)

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergoni
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 oestrupli
Shionodiscus praeoestrupli
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira schraderi
Thalassiosira 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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjanica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

indet.

TOTAL ABUNDANCE:

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

TRACE 選集 (7.3から7.4) の分析は未だ

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

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

Cavilitus exiguis

Cavilitus jouseaeus

Cavilitus lanceolatus

Cavilitus linearis

Cavilitus miocenicus

Cavilitus rectus

Cestodiscus kugleri

Cestodiscus trochus

Cocconeis californica

Cocconeis costata

Cocconeis scutellum

Coscinodiscus asteromphalus

Coscinodiscus marginatus

Coscinodiscus oculus-iridis

Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symboloruphorus

Cosmoldiscus insignis

Crucidenticula ikebei

Crucidenticula kanayae

Crucidenticula nicobarica

Crucidenticula paranicobacara

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)

U1418A-261-2, 80 cm

TOTAL PRESERVATION

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

DATE: 2013/ June /27

OBSERVER'S NAME ITSUKI

*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis kawayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis preakatayamae**Denticulopsis praelauta**Denticulopsis simonsenii**Denticulopsis tamimurae**Denticulopsis vulgaris*

Diplotheis bombus

Diplotheis puella

Diplotheis smithii

Diplotheis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol

Eunotia pectinalis

Eunotia praerupta

Fragilaria construens (Ehrenberg) Grunow

Flagilariopsis cylindrus

*Fragilariopsis dollos**Fragilariopsis fossils*

Fragilariopsis oceanica

Fragilariopsis pilocena

Goniothecium decoratum

Goniothecium rogersii

Halamphora costata

Hydrodiscus obsoletus

Ikebea tenuis

Kisseleviella carina

Kisseleviella ezoensis

Kolzumia tatsunokuchiensis

Kozloviella minor

Lisitzinia ornata

*Mediaria magna**Mediaria splendida*

Melosira albicans

Navicula elginensis

Navicula lyraeoides

Navicula menisculus

Navicula salinarum

*Neodenticula kamschatkae**Neodenticula kolzumii**Neodenticula seminae*

Nitzschia challengerii

Nitzschia cylindrica

Nitzschia jouseae

Nitzschia palea

*Nitzschia reinholdii**Nitzschia rolandii*

Odontella aurita

Paralia sulcata

Podosira stelligera

Porosira glaciis

*Proboscia barbol**Proboscia curvirostris*

Proboscia interposita

Proboscia praearbarbi

Pseudodimmerogramma elegans

Pseudonitzschia seriata

Pseudopyxis americana

Pseudotriceratium radiosoreticulatum

Pyxidicula zabeliae

Raphoneis amphiceros

TOTAL ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 valves/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 praebargentii

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 nitzschioidea

Thalassionema nitzschioidea var. *incurvatum*Thalassionema nitzschioidea var. *inflatum*Thalassionema nitzschioidea var. *parvum*

Thalassionema pseudonitzschioidea

*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 marjamica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenudulus

Thalassiosira praeybabei

Thalassiosira robusta

Thalassiosira sanctaeae

*Thalassiosira singularis**Thalassiosira temperata*

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabeli

Thalassiothrix longissima

Trachynels aspera

Yoshidaia divergens

Cheiloceros 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)**U1418A - 26A - cc****TOTAL PRESERVATION**

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus ussuricensis
Actinocyclus spp.
Actinophy whole senarius
Actinophy whole vulgaris
Actinophy whole spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenidulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira balthymophala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoconis californica
Coccoconis costata
Coccoconis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coschiodiscus rhombicus
Coschiodiscus symbolophorus
Cosmoldiscus insignis
Crucidentula ikebei
Crucidentula kanayae
Crucidentula nicobarica
Crucidentula paranicobarica
Crucidentula 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 puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilia
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exzoensis
Kutzunia futsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula alginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kartschatica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia serata
Pseudopyxis americana
Pseudotriceratum radiosoreculatum
Pyxidicula zabelinea
Raphoneis amphiceros

DATE: 2013 / June / 25**OBSERVER's NAME:** TSVK /**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 praesbergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
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 bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassiosira schraderi
Thalassiosira 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidul
Thalassiosira praeybali
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiotrich longissima
Thalassiotrich spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD Y2

TOTAL ABUNDANCE:

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

R 23 Achnanthes groenlandica
 Achnanthes inflata
 Achnanthes lanceolata
 Achnanthes lineariformis ~~IEIEET~~

Achnocyclospora curvata ~~IEIEET~~
 Achnocyclospora ellipticus
 Achnocyclospora ingens

Achnocyclospora ingens f. nodus
 Achnocyclospora ingens f. planus
 Achnocyclospora oculatus

Achnocyclospora ochotensis
 Achnocyclospora octonarius
 Achnocyclospora robustus
 Achnocyclospora tsugaruensis

X Achnocyclospora senarius +
 Achnocyclospora vulgaris
 Araniscus lewisanus

Asteromphalus darwinii
 Asteromphalus oligocenicus
 Asteromphalus parvulus
 Asteromphalus robustus

Azpeitia biradiata
 Azpeitia komurae

Azpeitia nodulifera
 Azpeitia oligocenica

Azpeitia praenobilifera
 Azpeitia salisburyana

Azpeitia tabularis
 Azpeitia vetustissima

Bacterosira bathyomphala

Bacterosira fragilis

Cavitalus exiguus

Cavitalus jouseaeus

Cavitalus lanceolatus

Cavitalus linearis

Cavitalus miocenicus

Cavitalus rectus

Cestodiscus kugleri

Cestodiscus trochus

Coccineis californica

Coccineis costata -

Coccineis scutellum -

+ Coscinodiscus asteromphalus

+ Coscinodiscus marginatus

Coscinodiscus oculus-iridis

+ Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symboloruphus

Cosmoldiscus 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
Silico

9.6 → 10.5 11.0 11.5 12.0
 37.61 78

Core, section, interval (cm)

U1418A - 27H-1W, 122 cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 27

OBSERVER'S NAME ITSVK1

RELATIVE ABUNDANCE OF EACH TAXON

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

R / Rhizosolenia hebetata f. hiemalis

Rhizosolenia hebetata f. semispina

Rhizosolenia norvegica

Rhizosolenia praesbergonii

Rhizosolenia setigera

Roperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isoplica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris -

Thalassionema bacillaris

R 4 Thalassionema nitzschiooides

Thalassionema nitzschiooides var. incurvatum

Thalassionema nitzschiooides var. inflatum

Thalassionema nitzschiooides var. parvum

Thalassionema pseudonitzschiooides

Thalassionema schraderi

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica

Thalassiosira fasciculata

Thalassiosira fraga

R 2 Thalassiosira gravida

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregulata

Thalassiosira jacksonii

Thalassiosira jouseae

Thalassiosira leptopus

Thalassiosira lineata

Thalassiosira lusca

R 1 Thalassiosira manifesta

Thalassiosira marjamaica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeyabei

Thalassiosira robusta

Thalassiosira sanctae

Thalassiosira singularis

Thalassiosira temperata

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabeli

Thalassiothrix longissima

Trachyneis aspera

Yoshidaea divergens

X Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

100

P barbizi
 (80.8, 12.0)

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

Fragments x 2

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 turgurensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia briadita
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoconis californica
Coccoconis costata
Coccoconis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidiscula ikebei
Crucidiscula kanayae
Crucidiscula nicobarica
Crucidiscula paranicobarica
Crucidiscula 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)**UYA-27H-cc****TOTAL PRESERVATION**

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

DATE: 2013/June/25**OBSERVER's NAME: ITSUKI****RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 praesbergoni
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 pseudonitzschioidea
Thalassiosira schraderi
Thalassiosira 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 manjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala 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)**TRACE**

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 balthymophala
Bacterosira fragilis
Cavitatus exiguis
Cavitatus jouseaeus
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 symboloruphorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamureae
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)**U1418A - 28H-1W, 10cm****TOTAL PRESERVATION**

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

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedti
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dollosus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hydrodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glaciis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmericratera elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/27**OBSERVER's NAME ITSVK****RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 praebargentii
Rhizosolenia setigera
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella 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 nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassiosira antique
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 marjamicola
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidalia divergens

Chaetoceros* Resting Spores*TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD 127-235

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418A-28H-2W 72 cm

TOTAL PRESERVATION

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

*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**Actinoprychus senarius**Actinoprychus 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**Cavitalus exiguis**Cavitalus jouseaeus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cestodiscus kugleri**Cestodiscus trochus**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorophus**Cosmoldiscus 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*

Sponge

Dina -

← 10.0 → 11.0 ← 12.0

42 81

TOTAL PRESERVATION

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

*Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis kawaiyamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praealina**Denticulopsis pækatayamae**Denticulopsis prælauta**Denticulopsis simonsenii**Denticulopsis tamurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Dislephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilariopsis dololus**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis pilcena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebaea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisztnia ornata**Mediaria magna**Mediaria splendida**Melosira albicans**Navicula elginensis**Navicula lyraoides**Navicula menisculus**Navicula salinarum**Neodenticula kamschatkae**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praearbaroi**Pseudodimerogetrum elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

Nov. sp.

DATE: 2013/June/26

OBSERVER's NAME ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praebengonii

Rhizosolenia setigera

Roperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isoplica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschioidea

Thalassionema nitzschioidea var. incurvatum

Thalassionema nitzschioidea var. inflatum

Thalassionema nitzschioidea var. parvum

Thalassionema pseudonitzschioidea

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 lucsa

Thalassiosira manifesta

Thalassiosira marujamica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskiöeldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeybabei

Thalassiosira robusta

Thalassiosira sanctaeae

Thalassiosira singularis

Thalassiosira temporalis

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabei

Thalassiothrix longissima

Trachyneis aspera

Yoshidaia divergens

Chectoceros Resting Spores

TOTAL of VEGETATIVE CELLS

100

Stephanop. = 1
Th. sp T 2
T 3
T 4
T 5
T 6
T 7
T 8
T 9
T 10

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)

1418.A.28400

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bivalvata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathymophala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus 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
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawanuriae
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 hustedtii
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
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia declivis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolilosis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exzoensis
Kotzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula semina
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odonella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarboi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxis zabelinae
Raphoneis amphiceros

DATE: 25.6.2013

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 praesbergonii
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 praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

Undet (Shust BRN) U1X18A - 29H-1W, 50cm

TOTAL ABUNDANCE:

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

TRACE

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
Cavitalus exiguis
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikabei
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

Dino

Sporo

Core, section, interval (cm)

U1X18A - 29H-1W, 50cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonensei
Denticulopsis tamimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagellaropsis cylindrus
Fragilaria dolofolus
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis 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 lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
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 praearbarbi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 27

OBSERVER's NAME ITS VIC

RELATIVE ABUNDANCE OF EACH TAXON

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

R *Rhizosolenia hebetata* f. *hiemalis* —
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Roperia fessilata
Rocella gelida
Rocella praeinitia
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
R *Thalassionema nitzschiooides* *
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica T
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 marjamicana
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

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)**U1818A - 29H-3W, 95cm**TOTAL PRESERVATION**

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

DATE: 2013/June/27**OBSERVER'S NAME ITSUKI****RELATIVE ABUNDANCE of EACH TAXON**

A (>10 valves/FOV), C (1-10 vlvls/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 lewisanus
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
Cavitalus exiguus
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
Cosmoldiscus insignis
Crucidinicula ikebei
Crucidinicula kanayae
Crucidinicula nicobarica
Crucidinicula paranicobarica
Crucidinicula sawamureae
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 hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonserii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilaropsis cylindrus
Fragilaropsis dolilosis
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liszmania ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula safinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
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 praearbarboi
Pseudodimmericramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 marjamicana
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachynels aspera
Yoshidaea divergens

Chaetoceras 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 spp.
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 spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia fabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatibus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, interval (cm)

14/8/A. 20HCC

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis laute
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellebeckia sol
Ellebeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilia
Fragilariopsis oceanica
Fragilariopsis plicatena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschikata
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glaciis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratum radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 25.6.2013

OBSERVER's NAME KONNU

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 praeburgonii
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 oestrupili
Shionodiscus praeoestrupili
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
Thalassiosira schraderi
Thalassiosira 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia 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)**W1418A 30H-1W 125cm****TOTAL PRESERVATION**

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

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
Actinoprychus senarius
Actinoprychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenobifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira balthyomphala
Bacteriosira fragilis
Cavitalis exiguis
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphus
Cosmoldiscus insignis
Crudenticula ikebeli
Crudenticula kanayae
Crudenticula nicoberica
Crudenticula paranicobarica
Crudenticula 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 kafatayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eurotia pectinata var. *minor*
Eurotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis 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 lyroidea
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbarbi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/26

OBSERVER's NAME ITSVICI

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 praesbergonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidala divergens

Cheiropceras Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

undet. (almost barren) U1418A - 30H-CC

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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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 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 fabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus 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
Cosmoldiscus Insignis
Crudidentula ikebei
Crudidentula kanayae
Crudidentula nicobarica
Crudidentula paranicobarica
Crudidentula sawanurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surrella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *arcuata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis laute
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanoisira architecturalis
Distephanoisira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis placentae
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula alginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kantschikata
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porusira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearboei
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyridicula zabelinae
Raphoneis amphiceros

DATE: 2013 / June / 25

OBSERVER's NAME: 1750KCI

RELATIVE ABUNDANCE OF EACH TAXON

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

X / *Rhizosolenia hebetata* f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
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 T
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseana
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicola
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulata
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umiacensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Dim 3+

12.5 13.0 13.5 全面 25.5

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)**U1418A-31H-CC**TOTAL PRESERVATION**

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

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.
Areniscus lewisianus
Areniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpelia bivalvis
Azpelia komurae
Azpelia nodulifera
Azpelia oligocenica
Azpelia praenodulifera
Azpelia salisburyana
Azpelia tabularis
Azpelia vetustissima
Azpelia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguis
Cavitatus jousseenus
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
Cosmoldiscus insignis
Crucidenticula ikabei
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 praesoluta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunolia pectinalis var. *minor*
Eunolia praerupta var. *praerupta*
Eunolia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exzoensis
Kolzumia tatsuokuchiensis
Kozloviella minor
Liszitnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbolii
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 25

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)

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 praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turnis
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 irregularis
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lucsa
Thalassiosira manifesta
Thalassiosira manjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybali
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala 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)

UV18A-32H-CC

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugarvensis
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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis 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 ischaboenensis
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 praeyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplolepis bombus
Diplolepis puelia
Diplolepis smithii
Diplolepis suborbicularis
Diplolepis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilaropsis dolollus
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
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
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 berbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopediastrum americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Rhaphoneis amphiceros

DATE: 2013 / June / 25

OBSERVER'S NAME **ITSUKI**

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergonii
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 praesoestrupii
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 irregularis
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 praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Brown

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418A - 334 - 14, 28 cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 26

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
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 levisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradaria
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavifatus exiguis
Cavifatus jouseanus
Cavifatus lanceolatus
Cavifatus linearis
Cavifatus micenicus
Cavifatus rectus
Cavifatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellatum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
Delphineis surirella
Delphineis spp.

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 simsonenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halambphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchensis
Kozloviella minor
Listizinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
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 praearboei
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae

Raphoneis amphiceros
Raphoneis spp.
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 praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
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 nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
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)

Under

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1718A-33H-2W, 145cm

TOTAL PRESERVATION

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

DATE: 2013/June/26

OBSERVER's NAME

AKEMI Z

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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.
Caviflatus exiguis
Caviflatus jouseanus
Caviflatus lanceolatus
Caviflatus linearis
Caviflatus mioceneus
Caviflatus rectus
Caviflatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

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 spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsuokuchensis
Kozlovialla minor
Liszkinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challenger
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 praearborai
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
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 oestrupil
Shionodiscus praeoestrupil
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
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Thalassiosira jouseae
Thalassiosira leptopus
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Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
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

closed copula

Diatom zones (NPD)

undet (almost BRN) W4(8A - 33H - CC

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 / 25

OBSERVER'S NAME ITSKV

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/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 engens
Actinocyclus engens f. nodus
Actinocyclus engens 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 balthyomphala
Bacterosira fragilis
Cavitalus exiguus
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
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 hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilcena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisselevilla carina
Kisselevilla ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztnia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odonella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Roperia tesselata
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
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Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira urmadiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Dina +