

Diatom zones (NPD)

Core, section, interval (cm)

1417D-14-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)

Underdetermined (nearly Barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira 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 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 ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Th. sp T P

DATE: 2013 / June / 11

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 paebergonii
Rhizosolenia seligera
Roperia tesselata
Roella gelida
Roella praeinitia
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
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 praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

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 ochoensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinopeltichus senarius**Actinopeltichus vulgaris**Araniscus lewisiensis**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Azpeitia biradiata**Azpeitia komrae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavatitus exiguus**Cavatitus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus 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 ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphinella angustata**Delphinella ischaboeensis**Delphinella kippae**Delphinella sachalinensis**Delphinella simonisenii**Delphinella surirella*

closed capula +

Act. sp. T (R)

Th. sp. IF (R)

Core, section, interval (cm)

14/17 D-2H-CC

TOTAL PRESERVATION

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

- Denticulopsis crassa*
- Denticulopsis dimorpha* var. *dimorpha*
- Denticulopsis dimorpha* var. *areolata*
- Denticulopsis hustedti*
- Denticulopsis hyalina*
- Denticulopsis kawaiyamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha* var. *minor*
- Denticulopsis praedimorpha* var. *praedimorpha*
- Denticulopsis praealytina*
- Denticulopsis prakayamae*
- 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
- Fragilariopsis cylindrus*
- Fragilariopsis dolloides*
- Fragilariopsis fossilis*
- Fragilariopsis oceanica*
- Fragilariopsis pilicena*
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hydrodiscus 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* — (R)
- 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 praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxis americana*
- Pseudotriceratium radiosoreliculatum*
- Pyxidicula zabelinae*
- Raphoneis amphiceras*

Rest. spore —

DATE: 20/3/ June/11

OBSERVER's NAME AKEMZ

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* — (T) (R)*Rhizosolenia hebetata* f. *semispina**Rhizosolenia norwegica**Rhizosolenia paebergoni**Rhizosolenia setigera**Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupli* F (R)*Shionodiscus paeoestrupli**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* — (T) (R)*Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida* — (R)*Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularata**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus* — (F) (R)*Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeylebei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temperiei**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiotrich longissima**Trachyneis aspera**Yoshidaea divergens**Chaetoceros Resting Spores* 1 (B)

TOTAL OF VEGETATIVE CELLS 36

Diatom zones (NPD)

NPD 12?

TOTAL ABUNDANCE:

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

 nearly 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**Actinopeltalus senarius**Actinopeltalus vulgaris**Araniscus lewisanus**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Azpeitia biradiata**Azpeitia komrae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Bacteriosira balthymophala**Bacteriosira fragilis**Cavatitus exiguis**Cavatitus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cestodiscus kugleri**Cestodiscus trochus**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*

Core, section, interval (cm)

V1977R3H-CC

TOTAL PRESERVATION

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

 nearly barren

- Denticulopsis crassa*
- Denticulopsis dimorpha* var. *dimorpha*
- Denticulopsis dimorpha* var. *areolata*
- Denticulopsis hastedti*
- Denticulopsis hyalina*
- Denticulopsis katalayamae*
- Denticulopsis lauta*
- Denticulopsis praedimorpha* var. *minor*
- Denticulopsis praedimorpha* var. *praedimorpha*
- Denticulopsis praehyalina*
- Denticulopsis preakatayamae*
- Denticulopsis praelauta*
- Denticulopsis simonsonii*
- 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
- Flagilariopsis cylindrus*
- Flagilariopsis dolollus*
- Flagilariopsis fossilis*
- Flagilariopsis oceanica*
- Flagilariopsis pilocena*
- Goniothecium decoratum*
- Goniothecium rogersii*
- Halamphora costata*
- Hyalodiscus obsoletus*
- Ikebea tenuis*
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kolzumia tatsunokuchiensis*
- Kozloviella minor*
- Liszitzinia ornata*
- Medilaria magna*
- Medilaria splendida*
- Melosira albicans*
- Navicula elginensis*
- 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*
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol*
- Proboscia curvirostris*
- Proboscia interposita*
- Proboscia praearbaroi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopixilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabeliae*
- Raphoneis amphiceros*

DATE: 2013/June/11

OBSERVER's NAME ARCEM2

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*
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouada 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 nordenstkioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenitidus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sanctae*
- Thalassiosira singularis*
- Thalassiosira temperei*
- Thalassiosira umaoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabeli*
- Thalassiotrix longissima*
- Trachyneis aspera*
- Yoshidai divergens*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

 Th. sp. II
 open copula +

Volcanic ash sample?

Diatom zones (NPD)

NPD 12?

TOTAL ABUNDANCE:

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

Achnanthes groenlandica

Achnanthes inflata

Achnanthes lanceolata

Achnanthes lineariformis

Actinocyclus curvatus

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 komureae

Azpeitia nodulifera

Azpeitia oligocenica

Azpeitia praenodulifera

Azpeitia salisburyana

Azpeitia tabularis

Azpeitia vetustissima

Bacterosira bathyomphala

Bacterosira fragilis

Cavatulus exiguis

Cavatulus jouseanus

Cavatulus lanceolatus

Cavatulus linearis

Cavatulus miocenicus

Cavatulus 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

Crucidencula ikebei

Crucidencula kanayae

Crucidencula nicobarica

Crucidencula paranicobarica

Crucidencula sawamuriae

Cyclotella striata

Cyclotella meneghiniana

Cymbella cistula

Cymbella minuta

Cymbella subaequalis

Delphineis angustata

Delphineis ischaboensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonsenii

Delphineis surirella

closed capula

Th. sp. T (P)

Core, section, interval (cm)

1970 - 44 - CC

TOTAL PRESERVATION

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

DATE: 2013/ June/11

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)

Denticulopsis crassa

Denticulopsis dimorpha var. *dimorpha*

Denticulopsis dimorpha var. *areolata*

Denticulopsis hastulif

Denticulopsis hyalina

Denticulopsis kafayamae

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

Flagilariopsis cylindrus

Flagilariopsis dololutus

Flagilariopsis fossili

Flagilariopsis oceanica

Fragilariopsis plicocena

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 kamtschatkae

Neodenticula kolzumii

Neodenticula seminae

Nitzschia challengeri

Nitzschia cylindrica

Nitzschia jouseae

Nitzschia palea

Nitzschia reinholdii

Nitzschia rolandii

Odontella aurita

Paralia sulcata

Podosira stelligera

Porosira glaciales

Proboscia barbol

Proboscia curvirostris

Proboscia interposita

Proboscia praebarbol

Pseudodimorpha elegans

Pseudonitzschia seriata

Pseudopyxis americana

Pseudotriceratum radiosoreticulatum

Pyxidicula zabelinae

Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*

Rhizosolenia hebetata f. *semispina*

Rhizosolenia norwegica

Rhizosolenia praebargentii

Rhoperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouda 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 grunwalli

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 preyabei

Thalassiosira robusta

Thalassiosira sanctae

Thalassiosira singularis

Thalassiosira temporel

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabel

Thalassiotrix longissima

Trachyneis aspera

Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Rest. spore -

(P)

Diatom zones (NPD)

NPD12

TOTAL ABUNDANCE:

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

39

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus ~~EEF~~
Actinocyclus ellipticus ~~EEF~~
Actinocyclus ingens ~~EEF~~
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis ~~EEF~~
Actinocyclus octonarius ~~EEF~~
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisiensis
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira 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 ~~(R)~~
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebeli
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

22

Core, section, interval (cm)

1917D-5H-CC

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hastatilis
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis paeckelmanniae
Denticulopsis paelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheleis bombus
Diplotheleis puella
Diplotheleis smithii
Diplotheleis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariaopsis cylindrus
Fragilariaopsis dolilobus
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis plocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztszina ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkica
Neodenticula kolzumii
Neodenticula seminae ~~(R)~~
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
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

DATE: 2013/June/11

OBSERVER'S NAME AFEMZ

RELATIVE ABUNDANCE OF EACH TAXON

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

/ Rhizosolenia hebetata f. *hiemalis* ~~(R)~~
 Rhizosolenia hebetata f. *semispina*

Rhizosolenia norwegica

Rhizosolenia praebergonii

Rhizosolenia setigera

Roperia tesselata

Roccella gelida

Roccella praenitida

Roccella semigelida

Roccella 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 grunwalli

Thalassiosira hyalina

Thalassiosira irregularis

Thalassiosira jacksonii

Thalassiosira jouseae

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 praeyabei

Thalassiosira robusta

Thalassiosira sanctaeiae

Thalassiosira singularis

Thalassiosira temporalis

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabel

Thalassiothrix longissima

Trachyneis aspera

Yoshidaea divergens

2 Th. sp. + ~~(R)~~ 0
 100

losed copula +

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1415D-6H-CC

TOTAL PRESERVATION

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

DATE: 20/3/June/11

OBSERVER's NAME AFEMZ

RELATIVE ABUNDANCE of EACH TAXON

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

3 Rhizosolenia hebetata f. hiemalis
 Rhizosolenia hebetata f. semispina
 Rhizosolenia norwegica

F R

Rhizosolenia praesbergeri

Rhizosolenia seligera

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 trifilatus

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 marjancica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeybabei

Thalassiosira robusta

Thalassiosira sanctetiae

Thalassiosira singularis

Thalassiosira temporalis

Thalassiosira umaoensis

Thalassiosira undulosa

Thalassiosira yabel

Thalassiothrix longissima

Trachyneis aspera

Yoshidalia divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

0

83

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 tsgaruensis

Actinptychus senarius

Actinptychus vulgaris

Araniscus lewisiensis

Asteromphalus darwini

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

Cavatula exigua

Cavatula jouseanus

Cavatula lanceolatus

Cavatula linearis

Cavatula miocenicus

Cavatula rectus

Cestodiscus kugleri

Cestodiscus trochus

Cocconeis californica

Cocconeis costata

Cocconeis scutellum

Coscinodiscus asteromphalus

Coscinodiscus marginatus

Coscinodiscus oculus-iridis

Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symblophorus

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 ischaboenensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonsenii

Delphineis surirella

loss of copulation

1 Acc. sp. - R

7 Th. sp. T R

1 Hyalodiscus sp. - R

Denticulopsis crassa
 Denticulopsis dimorpha var. dimorpha
 Denticulopsis dimorpha var. areolata
 Denticulopsis hustedii
 Denticulopsis hyalina
 Denticulopsis ketayamae
 Denticulopsis lauta
 Denticulopsis praedimorpha var. minor
 Denticulopsis praedimorpha var. praedimorpha
 Denticulopsis praehyalina
 Denticulopsis pækata yamae
 Denticulopsis paelauta
 Denticulopsis simonsenii
 Denticulopsis tanimurae
 Denticulopsis vulgaris
 Diplotheia bombus
 Diplotheia puella
 Diplotheia smithii
 Diplotheia suborbicularis
 Distephanosira architecturalis
 Ellerbeckia sol
 Eunotia pectinalis var. minor
 Eunotia praerupta var. praerupta
 Fragilaria construens (Ehrenberg) Grunow
 Flagilariopsis cylindrus
 Fragilariopsis dololos
 Fragilariopsis fossils
 Fragilariaopsis oceanica
 Fragilariopsis plicena
 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 - R

Nitzschia challengeri
 Nitzschia cylindrica
 Nitzschia jouseae
 Nitzschia palea
 Nitzschia reinholdii
 Nitzschia rolandii
 Odontella aurita - R
 Paralia sulcata
 Podosira stelligera
 Porosira glacialis
 Proboscia barbol
 Proboscia curvirostris
 Proboscia interposita
 Proboscia praearbaroi
 Pseudodimorpha elegans
 Pseudonitzschia seriata
 Pseudopixilla americana
 Pseudotriceratium radiosoreliculatum
 Pyrdicula zebelinea
 Raphoneis amphiceros

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 f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligoceneus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bivalvata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenea
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus 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
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)

1417.D. 741W, 120cm

DATE: 13.6.2013

OBSERVER's NAME konivo

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 hustedtii
Denticulopsis hyalina
Denticulopsis katajamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praevalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunota pectinalis var. minor
Eunota praerupta var. praerupta
Eunota sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisselviella carina
Kisselviella ezoensis
Kolzumla tatsunokuchiensis
Kozloviella minor
Liszinaria ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
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 interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia serifata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabelnae
Raphoneis amphiceros
Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouvia 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 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
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)

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradaria
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus micronicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmiodiscus 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
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1817.D.7H2W.14cm

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis kalyamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloplus
Fragilariopsis fossile
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxydia americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 13.6.2013

OBSERVER's NAME KORANO

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 tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouvia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupilis
Shionodiscus paoeoestrupilis
Shionodiscus trifillus
Stephanopyxis dimorpha
Stephanopyds 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 lusca
Thalassiosira manifesta
Thalassiosira marjoramica
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.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1917D - 7H-rc

TOTAL ABUNDANCE:

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

Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurasaki
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavitalus exiguis
Cavitalus jouseae
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 symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebeli
Crucidenticula karayae
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

TOTAL PRESERVATION

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

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 paeckelmanniae
Denticulopsis paelauta
Denticulopsis simonsonii
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
Flagilarioris cylindrus
Fragilariopsis dolilobus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxis zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 11

OBSERVER's NAME AKERU

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
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjoramica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Cheirotoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

closed copula

Diatom zones (NPD)

NPD II

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.
Actinopithicus senarius
Actinopithicus vulgaris
Actinopithicus 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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseae
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus mioceneus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
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
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)

147. D. 843w. 120cm

TOTAL PRESERVATION

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

Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
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 ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminaiae
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 curvirostra
Proboscia interposita
Proboscia praebarbolii
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 13.6.2013

OBSERVER's NAME Konouo

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 praebengonii
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
R 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 sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp. -
R Thalassiothrix longissima, F
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Cheirotoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Silico T
 closed copula +

14

Diatom zones (NPD)

NPDI

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 Isaguruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus 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 salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavilatus exiguis
Cavilatus jouseaeus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
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)

1417.D.0418W.6cm

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
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kissellevilla carina
Kissellevilla ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumii
Neodenticula seminaiae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscidea barbol
Proboscidea curvirostris
Proboscidea interposita
Proboscidea praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 13.6.2013

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)

R 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 cestrupii
Shionodiscus praecestrupii
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 marjamicia
Thalassiosira mediaconvergente
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeylebei
Thalassiosira robusta
Thalassiosira sancteae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
R Thalassiothrix longissima +
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Riliu -

Rads +

Sponge +

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 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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradaria
Azpeitia komrae
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 micronicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 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)

14/17. D. 845W 123cm

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis kaiyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekaiyamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossilia
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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatca
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
Proboscidea barbol
Proboscidea curvirostris
Proboscidea interposita
Proboscidea praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia serata
Pseudoxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 13.6.2013

OBSERVER's NAME Kornov

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
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifilus
Stephanopyxis dimorpha
Stephanopyds 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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiotrix longissima
Thalassiotrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

SD 078 T

3 - 28

Diatom zones (NPD)

Core, section, interval (cm)

14170 D - 8M - CC

TOTAL ABUNDANCE:

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

Barren!

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinopytchus senarius**Actinopytchus 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**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavitalus exiguis**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 symbophorus**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 simonserii**Delphineis surirella*

TOTAL PRESERVATION

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

*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hasteditii**Denticulopsis hyalina**Denticulopsis kawaiyamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis praeplatyayamae**Denticulopsis praelauta**Denticulopsis simonserii**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*Fragilariaopsis cylindrus**Fragilariaopsis dolilobus**Fragilariaopsis fossilis**Fragilariaopsis oceanica**Fragilariaopsis plicocena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebaea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisztinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginiensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatica**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengerii**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbaroi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopixilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

DATE: 2013/June/11

OBSERVER'S NAME AFEMIZ

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**Roccella gelida**Roccella praenitida**Roccella semigelida**Roccella vigilans**Rouxia californica**Rouxia granda**Rouxia isoplica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii**Shionodiscus praecoestrupii**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 joussea**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira maryamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeybabei**Thalassiosira robusta**Thalassiosira sanctae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiothrix longissima**Trachyneis aspera**Yoshidaea divergens*

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

NPD 10 (113)

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

UWHD 9H-3W, 80cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 13

OBSERVER's NAME ITSUICHI

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 lewisiensis**Asteromphalus darwini**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Azpeitia biradiata**Azpeitia komurensis**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Bacterosira bathyomphala**Bacterosira fragilis**Cavatitus exiguis**Cavatitus jouseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cestodiscus kugleri**Cestodiscus trochus**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**Closteria +*

21.0

*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 tamurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Distephanoira architecturalis**Ellerbeckia sol**Eunotia pectinalis* var. *minor**Eunotia praerupta* var. *praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilariopsis dolobius**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis plicocena**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 elginiensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamschatkica**Neodenticula kolzumii**Neodenticula seminaea**Nitzschia challengerii**Nitzschia cylindrica**Nitzschia jouseana**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbolii**Proboscia curvirostris**Proboscia interposita**Proboscia praearbaroi**Pseudodimeroigrana elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Raphoneis amphiceros**Rydia zabeliae**Rydia zabeliae**Silicoxylon*

Diatom zones (NPD)

NPD 11 (103)

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 *TF* 4
R Actinocyclus ellipticus
A. Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
R Actinocyclus ochotensis - *Actsp II* 7
R Actinocyclus octonarius 1
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus senarius
Actinocyclus vulgaris
Araniscus lewisianus
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathymophtala
Bacteriosira fragilis
Cavilatus exiguis
Cavilatus jouseaeus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus ← 1
Coscinodiscus oculus-iridis
R Coscinodiscus radiatus +
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonensis
Delphineis surirella

Closed cap

Core, section, interval (cm)

U1417D 94-4, 103 cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilaropsis cylindrus
Flagilaropsis dolios
Flagilaropsis fossili
Flagilaropsis oceanica
Flagilaropsis pilosana
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 kamtschatkae
Neodenticula kolzumii
Neodenticula seminae *TF* 40
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscidea barbata
Proboscidea curvirostris 2
Proboscidea interposita
Proboscidea praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelinae
Raphoneis amphiceros

DATE: 2013 / June / 13

OBSERVER's NAME TSUKI

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)

F Rhizosolenia hebetula f. *hiemalis* *TF* 23
Rhizosolenia hebetula f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia seligera
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
R Shionodiscus oestrupii + *TF* 2
Shionodiscus praeoestrupii
R Shionodiscus trifilatus 2
Stephanopyxis dimorpha
R 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
F Thalassiosira eccentrica *TF* 8
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
R Thalassiosira leptopus - 1 *R Th. sp.* *TF* 4
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marumajica
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 umaoensis
Thalassiosira undulosa
R Thalassiosira yabeli
Thalassiothrix longissima *TF* 4
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores *TF* 9
 TOTAL OF VEGETATIVE CELLS

Achnanthes (86.2, 7.0)

S1 (100)

Diatom zones (NPD)

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

Burnan

Achnanthes greenlandica
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 darwini
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 exigua
Cavatula jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidicula ikebei
Crucidicula kanayae
Crucidicula nicobarica
Crucidicula paranicobarica
Crucidicula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minutula
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
Delphineis surrella

Core, section, interval (cm)

1417D-9H-CC

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis 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 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 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 praearboi
Pseudodimeroigruma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxis zabelinae
Rhaphoneis amphiceros

DATE: 2013/Jan/11

OBSERVER'S NAME *AFEMZ*

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella 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 marulamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

NPD 11 (103) U1417D 10H-3W, 50cm

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)

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 komuras
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 miocenica
Cavatula 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 ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
Delphineis surirella

closed

100

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hastedti
Denticulopsis hyalina
Denticulopsis katalayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praeplatyamiae
Denticulopsis praelauta
Denticulopsis simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Distephanoira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariaopsis cylindrus
Fragilariaopsis dolloides
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis plicoena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminæ
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
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxis zabeliae
Raphoneis amphiceros

NPD 11

DATE: 2013/June/13

OBSERVER's NAME TSUKI

RELATIVE ABUNDANCE OF EACH TAXON

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

F *Rhizosolenia hebetata* f. *hiemalis* T 6
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergonii
Rhizosolenia setigera
Roperia tessellata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Rhiondiscus oestrupii
Rhiondiscus paeoestrupii
Rhiondiscus trifolius — / *R. Staph.* 4
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
R. Thalassionema nitzschioides T 2
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
F. Thalassiosira eccentrica T 4
Thalassiosira fasciculata
Thalassiosira fraga
R. Thalassiosira gravida +
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
R. 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 praeabyssi
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperiei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima T 4
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

T 2

Diatom zones (NPD)

NPD 11

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

WY47D, 104-6W, 16cm

TOTAL PRESERVATION

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

DATE: 2013 (June 13)

OBSERVER's NAME / TSURI /

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 ~~EFT 13~~
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis ~~(A.SP.)~~
Actinoplychus senarius ~~Accts PT~~
Actinoplychus vulgaris ~~(R) Accts PT~~
Araniscus lewisiensis
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus ~~-1~~
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Bacterosira balthymopha
Bacterosira fragilis
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus ~~-1~~
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 simonensis
Delphineis surirella

closed -

F.D.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hastifilii
Denticulopsis hyalina
Denticulopsis kawaiyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praeplatypterygia
Denticulopsis praelauta
Denticulopsis simonensis
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
Flagilariopsis cylindrus
Flagilariopsis dolollus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis plicocena
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 elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reichenbii
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

A

66

-1

Rhizosolenia hebetata f. *hiemalis* ~~F 7~~
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergeronii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii ~~T 2~~
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides ~~- 1~~
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 ~~F 3~~
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 marulamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancteae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiotrichia longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores ~~#IT 9~~
 TOTAL OF VEGETATIVE CELLS ~~102~~

Diatom zones (NPD)

Core, section, interval (cm)

1417D-10F1-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)

Undetermined (nearly barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus T(R)
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 lewisiatus
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurensis
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis T(R)
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidiscita ikebei
Crucidiscita kanayae
Crucidiscita nicobarica
Crucidiscita paranicobarica
Crucidiscita sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis kaiyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis paeckelmanniae
Denticulopsis praefluita
Denticulopsis simonensis
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheleis bombus
Diplotheleis puella
Diplotheleis smithii
Diplotheleis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
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 elginiensis
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
Pyrdicula zabelinae
Raphoneis amphiceros

DATE: 2013/June/11

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)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergeri
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 nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiotrichia longissima
Trachyneis aspera
Yoshidala divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Pse spore -

Diatom zones (NPD)

NPD 10

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
R Actinocyclus curvatus — 1
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus *IEIT* 12
Actinocyclus oculatus *IEIT* 12
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 komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus +
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

closed CSP

Ac oculatus IEIT 2
(SP)

5.0

Core, section, interval (cm)

WY17D, 11H-2W, 67 cm

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 paeckelmanniae
Denticulopsis paelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheleis bombus
Diplotheleis puella
Diplotheleis smithii
Diplotheleis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dolollus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis 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 merisinus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae *IEIT* 12 — 76
Nitzschia challenger
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol — 1
Proboscia curvirostris *IEIT* 12
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelinae
Raphoneis amphiceros

DATE: 2013/ June / 13

OBSERVER's NAME TSUKI

RELATIVE ABUNDANCE of EACH TAXON

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

R Rhizosolenia hebetata f. *hiemalis* — 1
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia setigera
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
R Shionodiscus oestrupii — 1
Shionodiscus praeoestrupii
R Shionodiscus trifultus — 1
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
R Thalassiosira eccentrica F 3
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira joussea
R Thalassiosira leptopus +
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyaber
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
R Thalassiotrich longissima — 1
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores *IEIT* 12

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)

Achnatheres groenlandica
Achnatheres inflata
Achnatheres lanceolata
Achnatheres 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 lewisiatus
Asterorhaphis darwinii
Asterorhaphis oligocenicus
Asterorhaphis parvulus
Asterorhaphis robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira balthymophala
Bacterosira fragilis
Cavatula exiguis
Cavatula jouseanaus
Cavatula lanceolatus
Cavatula linearis
Cavatula miocenicus
Cavatula rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmodiscus 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 simonisenii
Delphineis surirella

Art. sp. T

Sponge T

Core, section, interval (cm)

14/7. D. 11HCC

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 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
Flagilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatcica
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
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 12. 6. 2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergonii
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 praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis lurris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeabyei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 11

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1X17D - 12H - CC

TOTAL PRESERVATION

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

DATE: 2013 / June 12

OBSERVER's NAME ITSUKI

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)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedii</i>	R	<i>Rhizosolenia hebetatiformis</i>	1
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>		<i>Rhizosolenia hebetatiformis semispina</i>	
<i>Achnanthes lanceolata</i>	<i>Denticulopsis kawaiyamae</i>		<i>Rhizosolenia norwegica</i>	
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>		<i>Rhizosolenia praebengonii</i>	
<i>Achnanthes spp.</i>	<i>Denticulopsis praedimorpha var. minor</i>		<i>Rhizosolenia seligera</i>	
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha var. praedimorpha</i>		<i>Roparia tesselata</i>	
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praekaiyamae</i>		<i>Rocella gelida</i>	
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praelauta</i>		<i>Rocella praenitida</i>	
<i>Actinocyclus Ingens f. nodus</i>	<i>Denticulopsis simonsenii</i>		<i>Rocella semigelida</i>	
<i>Actinocyclus Ingens f. planus</i>	<i>Denticulopsis tanimurae</i>		<i>Rocella vigilans</i>	
<i>Actinocyclus oculatus</i>	<i>Denticulopsis vulgaris</i>		<i>Rouxia californica</i>	
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis sp.</i>		<i>Rouxia granda</i>	
<i>Actinocyclus octonarius</i>	<i>Diploneis bombus</i>		<i>Rouxia isopolica</i>	
<i>Actinocyclus robustus</i>	<i>Diploneis puello</i>		<i>Rouxia naviculoides</i>	
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis smithii</i>		<i>Rouxia obesa</i>	
<i>Actinocyclus spp.</i>	<i>Diploneis suborbicularis</i>		<i>Shionodiscus oestrupii</i>	1
<i>Actinoptychus senarius</i>	<i>Diploneis sp.</i>		<i>Shionodiscus praecostupri</i>	
<i>Actinoptychus vulgaris</i>	<i>Distephanosira architecturalis</i>		<i>Shionodiscus trifolius</i>	
<i>Actinoptychus spp.</i>	<i>Distephanosira sp.</i>		<i>Stephanopyxis dimorpha</i>	
<i>Araniscus levissianus</i>	<i>Ellerbeckia sol</i>		<i>Stephanopyxis horridus</i>	
<i>Araniscus spp.</i>	<i>Ellerbeckia sp.</i>		<i>Stephanopyxis turns</i>	
<i>Asteromphalus darwini</i>	<i>Eunoia pectinalis var. minor</i>		<i>Stephanopyxis spp.</i>	
<i>Asteromphalus oligocenicus</i>	<i>Eunoia praerupta var. praerupta</i>		<i>Thalassionema bacillaris</i>	
<i>Asteromphalus parvulus</i>	<i>Eunoia sp.</i>		<i>Thalassionema nitzschioides</i>	1
<i>Asteromphalus robustus</i>	<i>Fragilaria construens</i>		<i>Thalassionema nitzschioides var. incurvatum</i>	
<i>Asteromphalus spp.</i>	<i>Fragilaria sp.</i>		<i>Thalassionema nitzschioides var. inflatum</i>	
<i>Azpeitia biradiata</i>	<i>Fragilariopsis cylindrus</i>		<i>Thalassionema nitzschioides var. parvum</i>	
<i>Azpeitia komurae</i>	<i>Fragilariopsis dololus</i>		<i>Thalassionema pseudonitzschioides</i>	
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis fossils</i>		<i>Thalassionema schraderi</i>	
<i>Azpeitia oligocenica</i>	<i>Fragilariopsis oceanica</i>		<i>Thalassiosira spp.</i>	
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis plocena</i>		<i>Thalassiosira antiqua</i>	
<i>Azpeitia salisburyana</i>	<i>Fragilariopsis spp.</i>		<i>Thalassiosira biculata</i>	
<i>Azpeitia tabularis</i>	<i>Goniothecium decoratum</i>		<i>Thalassiosira castanea</i>	
<i>Azpeitia vetustissima</i>	<i>Goniothecium rogersii</i>		<i>Thalassiosira convexa</i>	
<i>Azpeitia spp.</i>	<i>Goniothecium spp.</i>		<i>Thalassiosira decipiens</i>	
<i>Bacterosira bathymopha</i>	<i>Grammatophora spp.</i>		<i>Thalassiosira dubiosa</i>	
<i>Bacterosira fragilis</i>	<i>Halamphora costata</i>		<i>Thalassiosira eccentrica</i>	
<i>Bacterosira spp.</i>	<i>Hyalodiscus obsoletus</i>		<i>Thalassiosira fasciculata</i>	
<i>Cavitalus exiguis</i>	<i>Hyalodiscus spp.</i>		<i>Thalassiosira fraga</i>	
<i>Cavitalus jouseaeus</i>	<i>Ikebae tenuis</i>		<i>Thalassiosira gravida</i>	
<i>Cavitalus lanceolatus</i>	<i>Kisseleviella carina</i>		<i>Thalassiosira grunowii</i>	
<i>Cavitalus linearis</i>	<i>Kisseleviella ezoensis</i>		<i>Thalassiosira hyalina</i>	
<i>Cavitalus miocenicus</i>	<i>Kolzumia tatsunokuchiensis</i>		<i>Thalassiosira irregulata</i>	
<i>Cavitalus rectus</i>	<i>Kozloviella minor</i>		<i>Thalassiosira jacksonii</i>	
<i>Cavitalus spp.</i>	<i>Listitzinia ornata</i>		<i>Thalassiosira jouseae</i>	
<i>Cestodiscus kugleri</i>	<i>Medilaria magna</i>		<i>Thalassiosira leptopus</i>	1
<i>Cestodiscus trochus</i>	<i>Medilaria splendida</i>		<i>Thalassiosira lineata</i>	
<i>Cestodiscus spp.</i>	<i>Melosira albicans</i>		<i>Thalassiosira lusca</i>	
<i>Coccineis californica</i>	<i>Navicula elginensis</i>		<i>Thalassiosira manifesta</i>	
<i>Coccineis costata</i>	<i>Navicula lyroides</i>		<i>Thalassiosira marulamica</i>	
<i>Coccineis scutellum</i>	<i>Navicula menisculus</i>		<i>Thalassiosira mediaconvexa</i>	
<i>Coscinodiscus asteromphalus</i>	<i>Navicula salinarum</i>		<i>Thalassiosira minutissima</i>	
<i>Coscinodiscus marginatus</i>	<i>Neodenticula kamtschatkae</i>		<i>Thalassiosira miocenica</i>	
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kolzumii</i>		<i>Thalassiosira nordenstkioldii</i>	
<i>Coscinodiscus radiatus</i>	<i>Neodenticula seminae</i>	1	<i>Thalassiosira orientalis</i>	
<i>Coscinodiscus rhombicus</i>	<i>Nitzschia challengerii</i>		<i>Thalassiosira praefraga</i>	
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia cylindrica</i>		<i>Thalassiosira praenudulus</i>	
<i>Cosmoldiscus Insignis</i>	<i>Nitzschia jouseae</i>		<i>Thalassiosira praeyabeli</i>	
<i>Crucidenticula ikebei</i>	<i>Nitzschia palea</i>		<i>Thalassiosira robusta</i>	
<i>Crucidenticula kanayae</i>	<i>Nitzschia reinholdii</i>		<i>Thalassiosira sanctetiae</i>	
<i>Crucidenticula nicobarica</i>	<i>Nitzschia rolandii</i>		<i>Thalassiosira singularis</i>	
<i>Crucidenticula paranicobarica</i>	<i>Odontella aurita</i>		<i>Thalassiosira temper</i>	
<i>Crucidenticula sawamureae</i>	<i>Paralia sulcata</i>		<i>Thalassiosira umaciensis</i>	
<i>Cyclotella striata</i>	<i>Paralia spp.</i>		<i>Thalassiosira undulosa</i>	
<i>Cyclotella meneghiniana</i>	<i>Podosira stelligera</i>		<i>Thalassiosira yabeli</i>	
<i>Cymbella cistula</i>	<i>Porosira glacialis</i>		<i>Thalassiosira spp.</i>	
<i>Cymbella minuta</i>	<i>Proboscia barbol</i>		<i>Thalassiotrix longissima</i>	
<i>Cymbella subaequalis</i>	<i>Proboscia curvirostris</i>		<i>Thalassiotrix spp.</i>	
<i>Delphineis angustata</i>	<i>Proboscia interposita</i>		<i>Trachyneis aspera</i>	
<i>Delphineis ischabooensis</i>	<i>Proboscia praearbaroi</i>		<i>Trachyneis spp.</i>	
<i>Delphineis kippae</i>	<i>Pseudodimerogetrum elegans</i>		<i>Yoshidai a divergens</i>	
<i>Delphineis sachalinensis</i>	<i>Pseudonitzschia seriata</i>		<i>Yoshidai spp.</i>	
<i>Delphineis simonsenii</i>	<i>Pseudopitytilla americana</i>			
<i>Delphineis surirella</i>	<i>Pseudotriceratium radiosorecificulatum</i>			
<i>Denticulopsis crassa</i>	<i>Pyxidicula zabeliae</i>			
<i>Denticulopsis dimorpha var. dimorpha</i>	<i>Raphoneis amphiceros</i>			
<i>Denticulopsis dimorpha var. areolata</i>				

Chaetoceros Resting Spores
TOTAL OF VEGETATIVE CELLS

8.0 ← → 10.0 11.0 12.0

R Th SP 15
R Ac SP - 1

Th. jouseae (f8.0, f8.2)

100

Diatom zones (NPD)

NPD 10

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417, D, 13H2W, 102

TOTAL PRESERVATION

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

DATE: 13. 6. 2013OBSERVER's NAME KONNO

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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradaria
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatatus exiguis
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cavatatus 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 symbolorophorus
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 ischaaboensis
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 praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilli
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 ezoensis
Kolzumia tatsunokuhensis
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 rotundii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabelnae
Rhaphoneis amphiceros

(R) 4 *Rhizosolenia hebetata* f. *hiemalis* F
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebicornis
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roudia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeoestrupil
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 — / (R)
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 sanctetiae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima — / (R)
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge T

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)

1417 D, 13H3W, 29

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatatus exiguis
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cavatatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus T T T T T T T T
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmofidiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossilli
Fragilariopsis oceanica
Fragilarlopsis 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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatcica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rollandi
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol T
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopoxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 13. 6. 2013

OBSERVER's NAME Ronno

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 isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praecestrupili
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira preyabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
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

Spongy T

Rads T

3 7

Diatom zones (NPD)

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus (R)
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
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
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavitatus exiguus
Cavitatus jouseae
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
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 ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
Delphineis surirella

Spong T

Core, section, interval (cm)

1417.D.13H cc

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preekalayamae
Denticulopsis praelauta
Denticulopsis simonisenii
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
Flagilariopsis cylindrus
Flagilariopsis dolichos
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilosa
Goniothecium decoratum
Goniothecium rogersii
Halimphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchiensis
Kozloviella minor
Listziniella ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula koizumi
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
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphidium americanum
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 12.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
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 trifidus
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 praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD II

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* T
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Z *Actinocyclus ochotensis* T
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus -
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coccinodiscus costata
Coccinodiscus scutellum
Coccinodiscus asteromphalus
Coccinodiscus marginatus T
Coccinodiscus oculus-iridis
Coccinodiscus radiatus
Coccinodiscus rhombicus
Coccinodiscus 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 simonisenii
Delphineis surirella

8 Aet. sp E/F

Sponge E/F

closed cupula +

Core, section, interval (cm)

147 D. 14HCC

TOTAL PRESERVATION

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

DATE: 12.6.2013OBSERVER'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)

10 *Rhizosolenia hebetata* f. *hiemalis* E/F
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentilla
Rhizosolenia seligera
Roperia tesselata
Roccella gelida
Roccella praeinida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus paeoestrupili
Shionodiscus trifolius
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 marjamicola
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetteae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiotrichia longissima E/F
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

68

19 - 3

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

38A-UH417D, 15H-1A, 33cm

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus isuguensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpellia biradiata
Azpellia komurei
Azpellia nodulifera
Azpellia oligocenica
Azpellia praenodulifera
Azpellia salisburyana
Azpellia tabularis
Azpellia velutissima
Azpellia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavatulus exiguus
Cavatulus jousseenus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorhus
Cosmoldiscus insignis
Crucididentula ikebeli
Crucididentula kanayae
Crucididentula nicobarica
Crucididentula paranicobarica
Crucididentula 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 hastedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis prasikatayamae
Denticulopsis praesulta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilaropsis dolilus
Fragilaropsis fossili
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikebaea tenula
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 kamtschatkica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundil
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreliculatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 2013 / June / 13
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
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema 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 irregularata
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjancica
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 yabel
Thalassiotrich longissima
Trachyneis aspera
Yoshidaia divergens

Cheatoceros Resting Spores

TOTAL of VEGETATIVE CELLS

closed copula

Diatom zones (NPD)

NPD 9 (or 10?) 14/7D-1SH-3A, 130cm

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes sp.**Actinocyclus curvatus**Actinocyclus ellipticus* T 9*Actinocyclus ingens**Actinocyclus ingens 1. nodus**Actinocyclus ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus sp.**Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus sp.**Araniscus lewisianus**Araniscus sp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus sp.**Azpellia biradiata**Azpellia komurea**Azpellia nodulifera**Azpellia oligocenica**Azpellia praenodulifera**Azpellia salisburyana**Azpellia tabularis**Azpellia velutissima**Azpellia sp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira sp.**Cavatulus exiguis**Cavatulus jousseaumii**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus miocenicus**Cavatulus rectus**Cavatulus sp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus sp.**Coccoconis californica**Coccoconis costata**Coccoconis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symboloraphus**Cosmodiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**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*

TOTAL PRESERVATION

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

*Denticulopsis hastedti**Denticulopsis hyalina**Denticulopsis katsayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. minor*Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praesauta**Denticulopsis almonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Distephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis* var. minor*Eunotia praerupta* var. *praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilaropsis dolloides**Fragilaropsis fossilia**Fragilariopsis oceanica**Fragilariopsis plicocena**Goniothecium decoratum**Goniothecium rogersii**Grammatophora spp.**Halamphora costata**Hyalodiscus obsoletus**Ikebaea tenula**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisitzinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula eligensis**Navicula lyroides**Navicula marinulus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kolzumii**Neodenticula seminase**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jousseaumii**Nitzschia palea**Nitzschia reinholdii**Nitzschia rotundil**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praebarbol**Pseudodimerogetrum elegans**Pseudonitzschia seriata**Pseudopixylla americana**Pseudotriceratium radiosoreliculatum**Pyxidicula zabeliae**Rhaphoneis amphiceros**closed -**B.D.*

DATE: 2013 / June / 14

OBSERVER's NAME 17SVIC

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 3
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
*Rhizosolenia praesbergonii**Rhizosolenia setigera*
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
*Rouxia naviculoides**Rouxia obesa*
Shionodiscus oestrupii T 3
*Shionodiscus preoestrupii**Shionodiscus trifultus* T 2
Stephanopyxis dimorpha
*Stephanopyxis horridus**Stephanopyxis turris* — 1*Thalassionema bacillaris*
Thalassionema nitzschioide
Thalassionema nitzschioide var. *incurvatum*
Thalassionema nitzschioide var. *infatum*
Thalassionema nitzschioide var. *parvum*
Thalassionema pseudonitzschioide
Thalassionema schraderi
*Thalassiosira antiqua**Thalassiosira bioculata*
*Thalassiosira castanea**Thalassiosira convexa*
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
*Thalassiosira fraga**Thalassiosira gravida* — 1*Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularis**Thalassiosira jacksonii**Thalassiosira jousseaumii* T 2*Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lucas**Thalassiosira manifesta**Thalassiosira merjumica**Thalassiosira mediacconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeybægi**Thalassiosira robusta**Thalassiosira sanctetiae**Thalassiosira singularis**Thalassiosira temperei**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiotrich longissima* — 1*Trachyneis aspera**Yoshidaia divergens**Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS 100

Accuratus orange

Diatom zones (NPD)

NPD 9 (or 10?) W1X17D. 15H-5A 85cm

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)

Achnanthes groenlandica

Achnanthes inflata

Achnanthes lanceolata

Achnanthes lineariformis

Achnanthes sp.

Actinocyclus curvatus

Actinocyclus ellipticus

Actinocyclus ingens

Actinocyclus ingens 1. nodus

Actinocyclus ingens 1. planus

Actinocyclus oculatus

Actinocyclus ochotensis

Actinocyclus octonarius

Actinocyclus robustus

Actinocyclus tsugaruensis

Actinocyclus sp.

Actinoplychus senarius

Actinoplychus vulgaris

Actinoplychus sp.

Araniscus lewisianus

Araniscus sp.

Asteromphalus darwinii

Asteromphalus oligocenicus

Asteromphalus parvulus

Asteromphalus robustus

Asteromphalus sp.

Azpeitia biradiata

Azpeitia komarae

Azpeitia nodulifera

Azpeitia oligocenica

Azpeitia praenodulifera

Azpeitia salsburyana

Azpeitia tabularis

Azpeitia velutissima

Azpeitia sp.

Bacterosira bathyomphala

Bacterosira fragilis

Bacterosira sp.

Cavifatus exiguum

Cavifatus jouseanus

Cavifatus lanceolatus

Cavifatus linearis

Cavifatus miocenicus

Cavifatus reclus

Cavifatus sp.

Cestodiscus kugleri

Cestodiscus trochus

Cestodiscus sp.

Coccoconis californica

Coccoconis costata

Coccoconis scutellum

Coscinodiscus asteromphalus

Coscinodiscus marginatus

Coscinodiscus oculus-iridis

Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symbophorus

Cosmoldiscus insignis

Crucidencula ikebei

Crucidencula kanayae

Crucidencula nicobarica

Crucidencula paranicobarica

Crucidencula sawamurae

Cyclotella striata

Cyclotella meneghiniana

Cymbella cistula

Cymbella minuta

Cymbella subaequalis

Delphineis angustata

Delphineis ischaabeensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonisenii

Delphineis surirella

Denticulopsis crassa

Denticulopsis dimorpha var. *dimorpha*

Denticulopsis dimorpha var. *areolata*

TOTAL PRESERVATION

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

Denticulopsis hustedtii

Denticulopsis hyalina

Denticulopsis kawaiyamae

Denticulopsis lauta

Denticulopsis praedimorpha var. *minor*

Denticulopsis praedimorpha var. *praedimorpha*

Denticulopsis praehyalina

Denticulopsis praeplaty whole

Denticulopsis praefluita

Denticulopsis simonisenii

Denticulopsis tanimurae

Denticulopsis vulgaris

Diploneis bombus

Diploneis puella

Diploneis smithii

Diploneis suborbicularis

Distephanosira architecturalis

Ellerbeckia sol

Eunotia pectinalis var. *minor*

Eunotia praeupta var. *praeupta*

Fragilaria construens (Ehrenberg) Grunow

Flagilariopsis cylindrus

Fragilariopsis dolollus

Fragilariopsis fissilis

Fragilariopsis oceanica

Fragilariopsis pilocena

Goniothecium decoratum

Goniothecium rogersii

Grammatophora spp.

Halamphora costata

Hyalodiscus obsoletus

Ikebaea tenue

Kisseleviella carina

Kisseleviella ezoensis

Kotzuma tatsunokuchiensis

Kozloviella minor

Lisitzinia ornata

Mediaria magna

Mediaria splendida

Melosira albicans

Navicula elgivensis

Navicula lyraeides

Navicula menisculus

Navicula salinarum

Neodenticula kartschatica

Neodenticula koizumii

Neodenticula seminata

Nitzschia challengeri

Nitzschia cylindrica

Nitzschia louseae

Nitzschia palea

Nitzschia reinhardii

Nitzschia rolandii

Odontella aurita

Paralia sulcata

Podosira stelligera

Porosira laevis

rbo

drostia

rosita

arboi

rama elegans

eritaria

ricana

radiosoreticulatum

Rhaphia

ros

DATE: 2013 / June 14

OBSERVER's NAME L TSUICHI

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 hebetula f. *hiemalis* *IE* *EF*

Rhizosolenia hebetula f. *semispina* *23*

Rhizosolenia norvegica

Rhizosolenia praebengoni

Rhizosolenia setigera

Roperia tesselata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii *1*

Shionodiscus praecostrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschioide

Thalassionema nitzschioide var. *incurvatum*

Thalassionema nitzschioide var. *inflatum*

Thalassionema nitzschioide var. *parvum*

Thalassionema pseudonitczschioide

Thalassionema schraderi

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravida

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregularata

Thalassiosira jousseaumei

Thalassiosira leptopus

Thalassiosira lineata

Thalassiosira lusca

Thalassiosira manifesta

Thalassiosira marjoramica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenudulus

Thalassiosira praeybabei

Thalassiosira robusta

Thalassiosira sanctaeiae

Thalassiosira singularis

Thalassiosira temporeli

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabeli

Thalassiotrix longissima

Trachyneis aspera

Yoshidaia divergens

Chaetoceros Resting Spores + R

TOTAL of VEGETATIVE CELLS

/100

Distephanus sp. + siliceous closed +

14

Diatom zones (NPD) *Near Barren**undetermined*

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U4470-15H-7, 77-82 cm

bottom

TOTAL PRESERVATION

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

DATE: 2013 / June / 42

OBSERVER'S NAME (TSV/K)

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)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedtii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katoryamae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praebengonii</i>
<i>Achnanthes spp.</i>	<i>Denticulopsis praedimorpha var. minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha var. praedimorpha</i>	<i>Roperia tesselata</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus Ingens f. nodus</i>	<i>Denticulopsis praelauta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus Ingens f. planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ocellatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis sp.</i>	<i>Rouxia isoplica</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia obesa</i>
<i>Actinocyclus spp.</i>	<i>Diploneis smithii</i>	<i>Shionodiscus cestrupili</i>
<i>Actinophythus senarius</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus praecestrupili</i>
<i>Actinophythus vulgaris</i>	<i>Diploneis sp.</i>	<i>Shionodiscus trifultus</i>
<i>Actinophythus spp.</i>	<i>Distephanosira architecturalis</i>	<i>Stephanopyxis dimorpha</i>
<i>Araniscus levissianus</i>	<i>Distephanosira sp.</i>	<i>Stephanopyxis horridus</i>
<i>Araniscus spp.</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis turmis</i>
<i>Asteromphalus darwini</i>	<i>Ellerbeckia sp.</i>	<i>Stephanopyxis spp.</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis var. minor</i>	<i>Thalassionema bacillaris</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta var. praerupta</i>	<i>Thalassionema nitzschioides</i>
<i>Asteromphalus robustus</i>	<i>Eunotia sp.</i>	<i>Thalassionema nitzschioides var. incurvatum</i>
<i>Asteromphalus spp.</i>	<i>Fragilaria construens</i>	<i>Thalassionema nitzschioides var. inflatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria sp.</i>	<i>Thalassionema nitzschioides var. parvum</i>
<i>Azpeitia komurensis</i>	<i>Fragilaropsis cylindrus</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia nodulifera</i>	<i>Fragilaropsis dolloides</i>	<i>Thalassionema schradeni</i>
<i>Azpeitia oligocenica</i>	<i>Fragilaropsis fossils</i>	<i>Thalassionema spp.</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilaropsis oceanica</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia salisburyana</i>	<i>Fragilaropsis plicocena</i>	<i>Thalassiosira biocellata</i>
<i>Azpeitia tabularis</i>	<i>Fragilaropsis spp.</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia vetustissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira convexa</i>
<i>Azpeitia spp.</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira decipiens</i>
<i>Bacterosira bathymophtala</i>	<i>Goniothecium spp.</i>	<i>Thalassiosira dubiosa</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora spp.</i>	<i>Thalassiosira eccentrica</i>
<i>Bacterosira spp.</i>	<i>Halamphora costata</i>	<i>Thalassiosira fasciculata</i>
<i>Cavillatus exiguius</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira fraga</i>
<i>Cavillatus louseanus</i>	<i>Hyalodiscus spp.</i>	<i>Thalassiosira gravida</i>
<i>Cavillatus lanceolatus</i>	<i>Ikebaa tenius</i>	<i>Thalassiosira grunowii</i>
<i>Cavillatus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira hyalina</i>
<i>Cavillatus micocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira irregulata</i>
<i>Cavillatus rectus</i>	<i>Kolzumia tatsunokuhliensis</i>	<i>Thalassiosira jacksonii</i>
<i>Cavillatus spp.</i>	<i>Kozloviella minor</i>	<i>Thalassiosira louseae</i>
<i>Cestodiscus kugleri</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus trochus</i>	<i>Medularia magna</i>	<i>Thalassiosira lineata</i>
<i>Cestodiscus spp.</i>	<i>Medularia splendida</i>	<i>Thalassiosira lucsa</i>
<i>Coccineis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira manifesta</i>
<i>Coccineis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira marjanica</i>
<i>Coccineis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira mediaconvexa</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira miocenica</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatkica</i>	<i>Thalassiosira nordenstkielii</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula koizumii</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminas</i>	<i>Thalassiosira praefraga</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengerii</i>	<i>Thalassiosira praenudulus</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praeyabeli</i>
<i>Crucidienticula ikebei</i>	<i>Nitzschia louseae</i>	<i>Thalassiosira robusta</i>
<i>Crucidienticula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira sanctetiae</i>
<i>Crucidienticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira singularis</i>
<i>Crucidienticula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira temperata</i>
<i>Crucidienticula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira umaoiensis</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira undulosa</i>
<i>Cyclotella meneghiniana</i>	<i>Paralia spp.</i>	<i>Thalassiosira yabel</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira spp.</i>
<i>Cymbella minute</i>	<i>Porosira glacialis</i>	<i>Thalassiothrix longissima</i>
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiothrix spp.</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Trachyneis aspera</i>
<i>Delphineis ischabeensis</i>	<i>Proboscia interposta</i>	<i>Trachyneis spp.</i>
<i>Delphineis kippae</i>	<i>Proboscia praebarbol</i>	<i>Yoshidai a divergens</i>
<i>Delphineis sachalinensis</i>	<i>Pseudodinmmerogramma elegans</i>	<i>Yoshidai a spp.</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia serata</i>	
<i>Delphineis surirella</i>	<i>Pseudoxypilla americana</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotriceratium radiosoreticulatum</i>	
<i>Denticulopsis dimorpha var. dimorpha</i>	<i>Pyxidicula zabelnae</i>	
<i>Denticulopsis dimorpha var. areolata</i>	<i>Raphoneis amphiceros</i>	

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

→ ← ↔
 12.5 13.0

72611

Diatom zones (NPD)	Core, section, interval (cm)	DATE: 2013/June/14
BARREN	U1417D - 16H - tw 9cm	OBSERVER's NAME IT'S UKI
TOTAL ABUNDANCE:		
M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)	G (good), M (moderate), P (poor)	
TOTAL PRESERVATION		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 hustedtii</i>	<i>Rhizosolenia hebetata</i> f. <i>hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata</i> f. <i>semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praebergonii</i>
<i>Achnanthes</i> sp.		
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Roperia tesselata</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens</i> I. <i>nodus</i>	<i>Denticulopsis praeplatyamiae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens</i> I. <i>planus</i>	<i>Denticulopsis praetexta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isoplica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus</i> sp.		
<i>Actinopytchus senarius</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinopytchus vulgaris</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupili</i>
<i>Actinopytchus</i> sp.		<i>Shionodiscus praesoestrupili</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira architecturalis</i>	
<i>Araniscus</i> sp.		
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sol</i>	<i>Shionodiscus trifultus</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunota pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis dimorpha</i>
<i>Asteromphalus parvulus</i>	<i>Eunota praerupta</i> var. <i>praerupta</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus robustus</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow	<i>Stephanopyxis turris</i>
<i>Asteromphalus</i> sp.		
<i>Azpeitia biradiata</i>	<i>Flagilariopsis cylindrus</i>	<i>Thalassionema bacillaris</i>
<i>Azpeitia komurae</i>	<i>Fragilariopsis dololus</i>	<i>Thalassionema nitzschiooides</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis fossilis</i>	<i>Thalassionema nitzschiooides</i> var. <i>incurvatum</i>
<i>Azpeitia oligocenica</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema nitzschiooides</i> var. <i>inflatum</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis plicena</i>	<i>Thalassionema nitzschiooides</i> var. <i>parvum</i>
<i>Azpeitia salisburyana</i>	<i>Goniothecium decoratum</i>	<i>Thalassionema pseudonitzschiooides</i>
<i>Azpeitia tabularis</i>	<i>Goniothecium rogersii</i>	<i>Thalassionema schradieri</i>
<i>Azpeitia velutissima</i>	<i>Grammatophora</i> spp.	<i>Thalassiosira antiqua</i>
<i>Azpeitia</i> sp.		
<i>Bacterosira bathymopha</i>	<i>Halamphora costata</i>	<i>Thalassiosira bioculata</i>
<i>Bacterosira fragilis</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira castanea</i>
<i>Bacterosira</i> sp.		
<i>Cavatibus exiguus</i>	<i>Ikebae tenula</i>	<i>Thalassiosira convexa</i>
<i>Cavatibus jousseanus</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira decipiens</i>
<i>Cavatibus lanceolatus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira dubiosa</i>
<i>Cavatibus linearis</i>	<i>Kolzumia tatsunokuchiensis</i>	<i>Thalassiosira eccentrica</i>
<i>Cavatibus miocenicus</i>	<i>Kozloviella minor</i>	<i>Thalassiosira fasciculata</i>
<i>Cavatibus rectus</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira fraga</i>
<i>Cavatibus</i> sp.		
<i>Cestodiscus kugleri</i>	<i>Medaria magna</i>	<i>Thalassiosira gravida</i>
<i>Cestodiscus trochus</i>	<i>Medaria splendida</i>	<i>Thalassiosira grunowii</i>
<i>Cestodiscus</i> sp.		
<i>Cocconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira hyalina</i>
<i>Cocconeis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira irregularis</i>
<i>Cocconeis scutellum</i>	<i>Navicula lyraides</i>	<i>Thalassiosira jacksonii</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira joussea</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira leptopus</i>
<i>Coscinodiscus oculus-iris</i>	<i>Neodenticula kamschatkica</i>	<i>Thalassiosira lineata</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kozumlii</i>	<i>Thalassiosira lusca</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminas</i>	<i>Thalassiosira manifesta</i>
<i>Coscinodiscus symbolorhus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira marjamica</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira mediacconvexa</i>
<i>Crudicentula ikebei</i>	<i>Nitzschia joussea</i>	<i>Thalassiosira minutissima</i>
<i>Crudicentula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira miocenica</i>
<i>Crudicentula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Crudicentula paranicobaria</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira orientalis</i>
<i>Crudicentula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira praefraga</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira praenudulus</i>
<i>Cyclotella meneghiniana</i>	<i>Podosira stelligera</i>	<i>Thalassiosira praeybæi</i>
<i>Cymbella cistula</i>	<i>Porosira glacialis</i>	<i>Thalassiosira robusta</i>
<i>Cymbella minuta</i>	<i>Proboscia barbol</i>	<i>Thalassiosira sanctetae</i>
<i>Cymbella subaequalis</i>	<i>Proboscia curvirostris</i>	<i>Thalassiosira singularis</i>
<i>Delphineis angustata</i>	<i>Proboscia interposita</i>	<i>Thalassiosira temporalis</i>
<i>Delphineis ischaboenensis</i>	<i>Proboscia prebarbata</i>	<i>Thalassiosira umaoiensis</i>
<i>Delphineis kippae</i>	<i>Pseudodimerogramma elegans</i>	<i>Thalassiosira undulosa</i>
<i>Delphineis sachalinensis</i>	<i>Pseudonitzschia seriata</i>	<i>Thalassiosira yabeli</i>
<i>Delphineis simonensis</i>	<i>Pseudoxiphidium radiosoreticulatum</i>	<i>Thalassiotrix longissima</i>
<i>Delphineis surirella</i>	<i>Pyxidicula zabelinae</i>	<i>Trachyneis aspera</i>
<i>Denticulopsis crassa</i>	<i>Raphoneis amphiceros</i>	<i>Yoshidaia divergens</i>
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>		
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>		

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

✓ 7/14

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

1417D 76H-3W 58cm

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 2013/June/14

OBSERVER's NAME **ITSUKI**

RELATIVE ABUNDANCE of EACH TAXON

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

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedtii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamiae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praesbergonii</i>
<i>Achnanthes sp.</i>		
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha var. minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praedimorpha var. praedimorpha</i>	<i>Ropertia tessellata</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens 1. nodus</i>	<i>Denticulopsis praekatayamiae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens 1. planus</i>	<i>Denticulopsis praelauta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus sp.</i>		
<i>Aclinoplychus senarius</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Aclinoplychus vulgaris</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupili</i>
<i>Aclinoplychus sp.</i>		<i>Shionodiscus praesoestrupili</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira architecturalis</i>	
<i>Araniscus sp.</i>		<i>Shionodiscus trifultus</i>
<i>Asteromphalus darwinii</i>	<i>Ellebeckia sol</i>	<i>Stephanopyxis dimorpha</i>
<i>Asteromphalus oligoconicus</i>	<i>Eunotia pectinalis var. minor</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta var. praerupta</i>	<i>Stephanopyxis turris</i>
<i>Asteromphalus robustus</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow	
<i>Asteromphalus sp.</i>		<i>Thalassionema bacillaris</i>
<i>Azpeitia biradiata</i>	<i>Flagilariopsis cylindrus</i>	<i>Thalassionema nitzschioides</i>
<i>Azpeitia komureae</i>	<i>Fragilariopsis dolloides</i>	<i>Thalassionema nitzschiooides var. incurvatum</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis fossilis</i>	<i>Thalassionema nitzschiooides var. inflatum</i>
<i>Azpeitia oligoconica</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema nitzschiooides var. parvum</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis pilocena</i>	<i>Thalassionema pseudonitzschiooides</i>
<i>Azpeitia salisburyana</i>	<i>Goniothecium decoratum</i>	<i>Thalassionema schradeni</i>
<i>Azpeitia tabularis</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia velutissima</i>	<i>Grammatophora spp.</i>	
<i>Azpeitia sp.</i>		<i>Thalassiosira bioculata</i>
<i>Bacterosira bathyomphala</i>	<i>Halamphora costata</i>	<i>Thalassiosira castanea</i>
<i>Bacterosira fragilis</i>	<i>Hyalodiscus obsoletus</i>	
<i>Bacterosira sp.</i>		<i>Thalassiosira convexa</i>
<i>Cavatibus exiguis</i>	<i>Ikebaea tenuis</i>	<i>Thalassiosira decipiens</i>
<i>Cavatibus jousseaui</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira dubiosa</i>
<i>Cavatitus lanceolatus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira eccentrica</i>
<i>Cavatitus linearis</i>	<i>Kolzumia tatsunokuchensis</i>	<i>Thalassiosira fasciculata</i>
<i>Cavatitus miocenicus</i>	<i>Kozloviella minor</i>	<i>Thalassiosira fraga</i>
<i>Cavatitus rectus</i>	<i>Lisitzinia ornata</i>	
<i>Cavatitus sp.</i>		<i>Thalassiosira gravida</i>
<i>Cestodiscus kugleri</i>	<i>Medilaria magna</i>	<i>Thalassiosira grunowii</i>
<i>Cestodiscus trochus</i>	<i>Medilaria splendida</i>	
<i>Cestodiscus sp.</i>		<i>Thalassiosira hyalina</i>
<i>Coccoconis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira irregularata</i>
<i>Coccoconis costata</i>	<i>Navicula elginiensis</i>	<i>Thalassiosira jacksonii</i>
<i>Coccoconis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira jousseaui</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira leptopus</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira lineata</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenitella kamtschatka</i>	<i>Thalassiosira lusca</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenitella kolzumii</i>	<i>Thalassiosira manifesta</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenitella seminas</i>	<i>Thalassiosira marjancica</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira mediaconvexa</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira minutissima</i>
<i>Crucidenticula ikebei</i>	<i>Nitzschia jousseaui</i>	<i>Thalassiosira miocenica</i>
<i>Crucidenticula kanayaee</i>	<i>Nitzschia palea</i>	<i>Thalassiosira nordenskioldii</i>
<i>Crucidenticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira orientalis</i>
<i>Crucidenticula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira praefraga</i>
<i>Crucidenticula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira praenidulus</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira praeyabei</i>
<i>Cyclotella meneghiniana</i>	<i>Podosira stelligera</i>	<i>Thalassiosira robusta</i>
<i>Cymbella cistula</i>	<i>Porosira glacialis</i>	<i>Thalassiosira sanctaeae</i>
<i>Cymbella minuta</i>	<i>Proboscia barbol</i>	<i>Thalassiosira singularis</i>
<i>Cymbella subaequalis</i>	<i>Proboscia curvirostris</i>	<i>Thalassiosira temperata</i>
<i>Delphineis angustata</i>	<i>Proboscia interposita</i>	<i>Thalassiosira umaoensis</i>
<i>Delphineis ischaboensis</i>	<i>Proboscia praearboei</i>	<i>Thalassiosira undulosa</i>
<i>Delphineis kippae</i>	<i>Pseudodimerogetrum elegans</i>	<i>Thalassiosira yabeli</i>
<i>Delphineis sachalinensis</i>	<i>Pseudonitzschia seriata</i>	<i>Thalassiotrichia longissima</i>
<i>Delphineis simonsenii</i>	<i>Pseudoxiphya americana</i>	<i>Trachyneis aspera</i>
<i>Delphineis surirella</i>	<i>Pseudotriceratium radiosoreticulatum</i>	<i>Yoshidaia divergens</i>
<i>Denticulopsis crassa</i>	<i>Pyxidicula zabelnae</i>	
<i>Denticulopsis dimorpha var. dimorpha</i>	<i>Raphoneis amphiceros</i>	
<i>Denticulopsis dimorpha var. areolata</i>		

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

アカニ

Diatom zones (NPD)

DAAREN

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

Core, section, interval (cm)

1417D-16H-5W, +31 cm

TOTAL PRESERVATION

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

Achnanthes groenlandica

Achnanthes inflata

Achnanthes lanceolata

Achnanthes lineariformis

Achnanthes sp.

Actinocyclus curvatulus

Actinocyclus ellipticus

Actinocyclus Ingens

Actinocyclus Ingens 1. *nodus*

Actinocyclus Ingens 1. *planus*

Actinocyclus oculatus

Actinocyclus ochotensis

Actinocyclus octonarius

Actinocyclus robustus

Actinocyclus tsugaruensis

Actinocyclus sp.

Actinoplychus senarius

Actinoplychus vulgaris

Actinoplychus sp.

Araniscus lewisianus

Araniscus sp.

Asteromphalus darwinii

Asteromphalus oligocenicus

Asteromphalus parvulus

Asteromphalus robustus

Asteromphalus sp.

Azpeitia biradata

Azpeitia komurae

Azpeitia nodulifera

Azpeitia oligocenica

Azpeitia praenodulifera

Azpeitia salisburyana

Azpeitia tabularis

Azpeitia velutissima

Azpeitia sp.

Bacterosira bathyomphala

Bacterosira fragilis

Bacterosira sp.

Cavatatus exiguus

Cavatatus jousseanus

Cavatatus lanceolatus

Cavatatus linearis

Cavatatus mioceneus

Cavatatus reclus

Cavatatus sp.

Cestodiscus kugleri

Cestodiscus trochus

Cestodiscus sp.

Coccoconeis californica

Coccoconeis costata

Coccoconeis scutellum

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

Cymbella cistula

Cymbella minutula

Cymbella subaequalis

Delphineis angustata

Delphineis ischaboeensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonsenii

Delphineis surirella

Denticulopsis crassa

Denticulopsis dimorpha var. *dimorpha*

Denticulopsis dimorpha var. *areolata*

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 praeplatyamiae

Denticulopsis praefluita

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

Fragilaricopsis dolilosis

Fragilaricopsis fossili

Fragilariopsis oceanica

Fragilaricopsis pilocena

Goniothecium decoratum

Goniothecium rogersii

Grammatophora spp.

Halimphora costata

Hyalodiscus obsoletus

Ikebaea tenuis

Kisseleviella carina

Kisseleviella ezoensis

Koizumiella tatsunokuchiensis

Kozloviella minor

Lisitzinia ornata

Medilaria magna

Medilaria splendida

Melosira albicans

Navicula elginiensis

Navicula lyraeoides

Navicula menisculus

Navicula salinarum

Neodenticula kamtschatka

Neodenticula kolzumii

Neodenticula seminae

Nitzschia challengeri

Nitzschia cylindrica

Nitzschia louseae

Nitzschia palea

Nitzschia reinholdii

Nitzschia rolandii

Odontella aurita

Paralia sulcata

Podosira stelligera

Porsiaria glacialis

Proboscia barbol

Proboscia curvirostris

Proboscia interposta

Proboscia praearboi

Pseudodimerogetrum elegans

Pseudonitzschia seriata

Pseudoxiphidium americanum

Pseudotriceratium radiosoreticulatum

Pyxidicula zabeliae

Raphoneis amphiceros

DATE: 2013/June/14

OBSERVER's NAME 17SVS1

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

Roperia tessellata

Rocella gelida

Rocella praenitida

Rocella semigelida

Rocella vigilans

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii

Shionodiscus praesoestrupii

Stephanodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Thalassionema bacillaris

Thalassionema nitzschioide

Thalassionema nitzschioide var. *incurvatum*

Thalassionema nitzschioide var. *inflatum*

Thalassionema nitzschioide var. *parvum*

Thalassionema pseudonitzschioide

Thalassionema schradeni

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 marjancica

Thalassiosira mediaconvexa

Thalassiosira minutissima

Thalassiosira miocenica

Thalassiosira nordenskioldii

Thalassiosira orientalis

Thalassiosira praefraga

Thalassiosira praenidulus

Thalassiosira praeybæi

Thalassiosira robusta

Thalassiosira sanctaeiae

Thalassiosira singularis

Thalassiosira temperata

Thalassiosira umaoiensis

Thalassiosira undulosa

Thalassiosira yabeli

Thalassiotrix longissima

Trachyneis aspera

Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 9 (or 10)

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417.D.16HCC

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 **R7**
 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 exiguum
Cavitatus jouseanus
 Cavitatus lanceolatus
 Cavitatus linearis
 Cavitatus mioceneus
 Cavitatus rectus
 Cestodiscus kugleri
 Cestodiscus trochus
 Cocconeis californica
 Coscinodiscus costata
 Cocconeis scutellum
 Coscinodiscus asteromphalus
 Coscinodiscus marginatus
 Coscinodiscus oculus-iridis
 Coscinodiscus radiatus
 Coscinodiscus rhombicus
 Coscinodiscus symbolophorus
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 ischabensis
 Delphineis kippae
 Delphineis sachalinensis
Delphineis simonisenii
 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 paeckelmayiae
Denticulopsis praelauta
Denticulopsis simonisenii
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
Flagilariopsis cylindrus
Flagilariopsis dolilosis
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilosa
Goniothecium decoratum
Goniothecium rogersii
Halimphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Listiinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii **R8**
Neodenticula seminae **R8** **R9** **R10** **R11** **R12**
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata **R5**
Podosira stelligera
Porosira glacialis
Proboscia barbol **R4**
Proboscia curvirostris **R4**
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudoxiphidium americanum
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 12.6.2013

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 paebergonii
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 praeoestrupii
Shionodiscus trifullus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incravatum*
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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabeli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores T

TOTAL of VEGETATIVE CELLS

Sponge -
 closed colony



Diatom zones (NPD)

NPD 9 (or 10?)

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U4417D-17H-2W, 112cm

TOTAL PRESERVATION

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

DATE: 2013/June/14

OBSERVER's NAME ITSUKI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 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 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**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavatula exigua**Cavatula jouseanaus**Cavatula lanceolatus**Cavatula linearis**Cavatula miocenicus**Cavatula reclus**Cestodiscus kugleri**Cestodiscus trochus**Coccoineis californica**Coccoineis costata**Coccoineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmiodiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphinella angustata**Delphinella ischaboenensis**Delphinella kippae**Delphinella sachalinensis**Delphinella simonsenii**Delphinella surirella*

closed cap -

*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 paeakatayamae**Denticulopsis paelauta**Denticulopsis simonsenii**Denticulopsis tamimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diplopseis suborbicularis**Distephanoisira architecturalis**Ellerbeckia sol**Eunotia pectinalis* var. *minor**Eunotia praerupta* var. *praerupta**Fragilaria construens* (Ehrenberg) Grunow*Fragilariaopsis cylindrus**Fragilariaopsis dolollus**Fragilariaopsis fossalis**Fragilariaopsis oceanica**Fragilariaopsis 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 lyroides**Navicula merensculus**Navicula salinarum**Neodenticula kamtschatica**Neodenticula kolzumii**Neodenticula seminiae**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stellaris**Porosira glaciata**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praearboia**Pseudodimmerogramma elegans**Pseudonitzschia serifata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

A → 85/

F → NPD 10?

B →

C →

D →

E →

F →

G →

H →

I →

J →

Rhizosolenia hebetata f. *hiemalis**Rhizosolenia hebetata* f. *semispina**Rhizosolenia norwegica**Rhizosolenia praebergonii**Rhoperia tesselata**Roccella gelida**Roccella praenitida**Roccella semigelida**Roccella 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 grunwilli**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 nordenkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeabyssi**Thalassiosira robusta**Thalassiosira sanctissae**Thalassiosira singularis**Thalassiosira temperiel**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabei**Trachyneis aspera**Yoshidaea divergens**Chaetoceros Resting Spores*

TOTAL OF VEGETATIVE CELLS

100

←

11.0

N. koizumi (sec. pseudosop + -ata)

→

N. seminiae + -ata + -ata + -ata

N. koizumi + seminiae + -ata +封入剤を変えてcheckするまで

オズカヒテコロハ うれしくらい

Diatom zones (NPD)	Core, section, interval (cm)	DATE: 2013/June/11X
TOTAL ABUNDANCE:	TOTAL PRESERVATION	OBSERVER's NAME /TSVK/
M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)	G (good), M (moderate), P (poor)	RELATIVE ABUNDANCE of EACH TAXON
<i>Achnanthes groenlandica</i>	<i>Denticulopsis crassa</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis dimorpha</i> var. <i>areolata</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis hustedtii</i>	<i>Rhizosolenia praebengonii</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis katayamae</i>	<i>Roperia tessellata</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis lauta</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens</i> f. <i>nodus</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens</i> f. <i>planus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis praekatayamae</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis praelauta</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Denticulopsis simonsemii</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia naviculoides</i>
<i>Actinoptychus senarius</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia obesa</i>
<i>Actinoptychus vulgaris</i>	<i>Diploneis bombus</i>	<i>Shionodiscus oestrupii</i>
<i>Araniscus levissianus</i>	<i>Diploneis puella</i>	<i>Shionodiscus praecostrupi</i>
<i>Asteromphalus darwinii</i>	<i>Diploneis smithii</i>	<i>Shionodiscus trifultus</i>
<i>Asteromphalus oligocenicus</i>	<i>Diploneis suborbicularis</i>	<i>Stephanopyxis dimorpha</i>
<i>Asteromphalus parvulus</i>	<i>Distephanosira architecturalis</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus robustus</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis turris</i>
<i>Azpeitia biradiata</i>	<i>Eunoia pectinalis</i> var. <i>minor</i>	<i>Thalassionema bacillaris</i>
Azpeitia komurae	<i>Eunoia praerupta</i> var. <i>praerupta</i>	<i>Thalassionema nitzschioides</i>
<i>Azpeitia nodulifera</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow	<i>Thalassionema nitzschioides</i> var. <i>incurvatum</i>
<i>Azpeitia oligocenica</i>	<i>Flagilariopsis cylindrus</i>	<i>Thalassionema nitzschioides</i> var. <i>inflatum</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis dolollus</i>	<i>Thalassionema nitzschioides</i> var. <i>parvum</i>
<i>Azpeitia salisbyana</i>	<i>Fragilariopsis fossili</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia tabularis</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia vetustissima</i>	<i>Fragilariopsis pilocena</i>	<i>Thalassiosira antiqua</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira biculata</i>
<i>Bacterosira fragilis</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira castanea</i>
<i>Cavilatus exiguis</i>	<i>Halamphora costata</i>	<i>Thalassiosira convexa</i>
Cavilatus jouseanus	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira decipiens</i>
<i>Cavilatus lanceolatus</i>	<i>Ikebea tenuis</i>	<i>Thalassiosira dubiosa</i>
<i>Cavilatus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira eccentrica</i>
<i>Cavilatus miocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira fasciculata</i>
<i>Cavilatus rectus</i>	Kozuma tatsuokuchiensis	<i>Thalassiosira fraga</i>
<i>Cestodiscus kugleri</i>	<i>Kozloviella minor</i>	<i>Thalassiosira gravida</i>
<i>Cestodiscus trochus</i>	<i>Lisitzinia ornata</i>	Thalassiosira grunowii
<i>Coccconeis californica</i>	Mediaria magna	<i>Thalassiosira hyalina</i>
<i>Coccconeis costata</i>	Mediaria splendida	<i>Thalassiosira irregularis</i>
<i>Coccconeis scutellum</i>	<i>Melosira albicans</i>	Thalassiosira jacksonii
<i>Coscinodiscus asteromphalus</i>	<i>Navicula elginiensis</i>	<i>Thalassiosira jouseae</i>
<i>Coscinodiscus marginalis</i>	<i>Navicula lyroides</i>	<i>Thalassiosira leptopus</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Navicula menisculus</i>	<i>Thalassiosira linea</i>
<i>Coscinodiscus radiatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira lusca</i>
<i>Coscinodiscus rhombicus</i>	Neodenticula kamtschatkae	<i>Thalassiosira manifesta</i>
<i>Coscinodiscus symbolophorus</i>	Neodenticula kolzumii	Thalassiosira maruyamica
Cosmoldiscus insignis	Neodenticula seminae	<i>Thalassiosira mediaconvexa</i>
<i>Crucidenticula ikebeli</i>	<i>Nitzschia challengeri</i>	Thalassiosira minutissima
<i>Crucidenticula kanayae</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira micoenica</i>
<i>Crucidenticula nicobarica</i>	Nitzschia jouseae	<i>Thalassiosira nordenskioldii</i>
<i>Crucidenticula paranicobarica</i>	<i>Nitzschia palea</i>	<i>Thalassiosira orientalis</i>
<i>Crucidenticula sawamurae</i>	Nitzschia reinholdii	<i>Thalassiosira praefraga</i>
<i>Cyclotella striata</i>	Nitzschia rolandii	<i>Thalassiosira praenidulus</i>
<i>Cyclotella meneghiniana</i>	<i>Odontella aurita</i>	<i>Thalassiosira praeyabei</i>
<i>Cymbella cistula</i>	<i>Paralia sulcata</i>	<i>Thalassiosira robusta</i>
<i>Cymbella minuta</i>	<i>Podosira stelligera</i>	<i>Thalassiosira sanctetiae</i>
<i>Cymbella subaequalis</i>	<i>Porosira glacialis</i>	<i>Thalassiosira singularis</i>
<i>Delphineis angustata</i>	Proboscia barbol	<i>Thalassiosira temperi</i>
<i>Delphineis ischaboensis</i>	Proboscia curvirostris	<i>Thalassiosira umaoiensis</i>
<i>Delphineis kippae</i>	<i>Proboscia interposta</i>	<i>Thalassiosira undulosa</i>
<i>Delphineis sachalinensis</i>	<i>Proboscia praearbori</i>	Thalassiosira yabel
<i>Delphineis simonsonii</i>	<i>Pseudodimmerogramma elegans</i>	<i>Thalassiothrix longissima</i>
<i>Delphineis surirella</i>	<i>Pseudonitzschia seriata</i>	<i>Trachyneis aspera</i>
	<i>Pseudopyxis americana</i>	<i>Yoshidaea divergens</i>
	<i>Pseudotriceratium radiosoreticulatum</i>	
	Pyxidicula zabelnae	
	<i>Raphoneis amphiceros</i>	
		<i>Cheiloceras Resting Spores</i>

7/20/14 - 7/22/14

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)

UW17D-17H-5W, 106 cm

TOTAL PRESERVATION

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

DATE: 2013/June/14

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)

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
Actinopeltichus senarius
Actinopeltichus 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 exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus 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 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 simonisenii
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 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 dolofus
Flagilariopsis fossili
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumla tatsunokuchiensis
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 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
Pseudodimeroogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

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 isoploca
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira uraoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Cheatoceras Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

~~BARREN 3~~

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)Core, section, interval (cm)
WYK17D-17H-6W. 116m

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus 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.
Cavitalus exiguus
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus lineans
Cavitalus mioceneus
Cavitalus rectus
Cavitalus 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
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
Delphnells simonsenii
Delphnells 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
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolollus
Fragilaropsis 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
Mediaea magna
Mediaea splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/14
OBSERVER's NAME TSUKI

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxa californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus paeoestrupil
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 manjarmica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperale
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)

NPD 9

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417. D. 17HCC

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis*8 *Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus*26 *Actinocyclus oculatus* ~~EEEE~~*Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinopytchus senarius**Actinopytchus 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**Cavatatus exiguus**Cavatatus jouseanus**Cavatatus lanceolatus**Cavatatus linearis**Cavatatus mioceneus**Cavatatus rectus**Cestodiscus kugleri**Cestodiscus trochus**Cocconeis californica**Coscinodiscus costata**Coscinodiscus 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 sawamureae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonensis**Delphineis surirella*9 Act. sp. ~~EE~~

closed copula +

sponge, E-

Rads 7

open copula +

Core, section, interval (cm)

1417. D. 17HCC

TOTAL PRESERVATION

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

*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedi**Denticulopsis hyalina**Denticulopsis kaiyamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis praeplatayamae**Denticulopsis praealata**Denticulopsis simonensis**Denticulopsis tanimurae**Denticulopsis vulgaris**Diplotheia bombus**Diplotheia puella**Diplotheia smithii**Diplotheia suborbicularis**Distephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis* var. *minor**Eunotia praerupta* var. *praerupta**Fragilaria construens* (Ehrenberg) Grunow*Fragilariopsis cylindrus**Fragilariopsis dolilobus**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis plicocena**Goniothecium decoratum**Goniothecium rogersii**Halimphora costata**Hyalodiscus obsoletus**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kozumia tatsunokuchiensis**Kozloviella minor**Lizidinia ornata**Mediaria magna**Mediaria splendida**Melosira albicans**Navicula elginensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kolzumi*10 *Neodenticula seminae* ~~EE~~*Nitzschia challengerii**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita*2 *Paralia sulcata* T*Podosira stelligera**Porosira glacialis**Proboscia barbol* ~~EE~~*Proboscia curvirostris**Proboscia interposita**Proboscia praearboi*1 *Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopixilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

DATE: 12.6.2013

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 paebergonii**Rhizosolenia setigera**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii**Shionodiscus paeoestrupii**Shionodiscus trifulus**Stephanopyxis dimorpha*/ *Stephanopyxis horridus* -*Stephanopyxis turris**Thalassionema bacillaris*/ *Thalassionema nitzschioidea* -*Thalassionema nitzschioidea* var. *incurvatum**Thalassionema nitzschioidea* var. *infundibulum**Thalassionema nitzschioidea* var. *parvum**Thalassionema pseudonitzschioidea**Thalassionema schredler**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 praenitidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel*2 *Thalassiothrix longissima* T*Trachyneis aspera**Yoshidaia divergens**Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

7 → 8

Diatom zones (NPD)

NPD 9 (or 10?)

Core, section, interval (cm)

U1X17D-18H-2W, 113 cm

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 2013 / June / 14x

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)

F Rhizosolenia hebetata f. hiemalis *DET* ✓
 Rhizosolenia hebetata f. semispina
 Rhizosolenia norwegica
 Rhizosolenia paebergonii

R Rhizosolenia setigera —

Rhizosolenia spp.

Roperia tesselata

Roella gelida

Roella praenitida

Roella semigelida

Roella vigilans

Rouxia californica

Rouxia granda

Rouxia isoploidea

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii

Shionodiscus paeoestrupii

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

R Thalassiosira eccentrica *DET* ✓

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravida

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregularis

Thalassiosira jacksonii

Thalassiosira louseae

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 sanctetiae

Thalassiosira singularis

Thalassiosira temperat

Thalassiosira umaoensis

Thalassiosira undulosa

Thalassiosira yabel

Thalassiosira spp.

Thalassiothrix longissima T 2

Thalassiothrix spp.

Trachyneis aspera

Trachyneis spp.

Yoshidaia divergens

Yoshidaia spp.

Chaetoceros Resting Spores *DET* ✓

TOTAL of VEGETATIVE CELLS 100

Achnanthes groenlandica
 Achnanthes inflata
 Achnanthes lanceolata
 Achnanthes lineariformis

Achnanthes spp.

C Actinocyclus curvatulus *DET*

Actinocyclus ellipticus

C Actinocyclus Ingens

Actinocyclus Ingens f. nodus

Actinocyclus Ingens f. planus

R Actinocyclus oculatus *DET*

Actinocyclus octonarius

Actinocyclus robustus

Actinocyclus tsugaruensis

Actinocyclus spp.

Actinoptychus senarius

Actinoptychus vulgaris

Actinoptychus spp.

Araniscus lewisianus

Araniscus spp.

Asteromphalus darwinii

Asteromphalus oligocenicus

Asteromphalus parvulus

R 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 jouseanus

Cavilatus lanceolatus

Cavilatus linearis

Cavilatus miocenicus

Cavilatus rectus

Cavilatus 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 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

D Delphineis simonsenii

Delphineis surirella

Denticulopsis crassa

Denticulopsis dimorpha var. dimorpha

Denticulopsis dimorpha var. areolata

closed +

Denticulopsis hustedtii
 Denticulopsis hyalina
 Denticulopsis katayamae
 Denticulopsis lauta
 Denticulopsis praedimorpha var. minor
 Denticulopsis praedimorpha var. praedimorpha
 Denticulopsis praehyalina
 Denticulopsis praekatayamae
 Denticulopsis praelaeta
 Denticulopsis simonsenii
 Denticulopsis tanimurae
 Denticulopsis vulgaris
 Diploaneis spp.
 Diploaneis bombus
 Diploaneis puella
 Diploaneis smithii
 Diploaneis suborbicularis
 Diploaneis sp.
 Distephanosira architecturalis
 Distephanosira sp.
 Ellerbeckia sol
 Ellerbeckia sp.
 Eunotia pectinalis var. minor
 Eunotia praerupta var. praerupta
 Eunotia sp.
 Fragilaria construens
 Fragilaria sp.
 Fragilariopsis cylindrus
 Fragilariopsis dolloides
 Fragilariopsis fossils
 Fragilariopsis oceanica
 Fragilariopsis plicocena
 Fragilariopsis spp.
 Goniothecium decoratum
 Goniothecium rogersii
 Goniothecium spp.
 Grammatophora spp.
 Halamphora costata
 Hyalodiscus obsoletus
 Hyalodiscus spp.
 Ikebea tenulis
 Kisseleviella carina
 Kisseleviella ezoensis
 Kolzumia tatsunokuchiensis
 Kozloviella minor
 Lisitzinia ornata
 Medilaria magna
 Medilaria splendida
 Melosira albicans
 Navicula elginiensis
 Navicula lyroides
 Navicula menisculus
 Navicula salinarum
 Neodenticula kamtschatkica
 Neodenticula kolzumii
 Neodenticula seminae
 Nitzschia challengeri
 Nitzschia cylindrica —
 Nitzschia jouseae
 Nitzschia palea
 Nitzschia reinholdii
 Nitzschia rolandii
 Odontella aurita
 Paralia sulcata
 Paralia spp.
 Podosira stellaris
 Porosira glacialis
 Proboscia barbol +
 Proboscia curvirostris → NPD 90?

Comment: D-17-2, 112 & 151

Oscar H: 7月 17日 7分AM

Diatom zones (NPD)

BARREN?

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1417D - 184-4W, 25 cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 14

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)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedtii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia paebergonii</i>
<i>Achnanthes spp.</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Rhizosolenia spp.</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praehyalina</i>	<i>Roperia tesselata</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella gelida</i>
<i>Actinocyclus Ingens f. nodus</i>	<i>Denticulopsis praelata</i>	<i>Rocella praenitida</i>
<i>Actinocyclus Ingens f. planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Diploneis spp.</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isoplica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus spp.</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinoplychus senarius</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupii</i>
<i>Actinoplychus vulgaris</i>	<i>Diploneis sp.</i>	<i>Shionodiscus praeoestrupii</i>
<i>Actinoplychus spp.</i>	<i>Distephanosira architecturalis</i>	<i>Shionodiscus trifultus</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira sp.</i>	<i>Stephanopyxis dimorpha</i>
<i>Araniscus spp.</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sp.</i>	<i>Stephanopyxis turris</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis spp.</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta</i> var. <i>praerupta</i>	<i>Thalassionema bacillaris</i>
<i>Asteromphalus robustus</i>	<i>Eunotia sp.</i>	<i>Thalassionema nitzschiooides</i>
<i>Asteromphalus spp.</i>	<i>Fragilaria construens</i>	<i>Thalassionema nitzschiooides</i> var. <i>incurvatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria sp.</i>	<i>Thalassionema nitzschiooides</i> var. <i>inflatum</i>
<i>Azpeitia komurae</i>	<i>Fragilariopsis cylindrus</i>	<i>Thalassionema nitzschiooides</i> var. <i>parvum</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis dolichus</i>	<i>Thalassionema pseudonitzschiooides</i>
<i>Azpeitia oligocenica</i>	<i>Fragilariopsis fossilis</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema spp.</i>
<i>Azpeitia salisburyana</i>	<i>Fragilariopsis pilocena</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia tabularis</i>	<i>Fragilariopsis spp.</i>	<i>Thalassiosira bioculata</i>
<i>Azpeitia velutissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia spp.</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira convexa</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium spp.</i>	<i>Thalassiosira decipiens</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora spp.</i>	<i>Thalassiosira dubiosa</i>
<i>Bacterosira spp.</i>	<i>Halaphora costata</i>	<i>Thalassiosira eccentrica</i>
<i>Caviflatus exiguis</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira fasciculata</i>
<i>Caviflatus jouseanus</i>	<i>Hyalodiscus spp.</i>	<i>Thalassiosira fraga</i>
<i>Caviflatus lanceolatus</i>	<i>Ikebea tenuis</i>	<i>Thalassiosira gravida</i>
<i>Caviflatus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira grunowii</i>
<i>Caviflatus miocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira hyalina</i>
<i>Caviflatus rectus</i>	<i>Kozuma tatsuokuchensis</i>	<i>Thalassiosira irregularata</i>
<i>Caviflatus spp.</i>	<i>Kozloviella minor</i>	<i>Thalassiosira jacksonii</i>
<i>Cestodiscus kugleri</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira jouseae</i>
<i>Cestodiscus trochus</i>	<i>Medilaria magna</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus spp.</i>	<i>Medilaria splendida</i>	<i>Thalassiosira lineata</i>
<i>Coccconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira lusca</i>
<i>Coccconeis costata</i>	<i>Navicula elginiensis</i>	<i>Thalassiosira manifesta</i>
<i>Coccconeis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira marujamica</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira mediaconvexa</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatka</i>	<i>Thalassiosira miocenica</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminae</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus symbolorophorus</i>	<i>Nitzschia challengerii</i>	<i>Thalassiosira praefraga</i>
<i>Cosmofidescus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praenidulus</i>
<i>Crucidenticula ikebei</i>	<i>Nitzschia jouseae</i>	<i>Thalassiosira praeyabei</i>
<i>Crucidenticula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira robusta</i>
<i>Crucidenticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira sanctetiae</i>
<i>Crucidenticula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira singularis</i>
<i>Crucidenticula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira temperata</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira umaoiensis</i>
<i>Cyclotella meneviahiana</i>	<i>Paralia spp.</i>	<i>Thalassiosira undulosa</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira yabel</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>	<i>Thalassiosira spp.</i>
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiotrix longissima</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Thalassiotrix spp.</i>
<i>Delphineis ischaboensis</i>	<i>Proboscia interposita</i>	<i>Trachyneis aspera</i>
<i>Delphineis kippae</i>	<i>Proboscia praebarbol</i>	<i>Trachyneis spp.</i>
<i>Delphineis sachalinensis</i>	<i>Pseudodimeroograma elegans</i>	<i>Yoshidaia divergens</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia seriata</i>	<i>Yoshidaia spp.</i>
<i>Delphineis surirella</i>	<i>Pseudopixylla americana</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotriceratium radiosoreticulatum</i>	
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Pyxidicula zabeliae</i>	
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>	<i>Rhaphoneis amphiceros</i>	

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

~~BEPPEW~~

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417.D 18H6w 57

TOTAL PRESERVATION

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

DATE: 14.6.2013

OBSERVER's NAME KOMVO

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 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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
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
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 praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

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)

Core, section, interval (cm)

U1417D.18H-7.51-56

DATE: 2013 / June / 12

OBSERVER's NAME ITSUKI

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)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedti</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamiae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praebengtsonii</i>
<i>Achnanthes spp.</i>	<i>Denticulopsis praedimorpha var. minor</i>	<i>Rhizosolenia seligera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha var. praedimorpha</i>	<i>Ropertia tesselata</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praekatayamiae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus Ingens f. nodus</i>	<i>Denticulopsis praelauta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus Ingens f. planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ocellatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis sp.</i>	<i>Rouxia isoplica</i>
<i>Actinocyclus robustus</i>	<i>Diplolepis bombyx</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus isagurensis</i>	<i>Diplolepis puella</i>	<i>Rouxia obesa</i>
<i>Actinocyclus spp.</i>	<i>Diplolepis smithii</i>	<i>Shionodiscus ostrupli</i>
<i>Actinopychus senarius</i>	<i>Diplolepis suborbicularis</i>	<i>Shionodiscus praecostulifli</i>
<i>Actinopychus vulgaris</i>	<i>Diplolepis sp.</i>	<i>Shionodiscus trifultus</i>
<i>Actinopychus spp.</i>	<i>Distephanosira architecturalis</i>	<i>Stephanopyxis dimorpha</i>
<i>Araniscus lewisiensis</i>	<i>Distephanosira sp.</i>	<i>Stephanopyxis horridus</i>
<i>Araniscus spp.</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis turris</i>
<i>Asteromphalus darwini</i>	<i>Ellerbeckia sp.</i>	<i>Stephanopyxis spp.</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis var. minor</i>	<i>Thalassionema bacillans</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta var. praerupta</i>	<i>Thalassionema nitzschioides</i>
<i>Asteromphalus robustus</i>	<i>Eunotia sp.</i>	<i>Thalassionema nitzschioides var. incurvatum</i>
<i>Asteromphalus spp.</i>	<i>Fragilaria construens</i>	<i>Thalassionema nitzschioides var. inflatum</i>
<i>Azpeitia biradialis</i>	<i>Fragilaria sp.</i>	<i>Thalassionema nitzschioides var. parvum</i>
<i>Azpeitia komurae</i>	<i>Fragilariopsis cylindrus</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis dololus</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia oligocephala</i>	<i>Fragilariopsis fossils</i>	<i>Thalassionema spp.</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia salisburyana</i>	<i>Fragilariopsis pilocena</i>	<i>Thalassiosira bioculata</i>
<i>Azpeitia tabularis</i>	<i>Fragilariopsis spp.</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia vetustissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira convexa</i>
<i>Azpeitia spp.</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira decipiens</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium spp.</i>	<i>Thalassiosira dubiosa</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora spp.</i>	<i>Thalassiosira eccentrica</i>
<i>Bacterosira spp.</i>	<i>Halimphora costata</i>	<i>Thalassiosira fasciculata</i>
<i>Cavitalus exiguus</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira fraga</i>
<i>Cavitalus jouseanus</i>	<i>Hyalodiscus spp.</i>	<i>Thalassiosira gradata</i>
<i>Cavitalus lanceolatus</i>	<i>Ikebaa tenue</i>	<i>Thalassiosira grunowii</i>
<i>Cavitalus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira hyalina</i>
<i>Cavitalus micocenicus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira irregulata</i>
<i>Cavitalus rectus</i>	<i>Kozumia tatsunokuchiensis</i>	<i>Thalassiosira jacksonii</i>
<i>Cavitalus spp.</i>	<i>Kozlovella minor</i>	<i>Thalassiosira jouseae</i>
<i>Cestodiscus kugleri</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus trachus</i>	<i>Medilaria magna</i>	<i>Thalassiosira lineata</i>
<i>Cestodiscus spp.</i>	<i>Mediania splendida</i>	<i>Thalassiosira lusca</i>
<i>Cocconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira manifesta</i>
<i>Cocconeis costata</i>	<i>Navicula elgihensis</i>	<i>Thalassiosira marjamlaka</i>
<i>Cocconeis scutellum</i>	<i>Navicula lyraeoides</i>	<i>Thalassiosira mediaconvexa</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira miocenica</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatka</i>	<i>Thalassiosira nordenskioldii</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminae</i>	<i>Thalassiosira praefraga</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira praenudulus</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praeybabeli</i>
<i>Crucidenticula ikehei</i>	<i>Nitzschia jouseae</i>	<i>Thalassiosira robusta</i>
<i>Crucidenticula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira sanctaeiae</i>
<i>Crucidenticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira singularis</i>
<i>Crucidenticula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira temperata</i>
<i>Crucidenticula sawamureae</i>	<i>Odontella aurita</i>	<i>Thalassiosira umaoiensis</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira undulosa</i>
<i>Cyclotella meneghiniana</i>	<i>Paralia spp.</i>	<i>Thalassiosira yabel</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira spp.</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>	<i>Thalassiothrix longissima</i>
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiothrix spp.</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Trachyneis aspera</i>
<i>Delphineis ischabensis</i>	<i>Proboscia interposita</i>	<i>Trachyneis spp.</i>
<i>Delphineis kippae</i>	<i>Proboscia praearbarol</i>	<i>Yoshidai divergens</i>
<i>Delphineis sachalinensis</i>	<i>Pseudodimerogetrum elegans</i>	<i>Yoshidai spp.</i>
<i>Delphineis simonensis</i>	<i>Pseudodimerogetrum seriatum</i>	
<i>Delphineis surirella</i>	<i>Pseudopyxis seriatum</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotriceratium radiosoreticulatum</i>	
<i>Denticulopsis dimorpha var. dimorpha</i>	<i>Pyxidicula zabeliae</i>	
<i>Denticulopsis dimorpha var. areolata</i>	<i>Raphoneis amphiceros</i>	

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge spines +

Tuff

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)

W417D 19H-CC

TOTAL PRESERVATION

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

DATE: 2013 / June 112

OBSERVER'S NAME 15UK1

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 greenlandica</i>	<i>Denticulopsis hustedtii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katoryamae</i>	<i>Rhizosolenia norvegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praebengonii</i>
<i>Achnanthes spp.</i>	<i>Denticulopsis praedimorpha var. minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha var. praedimorpha</i>	<i>Ropertia tesselata</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praeiyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens f. nodus</i>	<i>Denticulopsis praetaurita</i>	<i>Rocella semigelida</i>
<i>Actinocyclus ingens f. planus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis sp.</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia obesa</i>
<i>Actinocyclus spp.</i>	<i>Diploneis smithii</i>	<i>Shionodiscus oestrupii</i>
<i>Actinoptychus senarius</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus praeoestrupii</i>
<i>Actinoptychus vulgaris</i>	<i>Diploneis sp.</i>	<i>Shionodiscus trifulus</i>
<i>Actinoptychus spp.</i>	<i>Distephanosira architecturalis</i>	<i>Stephanopyxis dimorpha</i>
<i>Araniscus lewisiensis</i>	<i>Distephanosira sp.</i>	<i>Stephanopyxis horridus</i>
<i>Araniscus spp.</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis turris</i>
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sp.</i>	<i>Stephanopyxis spp.</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis var. minor</i>	<i>Thalassionema bacillaris</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta var. praerupta</i>	<i>Thalassionema nitzschioides</i>
<i>Asteromphalus robustus</i>	<i>Eunotia sp.</i>	<i>Thalassionema nitzschioides var. incurvatum</i>
<i>Asteromphalus spp.</i>	<i>Fragilaria construens</i>	<i>Thalassionema nitzschioides var. inflatum</i>
<i>Azpeitia biradiata</i>	<i>Fragilaria sp.</i>	<i>Thalassionema nitzschioides var. parvum</i>
<i>Azpeitia komurae</i>	<i>Fragilaropsis cylindrus</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpeitia nodulifera</i>	<i>Fragilaropsis dolulus</i>	<i>Thalassionema schraderi</i>
<i>Azpeitia oligocenica</i>	<i>Fragilaropsis fossils</i>	<i>Thalassionema spp.</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilaropsis oceanica</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia salisburyana</i>	<i>Fragilaropsis plocena</i>	<i>Thalassiosira bioculata</i>
<i>Azpeitia tabularis</i>	<i>Fragilaropsis spp.</i>	<i>Thalassiosira castanea</i>
<i>Azpeitia vetusissima</i>	<i>Goniothecium decoratum</i>	<i>Thalassiosira convexa</i>
<i>Azpeitia spp.</i>	<i>Goniothecium rogersii</i>	<i>Thalassiosira decipiens</i>
<i>Bacterosira bathyomphala</i>	<i>Goniothecium spp.</i>	<i>Thalassiosira dubiosa</i>
<i>Bacterosira fragilis</i>	<i>Grammatophora spp.</i>	<i>Thalassiosira eccentrica</i>
<i>Bacterosira spp.</i>	<i>Halamphora costata</i>	<i>Thalassiosira fasciculata</i>
<i>Cavatulus exiguus</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira fraga</i>
<i>Cavatulus jouseaeus</i>	<i>Hyalodiscus spp.</i>	<i>Thalassiosira gravida</i>
<i>Cavatulus lanceolatus</i>	<i>Ikebaa tenius</i>	<i>Thalassiosira grunowii</i>
<i>Cavatulus linearis</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira hyalina</i>
<i>Cavatulus microcnicus</i>	<i>Kisseleviella eczensis</i>	<i>Thalassiosira irregulata</i>
<i>Cavatulus rectus</i>	<i>Kolzumia tatsuokuchiensis</i>	<i>Thalassiosira jacksonii</i>
<i>Cavatulus spp.</i>	<i>Kozloviella minor</i>	<i>Thalassiosira jouseae</i>
<i>Cestodiscus kugleri</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira leptopus</i>
<i>Cestodiscus trochus</i>	<i>Medularia magna</i>	<i>Thalassiosira lineata</i>
<i>Cestodiscus spp.</i>	<i>Medularia splendida</i>	<i>Thalassiosira lusca</i>
<i>Coccineis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira manifesta</i>
<i>Coccineis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira marujamica</i>
<i>Coccineis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira mediaconvexa</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira minutissima</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira milocenica</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatkica</i>	<i>Thalassiosira nordenskioldii</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira orientalis</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminaea</i>	<i>Thalassiosira praefraga</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira praenidulus</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira praeyabei</i>
<i>Crucidenticula ikebei</i>	<i>Nitzschia jouseae</i>	<i>Thalassiosira robusta</i>
<i>Crucidenticula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira sanctetiae</i>
<i>Crucidenticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira singularis</i>
<i>Crucidenticula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira tempera</i>
<i>Crucidenticula sawamureae</i>	<i>Odontella aurita</i>	<i>Thalassiosira umaojensis</i>
<i>Cyclorella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira undulosa</i>
<i>Cyclorella meneghiniana</i>	<i>Paralia spp.</i>	<i>Thalassiosira yabel</i>
<i>Cymbella cistula</i>	<i>Podosira stelligera</i>	<i>Thalassiosira spp.</i>
<i>Cymbella minuta</i>	<i>Porosira glacialis</i>	<i>Thalassiothrix longissima</i>
<i>Cymbella subaequalis</i>	<i>Proboscia barbol</i>	<i>Thalassiothrix spp.</i>
<i>Delphineis angustata</i>	<i>Proboscia curvirostris</i>	<i>Trachyneis aspera</i>
<i>Delphineis ischaboenensis</i>	<i>Proboscia interposta</i>	<i>Trachyneis spp.</i>
<i>Delphineis kippae</i>	<i>Proboscia praearborai</i>	<i>Yoshidala divergens</i>
<i>Delphineis sachalinensis</i>	<i>Pseudodimmerogramma elegans</i>	<i>Yoshidala spp.</i>
<i>Delphineis simonsenii</i>	<i>Pseudonitzschia serata</i>	
<i>Delphineis surirella</i>	<i>Pseudoxypilla americana</i>	
<i>Denticulopsis crassa</i>	<i>Pseudotriceratium radiosreticulatum</i>	
<i>Denticulopsis dimorpha var. dimorpha</i>	<i>Pyxidicula zabelnae</i>	
<i>Denticulopsis dimorpha var. areolata</i>	<i>Raphoneis amphiceros</i>	

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD9

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
 Achnanthes inflata
 Achnanthes lanceolata
 Achnanthes lineariformis
Actinocyclus curvatus T P
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus - P
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 komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatula exiguum
Cavatula jouseanus
Cavatula lanceolatus
Cavatula linearis
Cavatula mioceneus
Cavatula rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus P
Coscinodiscus marginatus - P
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
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 ischaboeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Act sp. P
 sponge 正正 -

Rads T

Core, section, interval (cm)

10/17-D, 20HCC

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatoryamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplothele bombus
Diplothele puelia
Diplothele smithii
Diplothele suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dollius
Flagilariopsis fossils
Flagilariopsis oceanica
Flagilariopsis plicena
Goniothecium decoratum
Goniothecium rogersii
Halimphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuhensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii P
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbata P
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 12.6.2013

OBSERVER's NAME Kommo

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 tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paeoestrupii
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 praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Cheilocerco Resting Spores

TOTAL of VEGETATIVE CELLS

13

3 → 20

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)

147, D, 22H/w17

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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus 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 vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus micrenicus
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 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
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

TOTAL PRESERVATION

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

Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossile
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora 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 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 interposita
Proboscia praebarboi
Pseudodimmericraterum radiosoreticulatum
Pseudonitzschia seriata
Pseudopixilla americana
Rhaphoneis amphiceros

DATE: 14.6.2013

OBSERVER's NAME KONONO

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 praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifullus
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 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 yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis aspera
Trachyneis spp.
Yoshidaea divergens
Yoshidaea 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 f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus spp.**Actinoptychus senarius**Actinoptychus vulgaris**Actinoptychus spp.**Araniscus lewisianus**Araniscus spp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus spp.**Azpeitia biradiata**Azpeitia komurae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavitalus exiguis**Cavitalus jouseanus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cavitalus 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 minula**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)

1417.D. 22 Hzw 148

TOTAL PRESERVATION

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

Denticulopsis hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolilus
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphepha costata
Hyalodiscus obsoletus
Hyalodiscus spp.
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 16.6.2013

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praelonga
Roccella semigelida
Roccella vigilans
Roudia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praecestrupili
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 lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeabyssi
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiotrix longissima
Thalassiotrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE!

No Data in DC?

Sponges -

Diatom zones (NPD)

NP9

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417D-22H-cc

TOTAL PRESERVATION

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

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)

Achnanthes groenlandica
 Achnanthes inflata
 Achnanthes lanceolata
 Achnanthes lineariformis
 Actinocyclus curvatus C
 Actinocyclus ellipticus IE
 Actinocyclus Ingens IE
 Actinocyclus Ingens f. nodus IE
 Actinocyclus Ingens f. planus IE
 Actinocyclus oculatus IE F
 Actinocyclus ochotensis IP
 Actinocyclus octonarius R
 Actinocyclus robustus R
 Actinocyclus tsugaruensis
 Actinopytchus senarius
 Actinopytchus vulgaris
 Araniscus lewisianus
 Asteromphalus darwinii
 Asteromphalus oligocenicus
 Asteromphalus parvulus
 Asteromphalus robustus R
 Azpeitia biradiata
 Azpeitia komurae
 Azpeitia nodulifera
 Azpeitia oligocenica
 Azpeitia praenodulifera
 Azpeitia salisburyana
 Azpeitia tabularis
 Azpeitia vetustissima
 Bacterosira bathyomphala
 Bacterosira fragilis
 Cavitatus exiguius
Cavitatus jouseae
 Cavitatus lanceolatus
 Cavitatus linearis
 Cavitatus miocenicus
 Cavitatus rectus
 Cestodiscus kugleri
 Cestodiscus trochus
 Cocconeis californica
 Coscinodiscus costata
 Cocconeis scutellum
 Coscinodiscus asteromphalus
 Coscinodiscus marginatus R
 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 simonensis
 Delphineis surirella
 open copula
 closed copula
 ↪ 1.0
 → 2.0
 ↪ 3.0
 → 4.0
 ↪ 5.0
 → 6.0
 ↪ 7.0
 ↪ 8.0
 ↪ 9.0
 ↪ 10.0

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedti
Denticulopsis hyalina
Denticulopsis katalayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prashyalina
Denticulopsis pækatalayamae
Denticulopsis praefulta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
 Diplotheis bombus
 Diplotheis puelia
 Diplotheis smithii
 Diplotheis suborbicularis
 Distephanoisira architecturalis
 Ellerbeckia sol
 Eunotia pectinalis var. *minor*
 Eunotia praerupta var. *praerupta*
 Fragilaria construens (Ehrenberg) Grunow
 Flagilariopsis cylindrus
Flagilariopsis dolilous
Flagilariopsis fossilis
 Flagilariopsis oceanica
Flagilariopsis pilocena
 Goniothecium decoratum
 Goniothecium rogersii
 Halamphora costata
 Hyalodiscus obsoletus
Ikebea tenuis
 Kisselviella carina
 Kisselviella ezoensis
Kolzumia tatsunokuchiensis
 Kozloviella minor
 Liszitnia ornata
Medilaria magna
Medilaria splendida
 Melosira albicans
 Navicula elginiensis
 Navicula lyroides
 Navicula menisculus
 Navicula salinarum
Nedenticula kamtschatkae
Nedenticula koizumi IE F R
Nedenticula seminae IE F R
 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 praearbori
 Pseudodimeroigrana elegans
 Pseudonitzschia seriata
 Pseudoxiphidium americanum
 Pseudotriceratium radicosoreticulatum
Pyxidicula zabeliae
 Rhaphoneis amphiceros

↑ Act. sp. - R
 ↓ Rhiz. sp. - R
 2 Asc. sp. - R

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

1 Rhizosolenia hebetata f. *hiemalis* T R
 Rhizosolenia hebetata f. *semispina*
 Rhizosolenia norwegica
Rhizosolenia paebergonii
 Rhizosolenia setigera R
 Ropelia tessellata
 Rocella gelida
 Rocella praenitida
 Rocella semigelida
 Rocella vigilans
Rouxia californica
 Rouxia granda
 Rouxia isopolica
 Rouxia naviculoides
 Rouxia obesa
Shionodiscus oestrupii F R
Shionodiscus paeoestrupii
 Shionodiscus trifilus
 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 schradari
Thalassiosira antiqua
 Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
 Thalassiosira decipiens
 Thalassiosira dubiosa
 Thalassiosira eccentrica R
 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 sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
 Thalassiosira umaoensis
 Thalassiosira undulosa
Thalassiosira yabei
 Thalassiothrix longissima T R
 Trachyneis aspera
 Yoshidaia divergens

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 14. 6. 2013

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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisiatus
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 vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatatus exiguis
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cavatatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccineis scutellum
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
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 katelyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatelyamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora 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 lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabeliae
Rhaphoneis amphiceros

OBSERVER's NAME KORNVO

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 tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeoestrupil
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 praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
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)

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

Core, section, interval (cm)

1417.D.23H.2W/22

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.
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.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus micronicus
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
Delphineis angustata
Delphineis ischaboenensis
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 praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilli
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis sp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium sp.
Grammatophora spp.
Halampheora 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 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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodinmorogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

DATE: 14. 6. 2013

OBSERVER's NAME KONNU

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus cestrupli
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
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 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)

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

Core, section, interval (cm)
1417.D, 2344W10

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.
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 vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus mioceneus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 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*

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatoryamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossalis
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenula
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuhensis
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 challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: *14.6.2013*
 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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella 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
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 praeybæli
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
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)

NPB

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417D - 234E - CC

TOTAL PRESERVATION

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

DATE: 20 Jan 12

OBSERVER's NAME ADEM

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Actinocyclus curvatus* T P*Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus* T F*Actinocyclus ochotensis* T E D E T*Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinopytchus senarius**Actinopytchus 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 balthomyphala**Bacterosira fragilis**Cavatulus exiguis**Cavatulus jouseanuss**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus miocenicus**Cavatulus rectus**Cestodiscus kugleri**Cestodiscus trochus**Cocceneis californica**Coscinodiscus costata**Cocceneis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus* T E D - F*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 simonsonii**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 pækata yamae**Denticulopsis praelata**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Distephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Fragilaria construens (Ehrenberg) Grunow**Flagilariopsis cylindrus**Flagilariopsis dolloides**Flagilariopsis fossils**Flagilariopsis oceanica**Flagilariopsis pilocema**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Koizumiata tsutsukichiensis**Kozloviella minor**Lisitzinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginiensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula koizumii**Neodenticula seminae**Nitzschia challengerii**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praubarboi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopixilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Rhaphoneis amphiceros**Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia preebergoni**Rhizosolenia setigera**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isoplica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupli* T P*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**Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gradata**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularis**Thalassiosira jacksonii**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediocconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeybægi**Thalassiosira robusta**Thalassiosira sanctae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabei**Thalassiothrix longissima* T P*Trachyneis aspera**Yoshidaia divergens****Chaetoceros Resting Spores*****TOTAL of VEGETATIVE CELLS** 100

1 Act. sp.

2 Th. sp.

3 Hexad. sp.

4

5

6

7

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 f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopeltus senarius
Actinopeltus vulgaris
Actinopeltus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanaya
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)

14/7.D.24H.12/10

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 simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fissilis
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
Lisztiinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challenger
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
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 14.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praobergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouada 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. *incavatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marumjica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
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)

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisiatus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatibus 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
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)

1417.D. 24/43W176

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololutus
Fragilariopsis fossile
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
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 kamtschatcica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinhardii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudostricerium radiosoreticulatum
Pyxidicula zabelnae
Raphoneis amphiceros

DATE: 14.6.2013

OBSERVER's NAME RONNO

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyds horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infiatum*
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 praenudulus
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)

Undetermined

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinopychus senarius
Actinopychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira balthymophala
Bacterosira fragilis
Cavatulus exiguus
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
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
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsonii
Delphineis surirella

Core, section, interval (cm)

141702999-C

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 pækatayamae
Denticulopsis praetula
Denticulopsis simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheia bombus
Diplotheia puella
Diplotheia smithii
Diplotheia suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dololutus
Flagilariopsis fossils
Flagilariopsis oceanica
Flagilariopsis pliocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lizithinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumi
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 praearborii
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopityxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 20/3/2012

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)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergonii
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 paeoestrupii
Shionodiscus trifillus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infundibulum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schradari
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidala divergens

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

2

16

Rest spores T B

Diatom zones (NPD)

NPD 9

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417.25H1W72

TOTAL PRESERVATION

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

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 ~~正正正正正正~~
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 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 jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccconeis californica
Coccconeis costata
Coccconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
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 ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

DATE: 14.6.2013

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/traverses & <1 vlv/10FOVs)
 X (present), B (barren)

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeyalina
Denticulopsis praeplatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploaneis bombus
Diploaneis puelia
Diploaneis smithii
Diploaneis suborbicularis
Diploaneis sp.
Distephanoisira architecturalis
Distephanoisira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunolia pectinalis var. minor
Eunolia praerupta var. praerupta
Eunolia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphepha costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuhiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtshatica
Neodenticula kolzumii ~~正正正正正正~~
Neodenticula seminae ~~E~~
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 praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidocula zabelnae
Rhaphoneis amphiceros

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

sponge -
 closed copula +
 open copula +

RCS +

3 → 8

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)

14/17.25H1W106

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bifradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguis
Cavitatus jouseae
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus micronicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 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 kalyayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekalyayamae
Denticulopsis praefluita
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii spp.
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kartschatica
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 interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelnae
Rhaphoneis amphiceros

DATE: 14. 6. 203

OBSERVER'S NAME tonno

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
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxa californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praesostrupil
Shionodiscus trifillus
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 praenudulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctaeiae
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

SP² 4 Je -

Diatom zones (NPD)

NPB9

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 ~~正正正正~~
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 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 jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccconeis californica
Coccconeis costata
Coccconeis 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 minutula
Cymbella subaequalis
Delphineis angustata
Delphineis ischaaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1417.D 25H2W80

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 praevalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenula
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozlovialla minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroidea
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii ~~正正正正正正正正~~
Neodenticula seminae ~~下~~
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata ~~F~~
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

DATE: 14.6.2018

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 praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shalonodiscus oestrupil
Shalonodiscus praeoestrupil
Shionodiscus trifulus
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 schradieri
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 praenitidus
Thalassiosira praevelai
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima ~~JF~~
Trachyneis aspera
Trachyneis spp.
Yoshidaea divergens
Yoshidaea spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

closed copula +
 open copula +

Rads -
 sponge -

- 4

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)

Core, section, interval (cm)

1417.0 25H3n42

DATE: 14.6.2013

OBSERVER's NAME KOMMO

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus 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.
Cavilatus exiguis
Cavilatus jouseanus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus mioceneus
Cavilatus rectus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorum
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Deltiphneis angustata
Deltiphneis ischaboensis
Deltiphneis kippae
Deltiphneis sachalinensis
Deltiphneis simonsenii
Deltiphneis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pifocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
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 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 interposita
Proboscia praearboei
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabelnae
Raphoneis amphiceros

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 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 nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperale
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)

Underdetermined

TOTAL ABUNDANCE:

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

nearly barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatitus exiguus
Cavatitus jouseae
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus — (B)
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 ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Core, section, interval (cm)

1417D-25F-C

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis kaiyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis pækatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
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
Flagilariopsis doltofus
Flagilariopsis fossilli
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchiensis
Kozloviella minor
Liszitnia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
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
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaria
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphidium americanum
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013 June 12

OBSERVER's NAME AFENI

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergonii
Rhizosolenia setigera
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paeoestrupii
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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabeli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidai divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD 9

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

14/7. D. 264.1W47

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes sp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens 1. nodus**Actinocyclus ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus sp.**Actinopychus senarius**Actinopychus vulgaris**Actinopychus sp.**Araniscus lewisianus**Araniscus sp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus sp.**Azpeitia biradiata**Azpeitia komuree**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia sp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira sp.**Cavithus exiguum**Cavithus jouseaeus**Cavithus lanceolatus**Cavithus linearis**Cavithus mioceneus**Cavithus reclus**Cavithus sp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus sp.**Coccoconis californica**Coccoconis costata**Coccoconis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorhus**Cosmoldiscus insignis**Crucidenticula ikebeli**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischabeensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Denticulopsis crassa**Denticulopsis dimorpha* var. dimorpha*Denticulopsis dimorpha* var. areolata

Core, section, interval (cm)

14/7. D. 264.1W47

TOTAL PRESERVATION

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

DATE: 14.6.2017

OBSERVER's NAME Kommo

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 praetbergeroni**Rhizosolenia setigera**Ropertia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestruplli**Shionodiscus praeoestruplli**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 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 praenudulus**Thalassiosira praeybabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiotrix longissima* JE*Trachyneis aspera**Yoshidaia divergens*

Ceratoceros Resting Spores

TOTAL of VEGETATIVE CELLS

←

4 - 19

7-9月水?

Diatom zones (NPD)

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

BWren

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 komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatulus exiguum
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus 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
Delphineis angustata
Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsonii
Delphineis surirella

Core, section, interval (cm)

1417D-26H - CC

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis kalyayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis pækatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
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
Flagilariopsis cylindrus
Flagilariopsis dolfolus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilocera
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medleria magna
Medleria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumi
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 praearboei
Pseudodimmericraterum radiosoreticulatum
Pseudodimmericraterum radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis 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 paebergonii
Rhizosolenia setigera
Ropertia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paeoestrupii
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 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 temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidala divergens

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417.D.27H 1W34

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: 19.6.2013

OBSERVER's NAME KOVNO

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavitatus exiguius
Cavitatus jouseaeus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minutula
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 hastedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis leuta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praeleuta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeerupta var. *praeerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilaropsis cylindrus
Fragilaropsis dolikos
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenula
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 kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rotundii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
Pseudodimerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Rhaphoneis amphiceros

RELATIVE ABUNDANCE of EACH TAXON

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

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 grande
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupill

Shionodiscus praeoestrupill

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

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

Thalassiosira bioculata
Thalassiosira castanea

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

Thalassiosira gravida
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira manjamicana
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1417D-2DFF CC

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
Actinopytchus senarius
Actinopytchus 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 vetusissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatus exiguis
Cavatus jouseae
Cavatus lanceolatus
Cavatus linearis
Cavatus miocenicus
Cavatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus 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
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

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 preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheia bombus
Diplotheia puella
Diplotheia smithii
Diplotheia suborbicularis
Distephanosira architecturalis
Ellebeckia sol
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dolilus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hydrodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liztinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
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
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudoxygylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/12

OBSERVER's NAME AFEMZ

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
Roparia 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 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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
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
Yoshidai divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

ハレルヤマセ 水中

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)

WY17D28H-1W 5cm

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus isaguruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisiianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpellia biradiata
Azpellia komurensis
Azpellia nodulifera
Azpellia oligocenica
Azpellia praenodulifera
Azpellia salisburyana
Azpellia tabularis
Azpellia velutissima
Azpellia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavilatus exiguis
Cavilatus jousseanus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cavilatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidinicula ikebeli
Crucidinicula kanayae
Crucidinicula nicobarica
Crucidinicula paranicobarica
Crucidinicula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minutula
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 praetexta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella

Diploneis smithii
Diploneis suborbicularis

Distephanosira architecturalis

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

Flagilaropsis cylindrus
Fragilaropsis dololutus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

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

Medilaria magna
Medilaria splendida

Melosira albicans
Navicula eligensis
Navicula lyroidea
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotricerium radiosoreliculatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 2013/ June /14

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 norvegica
Rhizosolenia praesbergonii

Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia grande
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 irregularata
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lucsa
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybeki
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yebel
Thalassiotrich longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1470-284-cc

TOTAL ABUNDANCE:

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

Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetusissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavatatus exiguus
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus 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
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katalayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplothele bombus
Diplothele puella
Diplothele smithii
Diplothele suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariaopsis cylindrus
Fragilariaopsis dolichus
Fragilariaopsis fossilis
Fragilariaopsis oceanica
Fragilariaopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halimphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchiensis
Kozloviella minor
Lisztsinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 2013/June/12

OBSERVER'S NAME ATEMZ

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 praebengtsonii
Rhizosolenia tiglera
Roperia tesselata
Rocella gelida
Rocella praeinitia
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *infatum*
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiotrichia longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARRENCore, section, interval (cm)
U1417 D 29H-2W 123um

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION:

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

DATE: 2013/June/14
OBSERVER's NAME 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)

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hastedii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praesbergonii</i>
<i>Achnanthes sp.</i>		
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Roperia tesselata</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens</i> 1. <i>nodus</i>	<i>Denticulopsis praeiyamiae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens</i> 1. <i>planus</i>	<i>Denticulopsis praeslauta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isoploica</i>
<i>Actinocyclus isuguensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus sp.</i>		
<i>Actinoplychus senarius</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinoplychus vulgaris</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupii</i>
<i>Actinoplychus sp.</i>		
<i>Araniscus lewisianus</i>	<i>Distephanosira architecturalis</i>	<i>Shionodiscus praesoestrupii</i>
<i>Araniscus sp.</i>		
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sol</i>	<i>Shionodiscus trifulus</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis dimorpha</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta</i> var. <i>praerupta</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus robustus</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow	<i>Stephanopyxis turris</i>
<i>Asteromphalus sp.</i>		
<i>Azpellia biradiata</i>	<i>Flagilariopsis cylindrus</i>	<i>Thalassionema bacillaris</i>
<i>Azpellia komurea</i>	<i>Fragilariopsis dolichus</i>	<i>Thalassionema nitzschioides</i>
<i>Azpellia nodulifera</i>	<i>Fragilariopsis fossilis</i>	<i>Thalassionema nitzschioides</i> var. <i>incurvatum</i>
<i>Azpellia oligocenica</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema nitzschioides</i> var. <i>inflatum</i>
<i>Azpellia praenodulifera</i>	<i>Fragilariopsis plocena</i>	<i>Thalassionema nitzschioides</i> var. <i>parvum</i>
<i>Azpellia salisburyana</i>	<i>Goniothecium decoratum</i>	<i>Thalassionema pseudonitzschioides</i>
<i>Azpellia tabularis</i>	<i>Goniothecium rogersii</i>	<i>Thalassionema schradieri</i>
<i>Azpellia velutissima</i>	<i>Grammatophora</i> spp.	<i>Thalassiosira antiqua</i>
<i>Azpellia sp.</i>		
<i>Bacterosira bathyomphala</i>	<i>Halamphora costata</i>	<i>Thalassiosira bioculata</i>
<i>Bacterosira fragilis</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira castanea</i>
<i>Bacterosira sp.</i>		
<i>Cavellatus exiguius</i>	<i>Ikebaea tenula</i>	<i>Thalassiosira convexa</i>
<i>Cavellatus jousseanus</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira decipiens</i>
<i>Cavellatus lanceolatus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira dubiosa</i>
<i>Cavellatus linearis</i>	<i>Kolzumia tatsunokuchiensis</i>	<i>Thalassiosira eccentrica</i>
<i>Cavellatus miocenicus</i>	<i>Kozlovialla minor</i>	<i>Thalassiosira fasciculata</i>
<i>Cavellatus rectus</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira fraga</i>
<i>Cavellatus sp.</i>		
<i>Cestodiscus kugleri</i>	<i>Medaria magna</i>	<i>Thalassiosira gravida</i>
<i>Cestodiscus trochus</i>	<i>Medaria splendida</i>	<i>Thalassiosira grunowii</i>
<i>Cestodiscus sp.</i>		
<i>Coccoconis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira hyalina</i>
<i>Coccoconis costata</i>	<i>Navicula elginensis</i>	<i>Thalassiosira irregularata</i>
<i>Coccoconis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira jacksonii</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira joussea</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira leptopus</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatkica</i>	<i>Thalassiosira lineata</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira lucas</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminaea</i>	<i>Thalassiosira manifesta</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira marumjana</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira mediaconvexa</i>
<i>Crucidienticula ikebei</i>	<i>Nitzschia joussea</i>	<i>Thalassiosira minutissima</i>
<i>Crucidienticula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira miocenica</i>
<i>Crucidienticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Crucidienticula paranicarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira orientalis</i>
<i>Crucidienticula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira praefraga</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira praenidulus</i>
<i>Cyclotella meneghiniana</i>	<i>Podosira stelligera</i>	<i>Thalassiosira praeyabei</i>
<i>Cymbella cistula</i>	<i>Porosira glacialis</i>	<i>Thalassiosira robusta</i>
<i>Cymbella minutula</i>	<i>Proboscia barbol</i>	<i>Thalassiosira sanctaeae</i>
<i>Cymbella subaequalis</i>	<i>Proboscia curvirostris</i>	<i>Thalassiosira singularis</i>
<i>Delphineis angustata</i>	<i>Proboscia interposta</i>	<i>Thalassiosira temporei</i>
<i>Delphineis ischabensis</i>	<i>Proboscia praearboei</i>	<i>Thalassiosira umaoiensis</i>
<i>Delphineis kippae</i>	<i>Pseudodimerogetrum elegans</i>	<i>Thalassiosira undulosa</i>
<i>Delphineis sachalinensis</i>	<i>Pseudonitzschia seriata</i>	<i>Thalassiosira yabel</i>
<i>Delphineis simonsenii</i>	<i>Pseudopixylla americana</i>	<i>Thalassiothrix longissima</i>
<i>Delphineis surirella</i>	<i>Pseudotriceratium radiosoreticulatum</i>	<i>Trachyneis aspera</i>
<i>Denticulopsis crassa</i>	<i>Pyxidicula zabelinae</i>	<i>Yoshidaia divergens</i>
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Rhaphoneis amphiceros</i>	
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>		

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U1417D 29H-3W. 85cm

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 2013/June/14

OBSERVER's NAME ITSURI

RELATIVE ABUNDANCE of EACH TAXON

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

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedtii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katsayamae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis lauta</i>	<i>Rhizosolenia praesbergonii</i>
<i>Achnanthes sp.</i>		
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Roperia tessellata</i>
<i>Actinocyclus Ingens</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus Ingens 1. nodus</i>	<i>Denticulopsis praekatayamae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus Ingens 1. planus</i>	<i>Denticulopsis praelauta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus sp.</i>		
<i>Actinoplychus senarius</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinoplychus vulgaris</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupili</i>
<i>Actinoplychus sp.</i>		<i>Shionodiscus praesostrupili</i>
<i>Araniscus lewisianus</i>	<i>Distephanosira architecturalis</i>	<i>Shionodiscus trifultus</i>
<i>Araniscus sp.</i>		<i>Stephanopyxis dimorpha</i>
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sol</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis turris</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta</i> var. <i>praerupta</i>	
<i>Asteromphalus robustus</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow	
<i>Asteromphalus sp.</i>		
<i>Azpeitia biradiata</i>	<i>Flagilariopsis cylindrus</i>	<i>Thalassionema bacillaris</i>
<i>Azpeitia komureae</i>	<i>Fragilariopsis dolloides</i>	<i>Thalassionema nitzschiooides</i>
<i>Azpeitia nodulifera</i>	<i>Fragilariopsis fossilia</i>	<i>Thalassionema nitzschiooides</i> var. <i>incurvatum</i>
<i>Azpeitia oligocenica</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema nitzschiooides</i> var. <i>inflatum</i>
<i>Azpeitia praenodulifera</i>	<i>Fragilariopsis plicena</i>	<i>Thalassionema nitzschiooides</i> var. <i>parvum</i>
<i>Azpeitia salisburyana</i>	<i>Goniothecium decoratum</i>	<i>Thalassionema pseudonitzschiooides</i>
<i>Azpeitia tabularis</i>	<i>Goniothecium rogersii</i>	<i>Thalassionema schradeni</i>
<i>Azpeitia velutissima</i>	<i>Grammatephora spp.</i>	<i>Thalassiosira antiqua</i>
<i>Azpeitia sp.</i>		
<i>Bacterosira bathyomphala</i>	<i>Halimphora costata</i>	<i>Thalassiosira bioculata</i>
<i>Bacterosira fragilis</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira castanea</i>
<i>Bacterosira sp.</i>		
<i>Cavatulus exiguis</i>	<i>Ikebaea tenuis</i>	<i>Thalassiosira convexa</i>
<i>Cavatulus jousseenus</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira decipiens</i>
<i>Cavatulus lanceolatus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira dubiosa</i>
<i>Cavatulus linearis</i>	<i>Kolzumia tatsunokuchiensis</i>	<i>Thalassiosira eccentrica</i>
<i>Cavatulus miocenicus</i>	<i>Kozloviella minor</i>	<i>Thalassiosira fasciculata</i>
<i>Cavatulus rectus</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira fraga</i>
<i>Cavatulus sp.</i>		
<i>Cestodiscus kugleri</i>	<i>Mediaria magna</i>	<i>Thalassiosira gravida</i>
<i>Cestodiscus trochus</i>	<i>Mediaria splendida</i>	<i>Thalassiosira grunowii</i>
<i>Cestodiscus sp.</i>		
<i>Coccoconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira hyalina</i>
<i>Coccoconeis costata</i>	<i>Navicula elginiensis</i>	<i>Thalassiosira irregularata</i>
<i>Coccoconeis scutellum</i>	<i>Navicula lyroides</i>	<i>Thalassiosira jacksonii</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira joussea</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira leptopus</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatkica</i>	<i>Thalassiosira lineata</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira lusca</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminaes</i>	<i>Thalassiosira manifesta</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira merulamica</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira mediaconvexa</i>
<i>Crucidenticula ikebei</i>	<i>Nitzschia joussea</i>	<i>Thalassiosira minutissima</i>
<i>Crucidenticula kanayaee</i>	<i>Nitzschia palea</i>	<i>Thalassiosira miocenica</i>
<i>Crucidenticula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Crucidenticula paranicobrica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira orientalis</i>
<i>Crucidenticula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira praefraga</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira praenidulus</i>
<i>Cyclotella meneghiniana</i>	<i>Podosira stelligera</i>	<i>Thalassiosira praeyabei</i>
<i>Cymbella cistula</i>	<i>Porosira glacialis</i>	<i>Thalassiosira robusta</i>
<i>Cymbella minuta</i>	<i>Proboscia barbol</i>	<i>Thalassiosira sanctaeae</i>
<i>Cymbella subaequalis</i>	<i>Proboscia curvirostris</i>	<i>Thalassiosira singularis</i>
<i>Delphineis angustata</i>	<i>Proboscia interposita</i>	<i>Thalassiosira temperet</i>
<i>Delphineis ischaboensis</i>	<i>Proboscia prebarboi</i>	<i>Thalassiosira umaoensis</i>
<i>Delphineis kippae</i>	<i>Pseudodimerogetrum elegans</i>	<i>Thalassiosira undulosa</i>
<i>Delphineis sachalinensis</i>	<i>Pseudonitzschia seriata</i>	<i>Thalassiosira yabel</i>
<i>Delphineis simonsenii</i>	<i>Pseudopixylla americana</i>	<i>Thalassiothrix longissima</i>
<i>Delphineis surirella</i>	<i>Pseudotriceratium radiosoretciculatum</i>	<i>Trachyneis aspera</i>
<i>Denticulopsis crassa</i>	<i>Pyxidicula zabelnae</i>	<i>Yoshidaia divergens</i>
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Rhaphoneis amphiceros</i>	
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>		

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Kawarau

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
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 velutissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitalus exiguus
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Coscinodiscus costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
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 simonseni
Delphineis surirella

Core, section, interval (cm)

14/17/12 - 29H - CC

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 praefauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolilus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis piocena
Goniothecium decoratum
Goniothecium rogersii
Halimphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezenensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lizithnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 2012/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 praebargentii
Rhizosolenia setigera
Ropera tessellata
Rocella gelida
Rocella praelinita
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus paeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöeldii
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
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

IVPD 9

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

1417D - 30H-2W

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes* sp.*Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens 1. nodus**Actinocyclus Ingens 1. planus**Actinocyclus oculatus* ~~III/IV~~*Actinocyclus ochotensis* ~~I~~*Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugarvensis**Actinocyclus* sp. ~~F~~*Actinophy whole senarius**Actinophy whole vulgaris**Actinophy whole sp.**Araniscus lewisianus**Araniscus* sp.*Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus* sp.*Azpeitia bidriata**Azpeitia komurae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenidulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia* sp.*Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira* sp.*Cavatitus exiguus**Cavatitus jousaeus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus mioceneus**Cavatitus rectus**Cavatitus* sp.*Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus* sp.*Coccoconeis californica**Coccoconeis costata**Coccoconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmodiscus insignis**Crucidiscina ikebei**Crucidiscina kanaya**Crucidiscina nicobarica**Crucidiscina paranicobarica**Crucidiscina sawamuriae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonserii**Delphineis surirella**Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata*

← 0.0

→ 1.0

← 2.0

Core, section, interval (cm)

1417D - 30H-2W

TOTAL PRESERVATION

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

DATE: 2013/June/19

OBSERVER's NAME AKEMI, KONO

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)

*Denticulopsis hastedii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praeyalina**Denticulopsis praekatayamae**Denticulopsis praeslauta**Denticulopsis almonensis**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombyx**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 dollois**Fragilariopsis fossilia**Fragilariopsis oceanica**Fragilariopsis plicenna**Goniothecium decoratum**Goniothecium rogersii**Grammatophora* spp.*Halamphora costata**Hyalodiscus obsoletus**Ikebaea tenula**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozlovilla minor**Lisitzinia ornata**Medaria magna**Medaria splendida**Melosira albicans**Navicula elgivensis**Navicula lyraeides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kolzumii* ~~III/IV~~*Neodenticula seminas* ~~III/IV~~*Nitzschia challengeri**Nitzschia cylindrica**Nitzschia joussea**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praearbo**Pseudodimorpha elegans**Pseudodinteria radiosoreticulatum**Pseudotrichia seriatia**Pseudotrixia americana**Raphoneis amphiceros**Raphoneis amphiceros**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 isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii* ~~—~~*Shionodiscus preeoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioide**Thalassionema nitzschioide* var. *incurvatum**Thalassionema nitzschioide* var. *inflatum**Thalassionema nitzschioide* var. *parvum**Thalassionema pseudonitzschioide**Thalassionema schraderi**Thalassiosira antiqua**Thalassiosira bioculata**Thalassiosira castanea**Thalassiosira convexa**Thalassiosira decipiens**Thalassiosira dubiosa**Thalassiosira eccentrica**Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularata**Thalassiosira jacksonii**Thalassiosira joussea**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marjoramica**Thalassiosira mediocconvexa**Thalassiosira minutissima**Thalassiosira miocenea**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporalis**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiotrix longissima* ~~II, F~~*Trachyneis aspera**Yoshidaia divergens**Chaetoceros Resting Spores***TOTAL of VEGETATIVE CELLS**

closed capula

R / Th. sp. —

Rads t

sponge —

Diatom zones (NPD)

~~BARREN~~

Core, section, interval (cm)

1417D - 30H - 3W, 84cm

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 2013 / June / 14

OBSERVER's NAME ITSLK1

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 sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. *nodus*
Actinocyclus ingens 1. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisiatus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpellia biradiata
Azpellia komureae
Azpellia nodulifera
Azpellia oligocenica
Azpellia praenodulifera
Azpellia salisburyana
Azpellia tabularis
Azpellia velutissima
Azpellia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavatulus exiguus
Cavatulus jousseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minutula
Cymbella subaequalis
Deltipheneis angustata
Deltipheneis ischaboenensis
Deltipheneis kippae
Deltipheneis sachalinensis
Deltipheneis simonsenii
Deltipheneis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hastedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria-construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilariopsis dolotus
Fragilariopsis fossili
Fragilariopsis oceanica
Fragilariopsis plicena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
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 lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreliculatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergonii
Rhizosolenia setigera
Ropertia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupli
Shionodiscus preeoestrupli
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira merrijamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

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

Core, section, interval (cm)

1919 D-30F-cc

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 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
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus mioceneus
Cavatitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coscinodiscus 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
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
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 praekatayamae
Denticulopsis praeflava
Denticulopsis simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praeputia var. *praeputia*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicofera
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchiensis
Kozloviella minor
Liszkinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Nedenticula kamtschatica
Nedenticula koizumii
Nedenticula 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
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2012/June/12

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 praebergonii
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 paeoestrupii
Shionodiscus trifolius
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 marumjica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Chaetoceros Resting Spores**TOTAL OF VEGETATIVE CELLS**

Nearly

Diatom zones (NPD)
BARREN

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

TRACE

Core, section, interval (cm)
U1417D - 3(H-2W), 23 cm

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. *nodus*
Actinocyclus Ingens 1. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisanus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpellia bistrigata
Azpellia komurea
Azpellia nodulifera
Azpellia oligocenica
Azpellia praenodulifera
Azpellia salsburyana
Azpellia tabularis
Azpellia vetustissima
Azpellia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavatibus exiguis
Cavatibus jousseanus
Cavatibus lanceolatus
Cavatibus linearis
Cavatibus miocenicus
Cavatibus rectus
Cavatibus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
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
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hastedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilaropsis dollois
Fragilaropsis fossili
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elgivensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminas
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogramma elegans
Pseudonitzschia serata
Pseudoxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/14
OBSERVER's NAME ITSVKJ

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 praebargentii

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

Rouxia obesa
Shionodiscus oestruplli

Shionodiscus preeoestruplli

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris +

R
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 irregularata
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira maruyamica
Thalassiosira mediocconvexa
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
Thalassiotrix longissima
Trachyneis aspera
Yoshidaia divergens

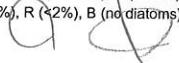
Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL ABUNDANCE:

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



Core, section, interval (cm)

1417 D. 31-Hcc

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus (R)
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira balthyomphala
Bacterosira fragilis
Bacterosira spp.
Cavilatus exiguis
Cavilatus jouseanus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 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 praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanoisira architecturalis
Distephanoisira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossile
Fragilaropsis oceanica
Fragilaropsis plicena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheira 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 lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kartschatica
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 interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 13. 6. 2013

OBSERVER'S NAME KORNUO

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
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxa californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus paeoestrupil
Shionodiscus trifullus
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 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 praenudulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
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

Spong 1-1-1-1-1

30

Diatom zones (NPD)	Core, section, interval (cm)	
	1817.D 324 1w50	
TOTAL ABUNDANCE:	TOTAL PRESERVATION	DATE: 14.6.2013
M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)	G (good), M (moderate), P (poor)	OBSERVER's NAME Komivo
<i>Achnanthes groenlandica</i> <i>Achnanthes inflata</i> <i>Achnanthes lanceolata</i> <i>Achnanthes lineariformis</i> <i>Achnanthes</i> sp. <i>Actinocyclus curvatus</i> <i>Actinocyclus ellipticus</i> <i>Actinocyclus ingens</i> <i>Actinocyclus ingens 1. nodus</i> <i>Actinocyclus ingens 1. planus</i> <i>Actinocyclus oculatus</i> <i>Actinocyclus ochotensis</i> <i>Actinocyclus octonarius</i> <i>Actinocyclus robustus</i> <i>Actinocyclus tsugaruensis</i> <i>Actinocyclus</i> sp. <i>Actinoplychus senarius</i> <i>Actinoplychus vulgaris</i> <i>Actinoplychus</i> sp. <i>Araniscus lewisianus</i> <i>Araniscus</i> sp. <i>Asteromphalus darwinii</i> <i>Asteromphalus oligocenicus</i> <i>Asteromphalus parvulus</i> <i>Asteromphalus robustus</i> <i>Asteromphalus</i> sp. <i>Azpeitia biradata</i> <i>Azpeitia komurae</i> <i>Azpeitia nodulifera</i> <i>Azpeitia oligocenica</i> <i>Azpeitia praenodulifera</i> <i>Azpeitia salisburyana</i> <i>Azpeitia tabularis</i> <i>Azpeitia velutissima</i> <i>Azpeitia</i> sp. <i>Bacterosira bathyomphala</i> <i>Bacterosira fragilis</i> <i>Bacterosira</i> sp. <i>Cavitatus exiguis</i> <i>Cavitatus jouseanus</i> <i>Cavitatus lanceolatus</i> <i>Cavitatus linearis</i> <i>Cavitatus miocenicus</i> <i>Cavitatus rectus</i> <i>Cavitatus</i> sp. <i>Cestodiscus kugleri</i> <i>Cestodiscus trochus</i> <i>Cestodiscus</i> sp. <i>Cocconeis californica</i> <i>Cocconeis costata</i> <i>Cocconeis scutellum</i> <i>Coscinodiscus asteromphalus</i> <i>Coscinodiscus marginatus</i> <i>Coscinodiscus oculus-iridis</i> <i>Coscinodiscus radiatus</i> <i>Coscinodiscus rhombicus</i> <i>Coscinodiscus symbolophorus</i> <i>Cosmoldiscus Insignis</i> <i>Crucidenticula ikebei</i> <i>Crucidenticula kanayaee</i> <i>Crucidenticula nicobarica</i> <i>Crucidenticula paranicobarica</i> <i>Crucidenticula sawamurae</i> <i>Cyclotella striata</i> <i>Cyclotella meneghiniana</i> <i>Cymbella cistula</i> <i>Cymbella minuta</i> <i>Cymbella subaequalis</i> <i>Delphineis angustata</i> <i>Delphineis ischaboensis</i> <i>Delphineis kippae</i> <i>Delphineis sachalinensis</i> <i>Delphineis simonsenii</i> <i>Delphineis surirella</i> <i>Denticulopsis crassa</i> <i>Denticulopsis dimorpha</i> var. <i>dimorpha</i> <i>Denticulopsis dimorpha</i> var. <i>areolata</i>	<i>Denticulopsis hustedtii</i> <i>Denticulopsis hyalina</i> <i>Denticulopsis katsuyamae</i> <i>Denticulopsis lauta</i> <i>Denticulopsis praedimorpha</i> var. <i>minor</i> <i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i> <i>Denticulopsis praehyalina</i> <i>Denticulopsis praeplatayamae</i> <i>Denticulopsis praeflava</i> <i>Denticulopsis simonsenii</i> <i>Denticulopsis tanimurae</i> <i>Denticulopsis vulgaris</i> <i>Diploneis bombus</i> <i>Diploneis puella</i> <i>Diploneis smithii</i> <i>Diploneis suborbicularis</i> <i>Distephanosira architecturalis</i> <i>Ellerbeckia sol</i> <i>Eunotia pectinalis</i> var. <i>minor</i> <i>Eunotia praerupta</i> var. <i>praerupta</i> <i>Fragilaria construens</i> (Ehrenberg) Grunow <i>Flagilariopsis cylindrus</i> <i>Fragilariopsis dolobus</i> <i>Fragilariopsis fossili</i> <i>Fragilariopsis oceanica</i> <i>Fragilariopsis plicena</i> <i>Goniothecium decoratum</i> <i>Goniothecium rogersii</i> <i>Grammatophora</i> spp. <i>Halamphora costata</i> <i>Hyalodiscus obsoletus</i> <i>Ikebae tenulis</i> <i>Kisseleviella carina</i> <i>Kisseleviella ezoensis</i> <i>Kolzumia tatsunokuchiensis</i> <i>Kozloviella minor</i> <i>Lisitzinia ornata</i> <i>Medaria magna</i> <i>Medaria splendida</i> <i>Melosira albicans</i> <i>Navicula elginensis</i> <i>Navicula lyraoides</i> <i>Navicula menisculus</i> <i>Navicula salinarum</i> <i>Neodenticula kamtschatkae</i> <i>Neodenticula kolzumii</i> <i>Neodenticula seminiae</i> <i>Nitzschia challengerii</i> <i>Nitzschia cylindrica</i> <i>Nitzschia joussea</i> <i>Nitzschia palea</i> <i>Nitzschia reinholdii</i> <i>Nitzschia rolandii</i> <i>Odontella aurita</i> <i>Paralia sulcata</i> <i>Podosira stelligera</i> <i>Porosira glacialis</i> <i>Proboscia barbol</i> <i>Proboscia curvirostris</i> <i>Proboscia interposita</i> <i>Proboscia praearbarboi</i> <i>Pseudodimerogetrum elegans</i> <i>Pseudonitzschia seriata</i> <i>Pseudopixilla americana</i> <i>Pseudotriceratium radiosoreticulatum</i> <i>Pyxidicula zabelinae</i> <i>Raphoneis amphiceros</i>	<i>Rhizosolenia hebetata</i> f. <i>hiemalis</i> <i>Rhizosolenia hebetata</i> f. <i>semispina</i> <i>Rhizosolenia norwegica</i> <i>Rhizosolenia praebengzonii</i> <i>Rhizosolenia setigera</i> <i>Roperia tesselata</i> <i>Rocella gelida</i> <i>Rocella praenitida</i> <i>Rocella semigelida</i> <i>Rocella vigilans</i> <i>Rouxia californica</i> <i>Rouxia granda</i> <i>Rouxia isopolica</i> <i>Rouxia naviculoides</i> <i>Rouxia obesa</i> <i>Shionodiscus oestrupii</i> <i>Shionodiscus praecoestrupii</i> <i>Shionodiscus trifultus</i> <i>Stephanopyxis dimorpha</i> <i>Stephanopyxis horridus</i> <i>Stephanopyxis turris</i> <i>Thalassionema bacillaris</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema nitzschioides</i> var. <i>incurvatum</i> <i>Thalassionema nitzschioides</i> var. <i>infatum</i> <i>Thalassionema nitzschioides</i> var. <i>parvum</i> <i>Thalassionema pseudonitzschioides</i> <i>Thalassionema schraderi</i> <i>Thalassiosira antiqua</i> <i>Thalassiosira bioculata</i> <i>Thalassiosira castanea</i> <i>Thalassiosira convexa</i> <i>Thalassiosira decipiens</i> <i>Thalassiosira dubiosa</i> <i>Thalassiosira eccentrica</i> <i>Thalassiosira fasciculata</i> <i>Thalassiosira fraga</i> <i>Thalassiosira gravida</i> <i>Thalassiosira grunowii</i> <i>Thalassiosira hyalina</i> <i>Thalassiosira irregularis</i> <i>Thalassiosira jacksonii</i> <i>Thalassiosira jouseae</i> <i>Thalassiosira leptopus</i> <i>Thalassiosira lineata</i> <i>Thalassiosira lusca</i> <i>Thalassiosira manifesta</i> <i>Thalassiosira merujamica</i> <i>Thalassiosira mediocostata</i> <i>Thalassiosira minutissima</i> <i>Thalassiosira miocenica</i> <i>Thalassiosira nordenskioldii</i> <i>Thalassiosira orientalis</i> <i>Thalassiosira praefraga</i> <i>Thalassiosira praenidulus</i> <i>Thalassiosira praeyabei</i> <i>Thalassiosira robusta</i> <i>Thalassiosira sanctaeiae</i> <i>Thalassiosira singularis</i> <i>Thalassiosira temporalis</i> <i>Thalassiosira umaoiensis</i> <i>Thalassiosira undulosa</i> <i>Thalassiosira yabel</i> <i>Thalassiothrix longissima</i> <i>Trachyneis aspera</i> <i>Yoshidaea divergens</i>

sponge

fragment

Chrysococcus Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, Interval (cm)

1417 D.32H3 w 65

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 14.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes sp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens 1. nodus**Actinocyclus ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus sp.**Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus sp.**Araniscus lewisanus**Araniscus sp.**Asteromphalus darwinii**Asteromphalus oligogeneticus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus sp.**Azpeitia biradiata**Azpeitia komuree**Azpeitia nodulifera**Azpeitia oligocenea**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia sp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira sp.**Cavatatus exiguus**Cavatatus jouseaeus**Cavatatus lanceolatus**Cavatatus linearis**Cavatatus miocenicus**Cavatatus rectus**Cavatatus sp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus sp.**Coccoconeis californica**Coccoconeis costata**Coccoconeis scutellum**Coscindiscus asteromphalus**Coscindiscus marginatus**Coscindiscus oculus-ridis**Coscindiscus radiatus**Coscindiscus rhombicus**Coscindiscus symbolophorus**Cosmodiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurai**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minutia**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 katayamiae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praethalaina**Denticulopsis praeplatyanae**Denticulopsis praelutea**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 dolilolus**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis pilocena**Goniothecium decoratum**Goniothecium rogersii**Grammatophora spp.**Halamphora costata**Hyalodiscus obsoletus**Ikabea tenuis**Kisseloveilla carina**Kisseloveilla 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 seminnea**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 interposta**Proboscia praearborai**Pseudodimmericraterium elegans**Pseudonanthesia seriata**Pseudopixylla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabelinae**Raphoneis amphiceros**Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia praebengoni**Rhizosolenia setigera**Roperia lesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isoploca**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupil**Shionodiscus praeoestrupil**Shionodiscus trifilus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioide**Thalassionema nitzschioide var. incurvatum**Thalassionema nitzschioide var. inflatum**Thalassionema nitzschioide var. parvum**Thalassionema pseudonitzschioide**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 marijancica**Thalassiosira mediacconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefragia**Thalassiosira praenidulus**Thalassiosira praeylebeli**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temporei**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens**Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

sponge f

diatom fragment

Diatom zones (N =)

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus 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
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)

1417.D 32HCC

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praevalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollosus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyaldiscus obsoletus
Hyaldiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liszkinia 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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 13 6 2013

OBSERVER's NAME KOYUNO

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeoestrupil
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 manjamica
Thalassiosira mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaiensis
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

Sponge F

4 → 20

Diatom zones (NPD)

Core, section, Interval (cm)

147. D. 33H 1W 44

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 14. 6. 2013

OBSERVER's NAME KUNHO

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**Denticulopsis hustedii**Achnanthes inflata**Denticulopsis hyalina**Achnanthes lanceolata**Denticulopsis katayamae**Achnanthes lineariformis**Denticulopsis lauta**Achnanthes sp.**Denticulopsis praedimorpha var. minor**Actinocyclus curvatus**Denticulopsis praedimorpha var. praedimorpha**Actinocyclus ellipticus**Denticulopsis praehyalina**Actinocyclus Ingens**Denticulopsis praekatayamae**Actinocyclus Ingens 1. nodus**Denticulopsis paeleuta**Actinocyclus Ingens 1. planus**Denticulopsis simonsenii**Actinocyclus oculatus**Denticulopsis tanimurae**Actinocyclus ochotensis**Denticulopsis vulgaris**Actinocyclus octonarius**Diploneis bombus**Actinocyclus robustus**Diploneis puella**Actinocyclus tsugaruensis**Diploneis smithii**Actinocyclus sp.**Diploneis suborbicularis**Actinoplychus senarius**Distephanosira architecturalis**Actinoplychus vulgaris**Ellerbeckia sol**Actinoplychus sp.**Eunotia pectinalis var. minor**Araniscus lewisanus**Eunotia praerupta var. praerupta**Araniscus sp.**Fragilaria construens* (Ehrenberg) Grunow*Asteromphalus darwinii**Flagilariopsis cylindrus**Asteromphalus oligocenicus**Fragilariopsis dolilolus**Asteromphalus parvulus**Fragilariopsis fossili**Asteromphalus robustus**Fragilariopsis oceanica**Asteromphalus sp.**Fragilariopsis pilocena**Azpeitia bistrigata**Goniothecium decoratum**Azpeitia komurea**Goniothecium rogersii**Azpeitia nodulifera**Grammatophora spp.**Azpeitia oligocenica**Halamphora costata**Azpeitia praenodulifera**Hyalodiscus obsoletus**Azpeitia salisburyana**Ikeba tenuis**Azpeitia tabularis**Kisselovelia carina**Azpeitia velutissima**Kisselovelia ezoensis**Azpeitia sp.**Kolzumia tatsunokuchiensis**Bacterosira bathyomphala**Kozlovella minor**Bacterosira fragilis**Lisitzinia ornata**Bacterosira sp.**Medilaria magna**Cavatibus exiguis**Medilaria splendida**Cavatibus jouseaeus**Melosira albicans**Cavatibus lanceolatus**Navicula elginensis**Cavatibus linearis**Navicula lyraoides**Cavatibus miocenicus**Navicula menisculus**Cavatibus rectus**Navicula salinarum**Cavatibus sp.**Neodenticula kamtschatkae**Cestodiscus kugleri**Neodenticula kolzumii**Cestodiscus trochus**Neodenticula seminæse**Cestodiscus sp.**Nitzschia challengerii**Coccoconeis californica**Nitzschia cylindrica**Coccoconeis costata**Paralia sulcata**Coccoconeis scutellum**Podosira stelligera**Coscinodiscus asteromphalus**Porosira glacialis**Coscinodiscus marginatus**Proboscia barbol**Coscinodiscus oculus-iridis**Proboscia curvirostris**Coscinodiscus radiatus**Proboscia interposta**Coscinodiscus rhombicus**Proboscia praearbarbol**Cosmoldiscus insignis**Pseudodimerogetrum elegans**Crudidenticula ikebei**Pseudonitzschia seriata**Crudidenticula kanayae**Pseudopixilla americana**Crudidenticula nicobarica**Pseudotriceratium radiosoreticulatum**Crudidenticula paranicobarica**Pyxidicula zabeliae**Crudidenticula sawamurai**Raphoneis amphiceros**Cyclotella striata**Rhizosolenia hebetata f. hiemalis**Cyclotella meneghiniana**Rhizosolenia hebetata f. semispina**Cymbella cistula**Rhizosolenia norwegica**Cymbella minutula**Rhizosolenia praebengtssonii**Cymbella subaequalis**Roueria lesselata**Delphinis angustata**Rocella gelida**Delphinis ischaboenensis**Rocella praenitida**Delphinis kippae**Rocella semigelida**Delphinis sachalinensis**Rocella vigilans**Delphinis simonsenii**Rouxia californica**Delphinis surirella**Rouxia granda**Denticulopsis crassa**Rouxia isopolica**Denticulopsis dimorpha var. dimorpha**Rouxia naviculoides**Denticulopsis dimorpha var. areolata*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones

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

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

Core, section, interval (cm)

1017.D.33HCC

DATE: 13. 6. 2013

OBSERVER's NAME FONNO

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus 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.
Cavatibus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus mioceneicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolilus
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora 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 lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatca
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscidea barbol 3 - (2)
Proboscidea curvirostris
Proboscidea interposita
Proboscidea praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudoxilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelnae
Raphoneis amphiceros

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

20 → 3

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

W4-17D 34H-4W 117cm

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 2013 / June / 14
 OBSERVER's NAME ITSURI

RELATIVE ABUNDANCE of EACH TAXON

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes* sp.*Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens* 1. *nodus**Actinocyclus Ingens* 1. *planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus* sp.*Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus* sp.*Araniscus lewisianus**Araniscus* sp.*Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus* sp.*Azpeitia biradata**Azpeitia komureae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Azpeitia* sp.*Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira* sp.*Cavatitus exiguus**Cavatitus jousseanus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cavatitus* sp.*Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus* sp.*Coccoconeis californica**Coccoconeis costata**Coccoconeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmidiscus Insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hastedii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praekhayalina**Denticulopsis praeplatyarmae**Denticulopsis praeslauta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Distephanosira architecturalis**Ellerbeckia sol**Eunotia pectinalis* var. *minor**Eunotia praerupta* var. *praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilaropsis dololutus**Fragilaropsis fossilis**Fragilaropsis oceanica**Fragilaropsis pilocena**Goniothecium decoratum**Goniothecium rogersii**Grammatophora* spp.*Helamphora costata**Hyalodiscus obsoletus**Ikebaea tenuis**Kisseleviella carina**Kisseleviella eoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisitzinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginensis**Navicula lyraeoides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula koizumii**Neodenticula seminas**Nitzschia challengerii**Nitzschia cylindrica**Nitzschia joussea**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glaciata**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praebarboi**Pseudodinheimerogramma elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabelinae**Raphoneis amphiceros**Rhizosolenia hebetata* f. *hiemalis**Rhizosolenia hebetata* f. *semispina**Rhizosolenia norvegica**Rhizosolenia prasbergonii**Rhizosolenia setigera**Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupill**Shionodiscus praeoestrupill**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioide**Thalassionema nitzschioide* var. *incurvatum**Thalassionema nitzschioide* var. *inflatum**Thalassionema nitzschioide* var. *parvum**Thalassionema pseudonitzschioide**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 joussea**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira merujamica**Thalassiosira mediocconcava**Thalassiosira minutissima**Thalassiosira milocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temporal**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens*

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)
BAREN

Core, section, Interval (cm)
U1417D-34H-2W, 80cm

DATE: **2013/June/14**
OBSERVER's NAME **CTSUKI**

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus isogaruensis
Actinocyclus sp.
Actinophy whole senarius
Actinophy whole vulgaris
Actinophy whole sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia sp.
Bacterosira bathymopha
Bacterosira fragilis
Bacterosira sp.
Cavatatus exiguus
Cavatatus jouseae
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cavatatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscindiscus asterophthalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minutula
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
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 dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus

Ikebae tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata

Medaria magna
Medaria splendida

Melosira albicans
Navicula elginensis
Navicula lyraeides
Navicula menisculus
Navicula salinarum
Neodenticula kamtshatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
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
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

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 isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus praesoestrupii

Shionodiscus trifolius
Stephanopyxis dimorphus
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 marijanica
Thalassiosira mediacoconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeabyssi
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaiella divergens

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)

Core, section, interval (cm)

1417, D. 34/100

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.
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 vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatatus exiguis
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cavatatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccineis 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 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 praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploaneis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilli
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheira costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
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 rehnholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 13. 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 praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus cestrupil
Shionodiscus praecestrupil
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 praenitidus
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.
Yoshidaea divergens
Yoshidaea spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)
BARREN

Core, section, Interval (cm)
1417.0 35H1WS2

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 14.6.2013
OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ligens
Actinocyclus ligens 1. nodus
Actinocyclus ligens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpellia bistrigata
Azpellia komure
Azpellia nodulifera
Azpellia oligocenica
Azpellia praenodulifera
Azpellia salisburyana
Azpellia tabularis
Azpellia vetustissima
Azpellia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavatibus exiguus
Cavatibus jouseaeus
Cavatibus lanceolatus
Cavatibus linearis
Cavatibus miocenicus
Cavatibus rectus
Cavatibus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Coccoeis californica
Coccoeis costata
Coccoeis 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 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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis prakatayamae
Denticulopsis praekautzae
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 doliolus
Fragilariopsis fossili
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatephora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminas
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbolii
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbolii
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praebargentilla

Rhizosolenia setigera
Roperia tessellata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isoploca
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupil

Shionodiscus praeoestrupil

Shionodiscus trifilus
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 mediacoconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeylebeli
Thalassiosira robusta
Thalassiosira sanctetiae

Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiotrichix 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)

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 lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguis
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis 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)

14/17.D. 35Hc

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 puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Listzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 13. 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 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 oestrupil
Shionodiscus praeoestrupil
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
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 sanctiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaiensis
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)

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatatus exiguis
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus micrenicus
Cavatatus rectus
Cavatatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophus
Cosmoldiscus 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 silvensenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, interval (cm)

14/7.D.36HCC

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dollos
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilarlopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liszitnia ornata
Medlaria magna
Medlaria 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 interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 13.6.2013

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roulea californica
Rouxia granda
Rouxia isopatica
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
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 praeeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperet
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)

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia 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.
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 sawamurae
Cyclotella striata
Cyclotella meneviniiana
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)

1417.D.37HCC

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
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenula
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroidea
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: *13.6.2013*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 praesbergoni
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 oestrupill
Shionodiscus praeoestrupill
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 lusca
Thalassiosira manifesta
Thalassiosira marumamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 13. 6. 2013

OBSERVER's NAME Kornmo

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus micronicus
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 minutula
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboeensis
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
Diplotheis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololutus
Fragilariopsis fossilli
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora 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 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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopediastrum americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Rhaphoneis amphiceros

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 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 marjamicia
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
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.
Yoshidaiia divergens
Yoshidaiia 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)

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

Baren

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.
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.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miconeicus
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
Delphineis angustata
Delphineis ischaboeensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, interval (cm)

1417D-89X-CC

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 sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dololutus
Fragilarlopsis fossilli
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halaphora 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 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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopediastrum americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013/June/13

OBSERVER's NAME AFEMI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/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 praebergoni
Rhizosolenia setigera
Ropertia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus cestrupi
Shionodiscus praecestrupi
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 manjamicia
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.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia 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)

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 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 symbolorum
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 ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, interval (cm)

1417D-#40X-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
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis subtopicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossils
Fragilaropsis oceanica
Fragilaropsis plicena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphepha costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuhensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria 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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodinmorogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

DATE: 2013/June/15

OBSERVER's NAME AFEMUZ

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 praebicornis
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 oestrupill
Shionodiscus praeoestrupill
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 lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

417D4PX - 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)

Undetermined

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 biradita
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 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
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
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 paeophylina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheira costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medularia magna
Medularia splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumili
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 interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pydilocula zabelnae
Rhaphoneis amphiceros

DATE: 2013/June/13

OBSERVER's NAME AKC/CZ

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 praebicornis
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeeestrupil
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 praenitidus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperalis
Thalassiosira umaoensis
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

↓ ↓
 Local capsule
 Th. sp. -

Diatom zones (NPD)

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

Core, section, interval (cm)

1417D-42X-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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus 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
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 pækatayamae
Denticulopsis paelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dollos
Fragilarlopsis fissilis
Fragilariopsis oceanica
Fragilarlopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Liszinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula meniscus
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 interposita
Proboscia praearbarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratum radiosoreticulatum
Pyxidicula zebelinea
Raphoneis amphiceros

DATE: 02013/June/13

OBSERVER'S NAME AFEMZ

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roparia tessellata
Rocella gelida
Rocella praeinitia
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. incurvatum
Thalassionema nitzschiooides var. inflatum
Thalassionema nitzschiooides var. parvum
Thalassionema pseudonitzschiooides
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 lucsa
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaiensis
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)

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus 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.
Cavilatus exiguum
Cavilatus jouseae
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus mioceneicus
Cavilatus rectus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
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
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)

1417.D.43xCC

DATE: 14.6.2013

OBSERVER's NAME KONDO

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)

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossils
Fragilaropsis oceanica
Fragilaropsis pilocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
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 kamtschatkae
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 interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphidium americanum
Pseudotriceratium radiosoreticulatum
Pyddicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Roparia tessellata
Rocella gelida
Rocella praeinitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeoestrupil
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
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.
Yoshidaiia divergens
Yoshidaiia 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)

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

Core, section, interval (cm)
14/17, D, 48x CC

DATE: 14.6.2013
OBSERVER's NAME Korervo

RELATIVE ABUNDANCE OF EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguis
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayaiae
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 praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheis spp.
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
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 seminiae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscidea barbol
Proboscidea curvirostris
Proboscidea interposita
Proboscidea praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia serata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelnae
Raphoneis amphiceros

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 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 nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)	Core, section, interval (cm)	
	1417, D, 45XCC	OBSERVER's NAME konop
TOTAL ABUNDANCE:	TOTAL PRESERVATION	RELATIVE ABUNDANCE of EACH TAXON
M (>60%), A (20-60%), C (5-20%) F (2-5%), R (<2%), B (no diatoms)	G (good), M (moderate), P (poor)	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> <i>Achnanthes inflata</i> <i>Achnanthes lanceolata</i> <i>Achnanthes lineariformis</i> <i>Achnanthes sp.</i> <i>Actinocyclus curvatus</i> <i>Actinocyclus ellipticus</i> <i>Actinocyclus ingens</i> <i>Actinocyclus ingens 1. nodus</i> <i>Actinocyclus ingens 1. planus</i> <i>Actinocyclus oculatus</i> <i>Actinocyclus ochotensis</i> <i>Actinocyclus octonarius</i> <i>Actinocyclus robustus</i> <i>Actinocyclus tsugaruensis</i> <i>Actinocyclus sp.</i> <i>Actinoplychus senarius</i> <i>Actinoplychus vulgaris</i> <i>Actinoplychus sp.</i> <i>Araniscus lewisiensis</i> <i>Araniscus sp.</i> <i>Asteromphalus darwinii</i> <i>Asteromphalus oligocenicus</i> <i>Asteromphalus parvulus</i> <i>Asteromphalus robustus</i> <i>Asteromphalus sp.</i> <i>Azpellia biradiata</i> <i>Azpellia komureae</i> <i>Azpellia nodulifera</i> <i>Azpellia oligocenica</i> <i>Azpellia praenodulifera</i> <i>Azpellia salisburyana</i> <i>Azpellia tabularis</i> <i>Azpellia velutissima</i> <i>Azpellia sp.</i> <i>Bacterosira bathyomphala</i> <i>Bacterosira fragilis</i> <i>Bacterosira sp.</i> <i>Cavatulus exiguis</i> <i>Cavatulus jousseanus</i> <i>Cavatulus lanceolatus</i> <i>Cavatulus linearis</i> <i>Cavatulus mioceneus</i> <i>Cavatulus reclus</i> <i>Cavatulus sp.</i> <i>Cestodiscus kugleri</i> <i>Cestodiscus trochus</i> <i>Cestodiscus sp.</i> <i>Coccoconeis californica</i> <i>Coccoconeis costata</i> <i>Coccoconeis scutellum</i> <i>Coscinodiscus asteromphalus</i> <i>Coscinodiscus marginatus</i> <i>Coscinodiscus oculus-iris</i> <i>Coscinodiscus radiatus</i> <i>Coscinodiscus rhombicus</i> <i>Coscinodiscus symbolophorus</i> <i>Cosmoldiscus insignis</i> <i>Crucidenticula ikebei</i> <i>Crucidenticula kanayae</i> <i>Crucidenticula nicobarica</i> <i>Crucidenticula paranicobarica</i> <i>Crucidenticula sawamurae</i> <i>Cyclotella striata</i> <i>Cyclotella meneghiniana</i> <i>Cymbella cistula</i> <i>Cymbella minuta</i> <i>Cymbella subaequalis</i> <i>Delphineis angustata</i> <i>Delphineis ischaboensis</i> <i>Delphineis kippae</i> <i>Delphineis sachalinensis</i> <i>Delphineis simonsenii</i> <i>Delphineis surirella</i> <i>Denticulopsis crassa</i> <i>Denticulopsis dimorpha var. dimorpha</i> <i>Denticulopsis dimorpha var. areolata</i>	<i>Denticulopsis hustedtii</i> <i>Denticulopsis hyalina</i> <i>Denticulopsis katayamae</i> <i>Denticulopsis laeta</i> <i>Denticulopsis praedimorpha</i> var. minor <i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i> <i>Denticulopsis praehyalina</i> <i>Denticulopsis praekatayamae</i> <i>Denticulopsis praeslauta</i> <i>Denticulopsis simonsenii</i> <i>Denticulopsis tanimurae</i> <i>Denticulopsis vulgaris</i> <i>Diploneis bombus</i> <i>Diploneis puella</i> <i>Diploneis smithii</i> <i>Diploneis suborbicularis</i> <i>Distephanosira architecturalis</i> <i>Ellerbeckia sol</i> <i>Eunotia pectinalis</i> var. minor <i>Eunotia praeerupta</i> var. <i>praeerupta</i> <i>Fragilaria construens</i> (Ehrenberg) Grunow <i>Flagilariopsis cylindrus</i> <i>Fragilariopsis dolilus</i> <i>Fragilariopsis fossili</i> <i>Fragilariopsis oceanica</i> <i>Fragilariopsis pilocena</i> <i>Goniothecium decoratum</i> <i>Goniothecium rogersii</i> <i>Grammatophora</i> spp. <i>Halamphora costata</i> <i>Hyalodiscus obsoletus</i> <i>Ikebaea tenula</i> <i>Kisseleviella carina</i> <i>Kisseleviella ezoensis</i> <i>Kolzumia tatsunokuchiensis</i> <i>Kozloviella minor</i> <i>Lisitzinia ornata</i> <i>Medaria magna</i> <i>Medaria splendida</i> <i>Melosira albicans</i> <i>Navicula elginensis</i> <i>Navicula lyraeides</i> <i>Navicula menisculus</i> <i>Navicula salinarum</i> <i>Neodenticula kamtschatka</i> <i>Neodenticula kolzumii</i> <i>Neodenticula seminas</i> <i>Nitzschia challengeri</i> <i>Nitzschia cylindrica</i> <i>Nitzschia joussea</i> <i>Nitzschia palea</i> <i>Nitzschia reinholdii</i> <i>Nitzschia rolandii</i> <i>Odontella aurita</i> <i>Paralia sulcata</i> <i>Podosira stelligera</i> <i>Porosira glacialis</i> <i>Proboscia barbol</i> <i>Proboscia curvirostris</i> <i>Proboscia interposita</i> <i>Proboscia praearbaroi</i> <i>Pseudodimorpha elegans</i> <i>Pseudonitzschia seriata</i> <i>Pseudopyxis americana</i> <i>Pseudotriceratium radiosoreticulatum</i> <i>Pyxidicula zabelinae</i> <i>Raphoneis amphiceros</i>	<i>Rhizosolenia hebetata</i> f. <i>hiemalis</i> <i>Rhizosolenia hebetata</i> f. <i>semispina</i> <i>Rhizosolenia norwegica</i> <i>Rhizosolenia praebergonii</i> <i>Rhizosolenia seligera</i> <i>Roperia tesselata</i> <i>Roccella gelida</i> <i>Roccella praenitida</i> <i>Roccella semigelida</i> <i>Roccella vigilans</i> <i>Rouxia californica</i> <i>Rouxia granda</i> <i>Rouxia isoploca</i> <i>Rouxia naviculoides</i> <i>Rouxia obesa</i> <i>Shionodiscus oestrupii</i> <i>Shionodiscus praesoestrupii</i> <i>Shionodiscus trifultus</i> <i>Stephanopyxis dimorpha</i> <i>Stephanopyxis horridus</i> <i>Stephanopyxis turris</i> <i>Thalassionema bacillaris</i> <i>Thalassionema nitzschioides</i> <i>Thalassionema nitzschioides</i> var. <i>incurvatum</i> <i>Thalassionema nitzschioides</i> var. <i>inflatum</i> <i>Thalassionema nitzschioides</i> var. <i>parvum</i> <i>Thalassionema pseudonitzschioides</i> <i>Thalassionema schraderi</i> <i>Thalassiosira antiqua</i> <i>Thalassiosira bioculata</i> <i>Thalassiosira castanea</i> <i>Thalassiosira convexa</i> <i>Thalassiosira decipiens</i> <i>Thalassiosira dubiosa</i> <i>Thalassiosira eccentrica</i> <i>Thalassiosira fasciculata</i> <i>Thalassiosira fraga</i> <i>Thalassiosira gravida</i> <i>Thalassiosira grunowii</i> <i>Thalassiosira hyalina</i> <i>Thalassiosira irregulata</i> <i>Thalassiosira jacksonii</i> <i>Thalassiosira joussea</i> <i>Thalassiosira leptopus</i> <i>Thalassiosira lineata</i> <i>Thalassiosira lusca</i> <i>Thalassiosira manifesta</i> <i>Thalassiosira merrijamica</i> <i>Thalassiosira mediaconvexa</i> <i>Thalassiosira minutissima</i> <i>Thalassiosira miocenica</i> <i>Thalassiosira nordenskioldii</i> <i>Thalassiosira orientalis</i> <i>Thalassiosira praefraga</i> <i>Thalassiosira praenidulus</i> <i>Thalassiosira preyabei</i> <i>Thalassiosira robusta</i> <i>Thalassiosira sanctaeiae</i> <i>Thalassiosira singularis</i> <i>Thalassiosira temporal</i> <i>Thalassiosira umaoiensis</i> <i>Thalassiosira undulosa</i> <i>Thalassiosira yabel</i> <i>Thalassiothrix longissima</i> <i>Trachyneis aspera</i> <i>Yoshidaea divergens</i>

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1817. D. 46XCC

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisianus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpellia bistrigata
Azpellia komuree
Azpellia nodulifera
Azpellia oligocenica
Azpellia praenodulifera
Azpellia salisburyana
Azpellia tabularis
Azpellia vetustissima
Azpellia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavatulus exiguus
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
Cavatulus rectus
Cavatulus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Coccoconeis californica
Coccoconeis costata
Coccoconeis 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*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preekatayamae
Denticulopsis praesauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Flagilariopsis dolollus
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula alginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumii
Neodenticula seminas
Nilzschia challengerii
Nilzschia cylindrica
Nilzschia jouseae
Nilzschia palea
Nilzschia reinholdii
Nilzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zebellinae
Raphoneis amphiceros

DATE: 18.6.2013
 OBSERVER's NAME Konsta

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
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupii

Shionodiscus preeoestrupii

Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infundibulum*
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 mediocconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporal
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiotrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

元一升原水?

Diatom zones (NPD)
undetermined

Core, section, interval (cm)
18/7. D. 47x CC

DATE: 14.6.2013
OBSERVER's NAME KONNO

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes sp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. *nodus*
Actinocyclus Ingens 1. *planus*
Actinocyclus oculatus
Actinocyclus ochoensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus sp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus sp.
Araniscus lewisiatus
Araniscus sp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus sp.
Azpeitia biradata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenea
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia sp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira sp.
Cavatatus exiguus
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus miocenicus
Cavatatus rectus
Cavatatus sp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus sp.
Coccocoleis californica
Coccocoleis costata
Coccocoleis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus 正立正立正立
Coscindiscus oculus-lividus
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayaae
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*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeiyalina
Denticulopsis praekatayamae
Denticulopsis praeslauta
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 dolollus
Fragilariopsis fossili
Fragilariopsis oceanica
Fragilariopsis plicena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Ikabea tenuis
Kisselevilla carina
Kisselevilla ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mederia magna
Mederia 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 正立正立
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixila americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

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

Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praeintida
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 lurris

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 irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediocconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperat
Thalassiosira umaciensis
Thalassiosira undulosa
Thalassiosira yabeli
/ *Thalassiothrix longissima* -

Trachyneis aspera
Yoshidaiia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge F

Rads -

3

Diatom zones (NPD)

Core, section, interval (cm)

14/17. D. 40XCC

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

DATE: 14.6.2013
 OBSERVER's NAME Konno

RELATIVE ABUNDANCE OF EACH TAXON

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

<i>Achnanthes groenlandica</i>	<i>Denticulopsis hustedii</i>	<i>Rhizosolenia hebetata f. hiemalis</i>
<i>Achnanthes inflata</i>	<i>Denticulopsis hyalina</i>	<i>Rhizosolenia hebetata f. semispina</i>
<i>Achnanthes lanceolata</i>	<i>Denticulopsis katayamae</i>	<i>Rhizosolenia norwegica</i>
<i>Achnanthes lineariformis</i>	<i>Denticulopsis leuta</i>	<i>Rhizosolenia preebergonii</i>
<i>Achnanthes</i> sp.		
<i>Actinocyclus curvatus</i>	<i>Denticulopsis praedimorpha</i> var. <i>minor</i>	<i>Rhizosolenia setigera</i>
<i>Actinocyclus ellipticus</i>	<i>Denticulopsis praedimorpha</i> var. <i>praedimorpha</i>	<i>Ropera tesselata</i>
<i>Actinocyclus ingens</i>	<i>Denticulopsis praehyalina</i>	<i>Rocella gelida</i>
<i>Actinocyclus ingens</i> 1. <i>nodus</i>	<i>Denticulopsis praeplatyamiae</i>	<i>Rocella praenitida</i>
<i>Actinocyclus ingens</i> 1. <i>planus</i>	<i>Denticulopsis praeseta</i>	<i>Rocella semigelida</i>
<i>Actinocyclus oculatus</i>	<i>Denticulopsis simonsenii</i>	<i>Rocella vigilans</i>
<i>Actinocyclus ochotensis</i>	<i>Denticulopsis tanimurae</i>	<i>Rouxia californica</i>
<i>Actinocyclus octonarius</i>	<i>Denticulopsis vulgaris</i>	<i>Rouxia granda</i>
<i>Actinocyclus robustus</i>	<i>Diploneis bombus</i>	<i>Rouxia isopolica</i>
<i>Actinocyclus tsugaruensis</i>	<i>Diploneis puella</i>	<i>Rouxia naviculoides</i>
<i>Actinocyclus</i> sp.		
<i>Actinoplychus senarius</i>	<i>Diploneis smithii</i>	<i>Rouxia obesa</i>
<i>Actinoplychus vulgaris</i>	<i>Diploneis suborbicularis</i>	<i>Shionodiscus oestrupil</i>
<i>Actinoplychus</i> sp.		
<i>Araniscus lewisanus</i>	<i>Distephanosira architecturalis</i>	<i>Shionodiscus praeoestrupil</i>
<i>Araniscus</i> sp.		
<i>Asteromphalus darwinii</i>	<i>Ellerbeckia sol</i>	<i>Shionodiscus trifultus</i>
<i>Asteromphalus oligocenicus</i>	<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Stephanopyxis dimorpha</i>
<i>Asteromphalus parvulus</i>	<i>Eunotia praerupta</i> var. <i>praerupta</i>	<i>Stephanopyxis horridus</i>
<i>Asteromphalus robustus</i>	<i>Fragilaria construens</i> (Ehrenberg) Grunow	<i>Stephanopyxis turris</i>
<i>Asteromphalus</i> sp.		
<i>Azpellia biradiata</i>	<i>Flagilariopsis cylindrus</i>	<i>Thalassionema bacillaris</i>
<i>Azpellia komurae</i>	<i>Fragilariopsis dololutus</i>	<i>Thalassionema nitzschiooides</i>
<i>Azpellia nodulifera</i>	<i>Fragilariopsis fossili</i>	<i>Thalassionema nitzschiooides</i> var. <i>incurvatum</i>
<i>Azpellia oligocenica</i>	<i>Fragilariopsis oceanica</i>	<i>Thalassionema nitzschiooides</i> var. <i>inflatum</i>
<i>Azpellia praenodulifera</i>	<i>Fragilariopsis pilocena</i>	<i>Thalassionema nitzschiooides</i> var. <i>parvum</i>
<i>Azpellia salisburyana</i>	<i>Goniothecium decoratum</i>	<i>Thalassionema pseudonitzschiooides</i>
<i>Azpellia tabularis</i>	<i>Goniothecium rogersii</i>	<i>Thalassionema schradeni</i>
<i>Azpellia velutissima</i>	<i>Grammatophora</i> spp.	<i>Thalassiosira antiqua</i>
<i>Azpellia</i> sp.		
<i>Bacterosira bathyomphala</i>	<i>Halamphora costata</i>	<i>Thalassiosira bioculata</i>
<i>Bacterosira fragilis</i>	<i>Hyalodiscus obsoletus</i>	<i>Thalassiosira castanea</i>
<i>Bacterosira</i> sp.		
<i>Cavatulus exiguis</i>	<i>Ikebae tenuis</i>	<i>Thalassiosira convexa</i>
<i>Cavatulus jousseanus</i>	<i>Kisseleviella carina</i>	<i>Thalassiosira decipiens</i>
<i>Cavatulus lanceolatus</i>	<i>Kisseleviella ezoensis</i>	<i>Thalassiosira dubiosa</i>
<i>Cavatulus linearis</i>	<i>Kolzumia tatsunokuchiensis</i>	<i>Thalassiosira eccentrica</i>
<i>Cavatulus micenicus</i>	<i>Kozloviella minor</i>	<i>Thalassiosira fasciculata</i>
<i>Cavatulus reclus</i>	<i>Lisitzinia ornata</i>	<i>Thalassiosira fraga</i>
<i>Cavatulus</i> sp.		
<i>Cestodiscus kugleri</i>	<i>Medilaria magna</i>	<i>Thalassiosira gravida</i>
<i>Cestodiscus trochus</i>	<i>Medilaria splendida</i>	<i>Thalassiosira grunowii</i>
<i>Cestodiscus</i> sp.		
<i>Coccoconeis californica</i>	<i>Melosira albicans</i>	<i>Thalassiosira hyalina</i>
<i>Coccoconeis costata</i>	<i>Navicula elgnensis</i>	<i>Thalassiosira irregularata</i>
<i>Coccoconeis scutellum</i>	<i>Navicula lyraeides</i>	<i>Thalassiosira jacksonii</i>
<i>Coscinodiscus asteromphalus</i>	<i>Navicula menisculus</i>	<i>Thalassiosira joussea</i>
<i>Coscinodiscus marginatus</i>	<i>Navicula salinarum</i>	<i>Thalassiosira leptopus</i>
<i>Coscinodiscus oculus-iridis</i>	<i>Neodenticula kamtschatka</i>	<i>Thalassiosira lineata</i>
<i>Coscinodiscus radiatus</i>	<i>Neodenticula kolzumii</i>	<i>Thalassiosira lusca</i>
<i>Coscinodiscus rhombicus</i>	<i>Neodenticula seminae</i>	<i>Thalassiosira manifesta</i>
<i>Coscinodiscus symbolophorus</i>	<i>Nitzschia challengeri</i>	<i>Thalassiosira marjoramica</i>
<i>Cosmoldiscus insignis</i>	<i>Nitzschia cylindrica</i>	<i>Thalassiosira mediocconvexa</i>
<i>Crucidicula ikebei</i>	<i>Nitzschia lousseae</i>	<i>Thalassiosira minutissima</i>
<i>Crucidicula kanayae</i>	<i>Nitzschia palea</i>	<i>Thalassiosira miocenica</i>
<i>Crucidicula nicobarica</i>	<i>Nitzschia reinholdii</i>	<i>Thalassiosira nordenskioldii</i>
<i>Crucidicula paranicobarica</i>	<i>Nitzschia rolandii</i>	<i>Thalassiosira orientalis</i>
<i>Crucidicula sawamurae</i>	<i>Odontella aurita</i>	<i>Thalassiosira praefraga</i>
<i>Cyclotella striata</i>	<i>Paralia sulcata</i>	<i>Thalassiosira praenidulus</i>
<i>Cyclotella meneghiniana</i>	<i>Podosira stelligera</i>	<i>Thalassiosira praeyabei</i>
<i>Cymbella cistula</i>	<i>Porusira glacialis</i>	<i>Thalassiosira robusta</i>
<i>Cymbella minuta</i>	<i>Proboscia barbol</i>	<i>Thalassiosira sanctaeae</i>
<i>Cymbella subaequalis</i>	<i>Proboscia curvirostris</i>	<i>Thalassiosira singularis</i>
<i>Delphineis angustata</i>	<i>Proboscia interposita</i>	<i>Thalassiosira tempera</i>
<i>Delphineis ischaevoensis</i>	<i>Proboscia praebarboi</i>	<i>Thalassiosira umaiensis</i>
<i>Delphineis kippae</i>	<i>Pseudodimorpha elegans</i>	<i>Thalassiosira undulosa</i>
<i>Delphineis sachalinensis</i>	<i>Pseudonitzschia seriata</i>	<i>Thalassiosira yabeli</i>
<i>Delphineis simonsenii</i>	<i>Pseudoxiphidium americanum</i>	<i>Thalassiotrix longissima</i>
<i>Delphineis surirella</i>	<i>Pseudotriceratium radiosoreticulatum</i>	<i>Trachyneis aspera</i>
<i>Denticulopsis crassa</i>	<i>Pyxidicula zabelinae</i>	<i>Yoshidaia divergens</i>
<i>Denticulopsis dimorpha</i> var. <i>dimorpha</i>	<i>Raphoneis amphiceros</i>	
<i>Denticulopsis dimorpha</i> var. <i>areolata</i>		

Chetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD) ?

Core, section, interval (cm)

1917D-49X-CC

TOTAL ABUNDANCE:

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

Undetermined

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes sp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens 1. nodus**Actinocyclus Ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugariensis**Actinocyclus sp.**Actinoplychus senarus**Actinoplychus vulgaris**Actinoplychus sp.**Araniscus lewisianus**Araniscus sp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus sp.**Azpeitia biradiata**Azpeitia komuree**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Azpeitia sp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira sp.**Cavatitus exiguus**Cavatitus jouseaeus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus mioceneus**Cavatitus rectus**Cavatitus sp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus sp.**Coccoeis californica**Coccoeis costata**Coccoeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus Insigis**Crucidenticula ikebeli**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphinis angustata**Delphinis ischaboenensis**Delphinis kippae**Delphinis sachalinensis**Delphinis simonsenii**Delphinis surirella**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. arroleta*

TOTAL PRESERVATION

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

(P)

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta

Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praetexta
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 dolollus
Fragilariopsis fissilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halimphora costata
Hyalodiscus obsoletus

Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata

*Mediaria magna**Mediaria splendida*

Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rollandi
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbarol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae

Raphoneis amphiceros

← 1.0 → 2.0 REST. SPORE T (P)

Rhizosolenia hebetala f. *hiemalis*
Rhizosolenia hebetala f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebargentilla

Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia grande
Rouxia isopoda
Rouxia naviculoides

Rouxia obesa
Shionodiscus oestrupili —

Shionodiscus praeoestrupili

Shionodiscus trifulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris

Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infundibulum*
Thalassionema nitzschioides 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 grunwi

Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicola
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umiacensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaiella divergens

Cyclotella Resting Spores

TOTAL OF VEGETATIVE CELLS

2

Triceratium? sp. - (P)

X: 9.8, Y: 17.0

DATE: 2013/June/13

OBSERVER'S NAME AKEMI

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

Triceratium? sp. 17.0

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 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 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 jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis 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)

14/17.0.50x2w83

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
Diploneis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztingia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatca
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 interposita
Proboscia praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 15.6.2013

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 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 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 marjamicola
Thalassiosira mediaconvexa
Thalassiosira milutssima
Thalassiosira miocenica
Thalassiosira nordenkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiotrix longissima
Trachyneis spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miconeicus
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
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)

K4/7, D. 50x2w/03

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 praevalina
Denticulopsis praekatajamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dollos
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilarlopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Liszimia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula meniscus
Navicula salinarum
Neodenitula kamtschatka
Neodenitula kolzumii
Neodenitula 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 praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: *15.6.2013*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 praeborgonii
Rhizosolenia seligera
Ropera tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roulea californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shaloniscus oestrupili
Shaloniscus praeoestrupili
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 schradieri
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 manujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira mioceneica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
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)

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

Core, section, interval (cm)

187.P. 50x3W72

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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatatus exiguis
Cavatatus jouseanus
Cavatatus lanceolatus
Cavatatus linearis
Cavatatus micrenicus
Cavatatus rectus
Cavatatus 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 symblophorus
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 ischaboeensis
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
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis 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 ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medularia magna
Medularia splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Raphoneis amphiceros

DATE: 15.6.2018

OBSERVER's NAME KONRAD

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 praebergonii
Rhizosolenia setigera
Ropera tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupill
Shionodiscus praeoestrupill
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
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 praeybægi
Thalassiosira robusta
Thalassiosira sanctetae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1917-50X-CC

TOTAL ABUNDANCE:

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

Uncalibrated

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes sp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens 1. nodus**Actinocyclus Ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus sp.**Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus sp.**Araniscus lewisanus**Araniscus sp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus sp.**Azpeitia biraedita**Azpeitia komuree**Azpeitia nodulifera**Azpeitia oligoceneica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Azpeitia sp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira sp.**Cavatitus exiguis**Cavatitus jouseaeus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cavatitus sp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus sp.**Coccoineis californica**Coccoineis costata**Coccoineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmodiscus Insignis**Crucidenticula ikebeli**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minutula**Cymbella subaequalis**Delphinis angustata**Delphinis ischaboensis**Delphinis kippae**Delphinis sachalinensis**Delphinis simonsenii**Delphinis surrella**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata*

TOTAL PRESERVATION

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

Uncalibrated

DATE:

2013 June 13

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 praebargentii**Rhizosolenia setigera**Roperia tesselata**Roccella gelida**Roccella praenitida**Roccella semigelida**Roccella vigians**Rouxia californica**Rouxia granda**Rouxia isopulicoides**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupil* — (P)*Shionodiscus praeoestrupil**Shionodiscus trifulus**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 marijimica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira paeylebei**Thalassiosira robusta**Thalassiosira sanctetae**Thalassiosira singularis**Thalassiosira temporei**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Undetermined

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417.D.51x1w102

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 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.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus micconicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus ~~正~~
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidiscita ikebei
Crucidiscita kanayaee
Crucidiscita nicobarica
Crucidiscita paranicobarica
Crucidiscita 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. *aerolata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis taninmurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lizimnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
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 ^正
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

DATE: 15.6.2013

OBSERVER's NAME KONDO

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
Ropertia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouada californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
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
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 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.
Yoshidaiia divergens
Yoshidaiia 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)

TOTAL PRESERVATION:

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

Core, section, interval (cm)

1017.D.51x2w60

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.
Actinopeltichus senarius
Actinopeltichus vulgaris
Actinopeltichus 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 mioceneus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis 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
Deltiphysis angustata
Deltiphysis ischaboensis
Deltiphysis kippae
Deltiphysis sachalinensis
Deltiphysis simonsenii
Deltiphysis 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 sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
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 ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabelnae
Raphoneis amphiceros

DATE: 15. 6 2013

OBSERVER's NAME Kommo

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
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil F
Shionodiscus praeoestrupil
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 praenudulus
Thalassiosira praevelai
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiotrix longissima
Thalassiotrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai a divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

R 96

Diatom zones (NPD)

NPD

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417. D 51x4W5

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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisiatus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus micrenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis 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 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 praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Dentipeltis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis 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
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata
Medrara magna
Medrara splendida
Melosira albicans
Navicula elginiensis
Navicula lyroidea
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandi
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmericrora elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabeliae
Rhaphoneis amphiceros

DATE: 15. 6. 2013

OBSERVER's NAME KONNU

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupili
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 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 nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
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

7 → 16

Diatom zones (NPD)

NP D (8 or) 7/12

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 sp.

Actinocyclus curvatus
Actinocyclus ellipticus

Actinocyclus igneus
Actinocyclus igneus 1. nodus

Actinocyclus igneus 1. planus
Actinocyclus oculatus

Actinocyclus ochotensis + (R) X
Actinocyclus octonarius

Actinocyclus robustus
Actinocyclus tsugaruensis

Actinocyclus sp.

Actinoplychus senarius → (R) 1

Actinoplychus vulgaris
Actinoplychus sp.

Araniscus lewisiensis
Araniscus sp.

Asteromphalus darwinii
Asteromphalus oligocenicus

Asteromphalus parvulus
Asteromphalus robustus

Asteromphalus sp.
Azpellia biradiata

Azpellia komurae
Azpellia nodulifera

Azpellia oligocenica
Azpellia praenodulifera

Azpellia salisburyana
Azpellia tabularis

Azpellia vetustissima
Azpellia sp.

Bacterosira balthymophala
Bacterosira fragilis

Bacterosira sp.

Cavatulus exiguis
Cavatulus jouseae

Cavatulus lanceolatus
Cavatulus linearis

Cavatulus miocenicus
Cavatulus rectus

Cavatulus sp.

Cestodiscus kugleri
Cestodiscus trochus

Cestodiscus sp.

Coccoeis californica + (R) 1

Coccoeis costata

Coccoeis scutellum → (R) 1

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 ischaboenensis

Delphinella kippae

Delphinella sachalinensis

Delphinella simonsenii

Delphinella surrella

Denticulopsis crassa

Denticulopsis dimorpha var. dimorpha

Denticulopsis dimorpha var. areolata

£1.0
→ 2.0
← 3.0
→ 4.0

N. kamschatcica X=105.4 Y=1.9

Core, section, interval (cm)

1417 D-51 X-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 praehydrocephala
Denticulopsis praeplatypterae
Denticulopsis praefluita
Denticulopsis simonensis
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

Flagilarlopsis cylindrus
Fragilarlopsis dololus
Fragilarlopsis fossilis
Fragilarlopsis oceanica
Fragilarlopsis pilocena

Goniothecium decoratum
Goniothecium rogersii
Grammatophora spp.

Halamphora costata
Hyalodiscus obsoletus IE T (R) 7

Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis

Kolzumia tatsunokuchiensis
Kozlovella minor
Lisitzinia ornata

Medaria magna
Medaria splendida

Melosira albicans
Navicula elginensis
Navicula lyraeides
Navicula menisculus
Navicula salinarum

Neodenticula kamtschatica ← T E F (R) 1
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 praearbarol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana

Pseudotriceratium radiosoreticulatum
Raphoneis amphiceros

Res. - spores T E

Rhap. - sp. T (R) 2

Th. sp. T (R) 3

open copula

DATE: 2013 June 13

OBSERVER'S NAME AKEMI

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 praebargentini

Rhizosolenia setigera
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isoploca
Rouxia naviculoides

Rouxia obesa
Shalonodiscus oestrupii T (R) 2

Shalonodiscus praeoestrupii

Shalonodiscus trifilatus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Step. sp. + (R) X
Thalassionema bacillaris + (R) X
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *inflatum* + (R) X
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitzschioidea
Thalassionema schraderi
Thalassiosira antiqua

Thalassiosira bioculata
Thalassiosira castanea

Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica T (R) 2

Thalassiosira gracilis
Thalassiosira grunowii

Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujimica
Thalassiosira mediocconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefragia
Thalassiosira praenidulus
Thalassiosira praeabyssi
Thalassiosira robusta
Thalassiosira sanctetteae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli

Thalassiothrix longissima T- (R) 6

Chetoceros Resting Spores 12
TOTAL of VEGETATIVE CELLS 100

C. marginatus
C. rotundatus

Diatom zones (NPD)

NPD 7B?

koizumi & watanabe rare taxa T-ESC 8

DATE:

15.6.2013

OBSERVER's NAME Komoto

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.
Actinopcythus senarius
Actinopcythus vulgaris
Actinopcythus 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 jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cavitalus 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 symbolorum
Cosmoldiscus insignis
Crucidicula ikebei
Crucidicula kanayae
Crucidicula nicobarica
Crucidicula paranicobarica
Crucidicula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Deltiphneis 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
Diploaneis spp.
Diploaneis bombus
Diploaneis puelia
Diploaneis smithii
Diploaneis suborbicularis
Diploaneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollosus
Fragilariopsis fossalis
Fragilariopsis oceanica
Fragilariopsis plicofera
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkica
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 interposita
Proboscia praebarbol
Pseudotriceratium radiosoreticulatum
Pseudotrimmerogramma elegans
Pseudonitzschia seriata
Pseudoxilla americana
Raphoneis amphiceros
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)

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Ropera tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxa californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Rhondiscus oestrupili
Rhondiscus praeoestrupili
Rhondiscus 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyüabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Rhassiotrichia longissima
Rhassiotrichia spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Rads - sponge -

73 - 12

Diatom zones (NPD)

undetermined

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Core, section, interval (cm)

18/17, D 52x2w80

DATE: 15.6.2013

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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
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.
Cocconeis californica
Cocconeis costata
Cocconeis 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 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 leutea
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolilus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyaldiscus obsoletus
Hyaldiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Listinaria ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula alginensis
Navicula lyraeides
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 barbolii
Proboscia curvirostris
Proboscia interposita
Proboscia praearborbolii
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratum radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

7 → 20

Diatom zones (NPD)

undetermined

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

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 Isagurvensis
Actinocyclus spp.
Actinopithicus senarius
Actinopithicus vulgaris
Actinopithicus 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.
Cavatulus exiguis
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
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
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

18/7. D. 52x 3w 85

TOTAL PRESERVATION

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis leuta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
Fragilarlopsis oceanica
Fragilarlopsis pilocena
Fragilarlopsis 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
Liszitina ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatcica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Rhaphoneis amphiceros

DATE: 15.6.2013OBSERVER's NAME Kondo

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 praebergonii
Rhizosolenia setigera
Roparia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupill
Shionodiscus paeoestrupill
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 nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
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)

NPD 8?

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417D-52X-CC

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes* sp.*Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens* 1. nodus*Actinocyclus ingens* 1. planus*Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus* sp.*Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus* sp.*Araniscus lewisianus**Araniscus* sp.*Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus* sp.*Azpellia bidriata**Azpellia komurea**Azpellia nodulifera**Azpellia oligocenica**Azpellia praenodulifera**Azpellia salisburyana**Azpellia tabularis**Azpellia velutissima**Azpellia* sp.*Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira* sp.*Cavatitus exiguus**Cavatitus jousseenus**Cavatitus lanceolatus**Cavatitus linearis**Cavatitus miocenicus**Cavatitus rectus**Cavatitus* sp.*Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus* sp.*Coccoeis californica**Coccoeis costata**Coccoeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula kebei**Crucidenticula kanayaee**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 simonenii**Delphineis surirella**Denticulopsis crassa**Denticulopsis dimorpha* var. dimorpha*Denticulopsis dimorpha* var. areolata

T(B)

R

T(B)

F

Th. sp. IEF

Res. spore IEF

TOTAL of VEGETATIVE CELLS 100

C

Cyclorella sp. T

R

Actinop. sp. IEF

F

X = 101.9 Y = 1.3

C

100% (A. senegalensis)

C

(C. succulentum)

< 0.0

> 1.0

< 2.0

DATE: 2013/June/13

OBSERVER's NAME APENZ

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 norvegica**Rhizosolenia preebergoni**Rhizosolenia setigera**Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigefida**Rocella vigilans**Rouxia californica**Rouxia grande**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupili*

T(B)

*Shionodiscus praeoestrupili**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioide**Thalassionema nitzschioide* var. *incurvatum**Thalassionema nitzschioide* var. *inflatum**Thalassionema nitzschioide* var. *parvum**Thalassionema pseudonitzschioide**Thalassionema schraderi**Thalassiosira antiqua*

IET(B)

*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 marjoramica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeybægi**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiotrix longissima**Trachyneis aspera**Yoshidaia divergens*

Chetoceros Resting Spores

13

TOTAL of VEGETATIVE CELLS

100

C. succulentum

A. senegalensis

Diatom zones (NPD)

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

Core, section, interval (cm)

UY47D-53X-1, 69cm

TOTAL PRESERVATION

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

DATE: 2013/June/15

OBSERVER'S NAME T SUKI

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)

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 T 2
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 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 TEEEEE

Coscinodiscus oculus-iridis

Coscinodiscus radiatus

Coscinodiscus rhombicus

Coscinodiscus symbolophorus

Cosmiodiscus insignis

Crucidenticula ikebei

Crucidenticula kanayae

Crucidenticula nicobarica

Crucidenticula paranicobarica

Crucidenticula sawamurae

Cyclotella striata

Cyclotella meneghiniana

Cymbella cistula

Cymbella minula

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 preekatayamae
Denticulopsis praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fissilis
Fragilariopsis oceanica
Fragilariopsis plicofera
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
Liszitina ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challenger
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata T 3
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudoxiphidium americanum
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelnae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupli
Shionodiscus praeoestrupli
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 - + (95.1, 1X.6)
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 praeylebei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima A
Trachyneis spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiella divergens
Yoshidaiella spp.

Chaetoceros Resting Spores
 TOTAL of VEGETATIVE CELLS

T

62

← → ← → →
 5.0 6.0 7.0 8.0 →
 184.2.17.6)

全面検鏡したよ

Diatom zones (NPD)

undetermined

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Core, section, interval (cm)
1470-53X-2W, 23 cmDATE: 2013 / June / 15OBSERVER's NAME TSUKI

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
 F (<1 vlv/10FOVs & <1 vlv/10FOVs)
 R (<3 vlv/travers & <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.**Cavatulus exiguis**Caviflatus jouseanus**Caviflatus lanceolatus**Caviflatus linearis**Caviflatus micronicus**Caviflatus rectus**Caviflatus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Coccineis californica**Coccineis costata**Coccineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmiodiscus 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**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 sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocrena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenius
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medularia magna
Medularia splendida
Melosira albicans
Navicula elginensis
Navicula lyroidea
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatcica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata ~~TEET~~
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudoxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Ropertia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupli
Shionodiscus praecoestrupli
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioiodes
Thalassionema nitzschioiodes var. *incurvatum*
Thalassionema nitzschioiodes var. *inflatum*
Thalassionema nitzschioiodes var. *parvum* * ?
Thalassionema pseudonitzschioiodes
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 marumajica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeylebei
Thalassiosira robusta
Thalassiosira sanctaeas
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis aspera
Trachyneis spp.
Yoshidaea divergens
Yoshidaea spp.

Chaetoceros Resting Spores ~~FF~~
 TOTAL of VEGETATIVE CELLS ~~15~~

pyritelyze spore?

全面見付

Diatom zones (NPD)

NPD 780

TOTAL ABUNDANCE:

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

Core, section, Interval (cm)

147 D - 53 X - CC

TOTAL PRESERVATION

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

DATE: 2013 / June / 13

AFEMI

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
F (>1 vlv/10FOVs & <1 vlv/10FOVs)
R (>3 vlv/traverse & <1 vlv/10FOVs)
X (present), B (barren)*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes sp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens 1. nodus**Actinocyclus Ingens 1. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus sp.**Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus sp.**Araniscus lewisianus**Araniscus sp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus sp.**Azpeitia biradata**Azpeitia komuree**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia sp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira sp.**Cavatatus exiguus**Cavatatus jousseaumei**Cavatatus lanceolatus**Cavatatus linearis**Cavatatus miocenicus**Cavatatus rectus**Cavatatus sp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus sp.**Coccoeis californica**Coccoeis costata**Coccoeis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Cosmoldiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebeli**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurai**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minutula**Cymbella subaequalis**Delphinis angustata**Delphinis ischaboensis**Delphinis kippae**Delphinis sachalinensis**Delphinis simonsenii**Delphinis surirella**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Thalassiothrix**Thalassionema**Raphoneis**Deltoides**Cyclotella**Pyxidicula**Proboscia**Thalassiosira*

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)

Core, section, interval (cm)

1417 D 54x00

DATE: 15.6.2013

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)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus micconicus
Cavitalus rectus
Cavitalus 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
Cosmiodiscus Insignis
Crucidiscina ikebei
Crucidiscina kanayaee
Crucidiscina nicobarica
Crucidiscina paranicobarica
Crucidiscina sawamurae
Cyclotella striata
Cyclotella menequiniana
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 kawaiiae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheleis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossile
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
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
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 interposita
Proboscia praebarboi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Rhaphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeoestrupil
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyds 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 marumamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæli
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperata
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)

Undetermined

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417. D 55x CC

TOTAL PRESERVATION

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

DATE: 15. 6. 2013

OBSERVER's NAME ROMNO

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 ochoensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus spp.**Actinoptychus senarius**Actinoptychus vulgaris**Actinoptychus 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.**Cavatulus exiguis**Cavatulus jouseanus**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus micronicus**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 symbolorophus**Cosmoldiscus 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**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis kalyayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praekalyayamae**Denticulopsis praelaeta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis sp.**Distephanosira architecturalis**Distephanosira sp.**Ellerbeckia sol**Ellerbeckia sp.**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Eunotia sp.**Fragilaria construens**Fragilaria sp.**Fragilariopsis cylindrus**Fragilariopsis dolloides**Fragilariopsis fossile**Fragilariopsis oceanica**Fragilariopsis pilocena**Fragilariopsis spp.**Goniothecium decoratum**Goniothecium rogersii**Goniothecium spp.**Grammatophora spp.**Halimphora 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 lyroides**Navicula menisculus**Navicula salinarum**Neodenticula karstschatica**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengeri**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia rehnholdii**Nitzschia rolandi**Odontella aurita**Paralia sulcata**Paralia spp.**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbaroi**Pseudodimmericromma elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Rhaphoneis amphiceros**Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia praebengonii**Rhizosolenia setigera**Ropertia tesselata**Roella gelida**Roella praenitida**Roella semigelida**Roella vigilans**Rouda californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shilonodiscus oestrupil**Shilonodiscus praeoestrupil**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyds 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 praeybabei**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.**Thalassiothrix longissima**Trachyneis aspera**Trachyneis spp.**Yoshidalia divergens**Yoshidalia spp.*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

7 -> 6

Diatom zones (NPD)

Undetermined

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Core, section, interval (cm)

1417.D.56×CC

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 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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsonii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolllus
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
Lizitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatcica
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 interposita
Proboscia praubarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabeliae
Raphoneis amphiceros

DATE: 15. 6. 2013

OBSERVER's NAME kommo

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. semiispina
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupill
Shionodiscus praeoestrupill
Shionodiscus trifillus
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 praenitidus
Thalassiosira praeylebei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperata
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

R | Nitzschia sp. -

S BONG ET

R | 2 | 2 | 2

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)

1417.D.57x.CC

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinoxyclus Ingens
Actinoxyclus Ingens f. nodus
Actinoxyclus Ingens f. planus
Actinoxyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
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.
Coccneis californica
Coccneis costata
Coccneis 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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis kalyamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeftakayamae
Denticulopsis praeflauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanoira architecturalis
Distephanoira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunota pectinalis var. minor
Eunota praerupta var. praerupta
Eunota sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolloides
Fragilaropsis fossilli
Fragilaropsis oceanica
Fragilaropsis pilocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisziniaria ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinorum
Neodenticula kamschatcica
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 interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxiidula zabelnae
Raphoneis amphiceros

DATE: 15.6.2013

OBSERVER's NAME KOMNO

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 praebengonii
Rhizosolenia seligera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupill
Shionodiscus praeoestrupill
Shionodiscus trifillus
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
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 mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperale
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponges -

28 → 3

Diatom zones (NPD)

NPD 7Bb?

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1417, D. 58 x 00

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.
Actinopylechus senarius
Actinopylechus vulgaris
Actinopylechus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biraedita
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 jouseaeus
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 正正正正正正正正
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 ischaebensis
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 praekatayamae
Denticulopsis praelauta
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fossils
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 tatsuokuchiensis
Kozloviella minor
Liztinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
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
R *Paralia sulcata* T
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia serata
Pseudoxilla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabelnae
Raphoneis amphiceros

DATE: 15.6.2013

OBSERVER'S NAME K-NNO

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 praebengonii**Rhizosolenia seligera**Ropertia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupili**Shionodiscus praeoestrupili**Shionodiscus tritulus**Stephanopyxis dimorpha**Stephanopyxids horridus**Stephanopyxis turris**Stephanopyxis* spp.*Thalassionema bacillaris**Thalassionema nitzschioides* T*Thalassionema nitzschioides* var. *incurvatum**Thalassionema nitzschioides* var. *inflatum**Thalassionema nitzschioides* 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 gradata**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularis**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marjamicia**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 umaiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira* spp.*Thalassiotrix longissima**Trachyneis aspera**Trachyneis* spp.*Yoshidaiia divergens**Yoshidaiia* 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)

weakly Barren

Core, section, interval (cm)

141712-59X-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.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bifridata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguus
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus micogenicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus — (R)
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus 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
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 simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota sp.
Fragilaria construens
Fragilaria sp.
Fragilaropsis cylindrus
Fragilaropsis dolollus
Fragilaropsis fossili
Fragilaropsis oceanica
Fragilaropsis pilocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus — (R)
Ikebea tenuis
Kisseviella carina
Kisseviella ezoensis
Kolzumia tatsunokuchiensis
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 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 interposita
Proboscia praubarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/15

OBSERVER'S NAME AREMZ

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
Rhizosolenia spp.
Roperia tesselata
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
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
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.
Yoshidai divergens
Yoshidai 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)

U1477 D 60x-1W, 21 cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 16

OBSERVER's NAME TSUKI

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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus micronicus
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 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 hustedi
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
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
Kolzumla tatsunokuchiensis
Kozloviella minor
Lisziniaria ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
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 interposita
Proboscia praearborii
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae
Rhaphoneis amphiceros

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
Rouda californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praeoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyds horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infiatum*
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 mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybæi
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umaoensis
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)

Undetermined

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvalulus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus Isaguruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biraedita
Azpeitia komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus T (b)
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmofliscus 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 simonsonii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1417D - 60X - 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 puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloplus
Fragilariopsis fissilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus — (b)
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztinya ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodentricula kamtschatka
Neodentricula kolzumii
Neodentricula 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 praearbarol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Rhaphoneis amphiceros

DATE: 20/3/June/15

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 praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouada 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* — (P)
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 marumjica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeabyei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umaiensis
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

(C. marginalis (n) ①)

Diatom zones (NPD)

Bamboo

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

Core, section, interval (cm)

1917D-61X-00

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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligoceneica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
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 simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dolloplus
Fragilariopsis fissilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenula
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisztnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula alginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula karstschaka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae
Raphoneis amphiceros

DATE: 2013/June/15

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda 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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperet
Thalassiosira umiacensis
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)

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Core, section, interval (cm)

1417 D. 62 x 1624

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis 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 sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
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 simsonenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fissilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztinya ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challenger
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 praearbarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zebellnae
Raphoneis amphiceros

DATE: 16.6.2013

OBSERVER's NAME KONNUO

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
Rouvia 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 mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
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)

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Core, section, interval (cm)

1417.D.62x1w62

*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 vetustissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavilatus exiguus**Cavilatus jouseanus**Cavilatus lanceolatus**Cavilatus linearis**Cavilatus mioceneus**Cavilatus rectus**Cavilatus 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 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**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 praelauta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis spp.**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis sp.**Distephanosira architecturalis**Distephanosira sp.**Ellerbeckia sol**Ellerbeckia sp.**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Eunotia sp.**Fragilaria construens**Fragilaria sp.**Fragilariopsis cylindrus**Fragilariopsis dolollus**Fragilariopsis fossils**Fragilariopsis oceanica**Fragilariopsis pilocena**Fragilariopsis spp.**Goniothecium decoratum**Goniothecium rogersii**Goniothecium spp.**Grammatophora spp.**Halamphora costata**Hyalodiscus obsoletus**Hyalodiscus spp.**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisitzinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginiensis**Navicula lyroides**Navicula merulinulus**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 glaciales**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbarbi**Pseudodimmerogramma elegans**Pseudonitzschia serita**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyddicula zabeliae**Raphoneis amphiceros*

DATE: 16.6.2013

OBSERVER's NAME Konu

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 praebengonii**Rhizosolenia setigera**Ropera tessellata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia ispolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupil**Shionodiscus praeoestrupil**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Stephanopyxis spp.**Thalassionema bacillaris**Thalassionema nitzschioidea**Thalassionema nitzschioides var. incurvatum**Thalassionema nitzschioides var. inflatum**Thalassionema nitzschioides 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 irregularata**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediaconvexa**Thalassiosira mirutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefragia**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctetiae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.**Thalassiotrix longissima**Thalassiotrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidai divergens**Yoshidai 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)

14170 - 628 - 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.
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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguum
Cavatulus jouseae
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 minutula
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
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 simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilarlopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsuokuchii
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula menisculum
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabelnae
Rhaphoneis amphiceros

DATE: 2013/June/15

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Roccella gelida
Roccella praenitida
Roccella semigelida
Roccella vigilans
Rouada 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
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 sanctaeae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaiensis
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)

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

mostly planar

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
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 velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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 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)

14170 - 63X-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 simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossilis
Fragilariopsis oceanica
Fragilarlopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Liszitina ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia rehboldii
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 zabelnae
Rhaphoneis amphiceros

DATE: 203/June/15

OBSERVER'S NAME ALCEMI

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 paebergonii
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. *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 marumjica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctae
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)

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

Core, section, interval (cm)

1417.D.64x 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.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biraedata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguum
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
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
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 katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis sp.
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 elginensis
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
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudodiceratium radiosoreticulatum
Pyddlcula zabelnae
Rhaphoneis amphiceros

DATE: 16.6.2013

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 praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roudia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupil
Shionodiscus praeoestrupil
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephenopyxis 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 miocenea
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaiensis
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)

undetermined

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

Core, section, interval (cm)

1417.D.65XCC

DATE: 16.6.2013

OBSERVER's NAME konvo

RELATIVE ABUNDANCE OF EACH TAXON

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

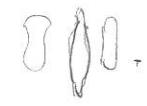
Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bifidata
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 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
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
Delphineis simonsonii
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 simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis sp.
Distephanosira architecturalis
Distephanosira sp.
Ellerbeckia sol
Ellerbeckia sp.
Eunolia pectinalis var. *minor*
Eunolia praerupta var. *praerupta*
Eunolia sp.
Fragilaria construens
Fragilaria sp.
Fragilariopsis cylindrus
Fragilarlopsis dolloides
Fragilarlopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenula
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsuokuchii
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
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Proboscia praearbarbol
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Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS



Avalco. sp. II

Sponge -