

Diatom zones (NPD)

NPD 12
TOTAL ABUNDANCE:
M (>60%), A (20-60%), C (5-20%)
F (<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 lewisiensis

Araniscus spp.

Asteromphalus darwinii

Asteromphalus oligocenicus

Asteromphalus parvulus

Asteromphalus robustus

Asteromphalus spp.

Azpeitia biradiata

Azpeitia komurae

Azpeitia nodulifera

Azpeitia oligocenica

Azpeitia praenodulifera

Azpeitia salisburyana

Azpeitia tabularis

Azpeitia velutissima

Azpeitia spp.

Bacterosira bathyomphala

Bacterosira fragilis

Bacterosira spp.

Cavitatus exiguis

Cavitalus jouseanus

Cavitalus lanceolatus

Cavitalus linearis

Cavitalus mioceneus

Cavitalus rectus

Cavitalus spp.

Cestodiscus kugleri

Cestodiscus trochus

Cestodiscus spp.

Cocconeis californica

Cocconeis costata

X *Cocconeis scutellum* +

Cocconeis spp.

Coscinodiscus asteromphalus

X *Coscinodiscus marginatus* +

Coscinodiscus oculus-iris

X *Coscinodiscus radiatus* +

Coscinodiscus rhombicus

Coscinodiscus symbolophorus

Cosmoldiscus insignis

Crucidenticula ikebei

Crucidenticula kanayae

Crucidenticula nicobarica

Crucidenticula paranicobarica

Crucidenticula sawamuriae

Cyclotella striata

Cyclotella meneghiniana

Cyclotella spp.

Cymbella cistula

Cymbella minuta

Cymbella subaequalis

Cymbella spp.

Delphineis angustata

Delphineis ischaboensis

Delphineis kippae

Delphineis sachalinensis

Delphineis simonsenii

Delphineis surirella

Delphineis spp.

Core, section, interval (cm)

1418B-1H-W, 6 cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fossili
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora costata
Hyalodiscus obsoletus — /

R Hyalodiscus spp. — /

Ikebea tenuis

Kisseleviella carina

Kisseleviella ezoensis

Kolzumia tatsunokuchiensis

Kozloviella minor

Lisztnia ornata

Medilaria magna

Medilaria splendida

Melosira albicans

Navicula elginiensis

Navicula lyroides

Navicula menisculus

Navicula salinarum

Neodenticula kamtschatka

Neodenticula kolzumii

Neodenticula seminae

Nitzschia challenger

Nitzschia jouseae

Nitzschia palea

Nitzschia reinholdii

Nitzschia rolandii

Odontella aurita

Paralia sulcata

Paralia spp.

Podosira stelligera

Porosira glacialis

Proboscia barbol

Proboscia curvirostris

Proboscia interposita

Proboscia praebarbol

Pseudodimmerogramma elegans

Pseudonitzschia seriata

Pseudopixylla americana

Pseudotriceratium radiosoreticulatum

Pyxidicula zabeliae

DATE: 2013/June/26

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)

A/A

Rhaphoneis amphiceros

Rhaphoneis spp.

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

Rouxia californica

Rouxia granda

Rouxia isopolica

Rouxia naviculoides

Rouxia obesa

Shionodiscus oestrupii

Shionodiscus praeoestrupii

Shionodiscus trifultus

Stephanopyxis dimorpha

Stephanopyxis horridus

Stephanopyxis turris

Stephanopyxis spp.

Thalassionema bacillaris

Thalassionema nitzschioides

Thalassionema nitzschioides var. incurvatum

Thalassionema nitzschioides var. inflatum

Thalassionema nitzschioides var. parvum

Thalassionema pseudonitzschioides

Thalassionema schraderi

Thalassionema spp.

Thalassiosira antiqua

Thalassiosira bioculata

Thalassiosira castanea

Thalassiosira convexa

Thalassiosira decipiens

Thalassiosira dubiosa

Thalassiosira eccentrica

Thalassiosira fasciculata

Thalassiosira fraga

Thalassiosira gravida

Thalassiosira grunowii

Thalassiosira hyalina

Thalassiosira irregulara

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 sanctaeiae

Thalassiosira singularis

Thalassiosira temperel

Thalassiosira uraoiensis

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

10
100

closed capsule
sponge T
slice —
open capsule??
(1024)

ebrian — do
X: 107.8 Y: 22.1 wahno?

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418B-1H-2W, 91cm

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes spp.**R Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens f. nodus**Actinocyclus Ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**R Actinocyclus tsugaruensis**Actinocyclus spp.**Actinoplychus senarius**Actinoplychus vulgaris**Actinoplychus spp.**Araniscus levisianus**Araniscus spp.**Asteromphalus darwinii**Asteromphalus oligogenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus spp.**Azpeitia biradiata**R Azpeitia komurae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia spp.**R Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavitatus exiguis**Cavitatus jouseanus**Cavitatus lanceolatus**Cavitatus linearis**Cavitatus mioceneus**Cavitatus rectus**Cavitatus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**R Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**D Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Delphineis spp.**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praelauta**Denticulopsis simonensis**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis spp.**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis spp.**Distephanosira architecturalis**Distephanosira spp.**Ellerbeckia sol**Ellerbeckia spp.**Eunolia pectinalis var. minor**Eunolia praerupta var. praerupta**Eunolia spp.**Fragilaria construens**Fragilaria spp.**Fragilariaopsis cylindrus**Fragilarlopsis dollos**Fragilarlopsis fossils**Fragilarlopsis oceanica**Fragilarlopsis pilocena**Fragilaropsis spp.**Goniothecium decoratum**Goniothecium rogersii**Goniothecium spp.**Grammatophora spp.**Halamphora costata**R Hyalodiscus obsoletus**Hyalodiscus spp.**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisztinya ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula algénensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kotzumii**Neodenticula seminaea**Nitzschia challengerii**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 americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae*

DATE:

2013/June/26

OBSERVER's NAME AKEMI, KON NO

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

*Rhaphoneis amphiceros**Rhaphoneis spp.**Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia praebergonii**Rhizosolenia setigera**Rhizosolenia spp.**Ropera tessellata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouya californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**R Shionodiscus oestrupii**R Shionodiscus praeoestrupii**R Shionodiscus trifolius**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**R Stephanopyxis spp.**Thalassionema bacillaris**Thalassionema nitzschioidea**Thalassionema nitzschioidea var. incurvatum**R 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 irregulara**Thalassiosira jacksonii**Thalassiosira jouseae**R Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkoeldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctetae**Thalassiosira singularis**Thalassiosira temperat**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yebel**Thalassiosira spp.**R Thalassiothrix longissima**Thalassiothrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidaiä divergens**Yoshidaiä spp.**Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

6.0

closed copula

→ 1.0

SPONGE

Rest. spore

R. spore

R. spore

全面

Diatom zones (NPD)

NPD12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418.B.14 3w40

TOTAL PRESERVATION

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

Q

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
 R *Actinocyclus curvatus* T
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoprychus senarius
Actinoprychus vulgaris
Actinoprychus 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.
 R *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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
 R *Coscinodiscus radiatus* T
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula kebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollos
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora costata
 R *Hyalodiscus obsoletus* T
Hyalodiscus spp.
Ikebaa tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozlumia tatsunokuchiensis
Kozloviella minor
Lisziniaria ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginessis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula karstschatica
Neodenticula kolzumii
Neodenticula seminae T E
Nitzschia challengerii T E
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 praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudotrixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27.6.2013

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)

Rhaphoneis amphiceros
Rhaphoneis spp.
 R *Rhizosolenia hebetata* f. *hiemalis* E T
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praobergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouya californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
 R *Shionodiscus oestrupii* E T
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
 R *Stephanopyxis turris*
Stephanopyxis spp. T T
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* T
Thalassiosira fasciculata
Thalassiosira fraga
 R *Thalassiosira gravida*, T E
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
 R *Thalassiosira leptopus* T E T
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperat
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
 R *Thalassiosira spp.* T E T
 R *Thalassiothrix longissima*
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaiia divergens
Yoshidaiia spp.

R *Chaetoceros Resting Spores* E F

TOTAL OF VEGETATIVE CELLS

Rads

SPUHSE T

T S -

Furan

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)

14/83-14-cc

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera X
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetutissima
Bacteriosa bathyomphala
Bacteriosa fragilis
Cavitalus exiguis
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus T X
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiodiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayaæ
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonisenii
Delphineis surrella

spore II -

fragments

closed copula

closed copula

DATE: 2013/June/25

OBSERVER's NAME AKEMI

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia seligera
Roperia tesselata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecestrupii
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 X
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima
Trachyneis aspera
Yoshidaiia divergens

Cheatoceros Resting Spores

TOTAL of VEGETATIVE CELLS

O

5

Worm-water!

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418C - 1A-1W, 43 cm

TOTAL PRESERVATION

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

DATE: 2013/June/27

OBSERVER'S NAME TSVK

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus IT
Actinocyclus engens
Actinocyclus engens f. nodus
Actinocyclus engens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius +
Actinoptychus vulgaris
Aranicus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitalus exiguus
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica ? - (95.8, 12.1)
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus T
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophus
Cosmoldiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamureae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata +
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

X *Siliceous Rads*
Closed cap

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 praeplatypterygiae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Disiphonosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus F
Flagilariopsis dolloides F
Flagilariopsis fossilis
Flagilariopsis oceanica
Flagilariopsis pilosena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisztnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
X *Paralia sulcata* +
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbori
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Ropertia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
R *Shionodiscus oestrupii* —
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides F
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
R *Thalassiosira leptopus* +
Thalassiosira lineata +
Thalassiosira lucsa
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiothrix longissima +
X *Trachyneis aspera*
Yoshidaea divergens

C *Chaetoceros Resting Spores*
 TOTAL of VEGETATIVE CELLS 100

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

61618C-1H-2W 30cm

TOTAL PRESERVATION

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

DATE: 2013/June/27

OBSERVER's NAME ITSVETI

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**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**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavatulus exiguus**Cavatulus jouseaeus**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus miocenicus**Cavatulus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccineis californica**Coccineis costata**Coccineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolorhynchus**Cosmoldiscus insignis**Crucidenticula ikebeli**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurensis**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonisenii**Delphineis surirella*

Silico Crypt

Dinas

→ 15.0 ← 16.0 → 17.0
 ↓ 51 89

*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 praealytina**Denticulopsis preakatayamae**Denticulopsis praelauta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Disiphanoisira architecturalis**Ellerbeckia sol**Eunotia peclinialis var. minor**Eunotia praerupta var. praerupta**Fragilaria construens* (Ehrenberg) Grunow*Flagilariopsis cylindrus**Fragilariopsis dolloides**Fragilariopsis fossillis**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 lyraeides**Navicula menisculus**Navicula salinarum**Neodenticula kamschatkae**Neodenticula kolzumii**Neodenticula seminaria**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 interposta**Proboscia praearbaroi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros**Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia praebargentii**Rhizosolenia setigera**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isoploca**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupili**Shionodiscus praeoestrupili**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Thalassionema bacillaris**Thalassionema nitzschioidea**Thalassionema var.-incurvatum**Thalassionema nitzschioidea var. inflatum**Thalassionema nitzschioidea var. parvum**Thalassionema pseudonitzschioidea**Thalassionema schraderi**Thalassiosira antiqua**Thalassiosira bioculata**Thalassiosira castanea**Thalassiosira convexa**Thalassiosira decipiens**Thalassiosira dubiosa**Thalassiosira eccentrica**Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregularis**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lucsa**Thalassiosira manifesta**Thalassiosira marjamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidius**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temperale**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaea divergens**X2 Chaetoceros Resting Spores*

TOTAL OF VEGETATIVE CELLS

100

R 2 unknown 7 (.92, 1, 15.0)

lunch-box diatom

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**Achnanthes spp.**Actinocyclus curvalulus**Actinocyclus ellipticus**Actinocyclus Ingens**Actinocyclus Ingens f. nodus**Actinocyclus Ingens f. planus**Actinocyclus ocellatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus spp.**Actinopychus senarius**Actinopychus vulgaris**Actinopychus 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.**Cavitatus exiguis**Cavitatus jouseanus**Cavitatus lanceolatus**Cavitatus linearis**Cavitatus mioceneicus**Cavitatus rectus**Cavitatus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Deltiphneis angustata**Deltiphneis ischaboensis**Deltiphneis kippae**Deltiphneis sachalinensis**Deltiphneis simonsenii**Deltiphneis surirella**Deltiphneis spp.*

Core, section, interval (cm)

1418, C, 1H 3W 57

TOTAL PRESERVATION

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

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 spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolclus
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
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae EFT
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reithrodillii
Nitzschia rolandii
Odontella aurita
Paralia sulcata —
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxysidium americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27.6.2013OBSERVER'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)

Raphoneis amphiceros
Raphoneis spp.
 X *Rhizosolenia hebetata* f. *hiemalis* T
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 praeeestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
 X *Stephanopyxis spp.* T
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
 Y *Thalassiosira gravida* —
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae —
 Y *Thalassiosira leptopus* —
Thalassiosira lineata
Thalassiosira lusca
 X *Thalassiosira manifesta* —
Thalassiosira marjamicia
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temperel
Thalassiosira umiacensis
Thalassiosira undulosa
Thalassiosira yabel
 X *Thalassiosira spp.* T
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

closed capura +

sporangia

Diatom zones (NPD)**BARREN****TOTAL ABUNDANCE:**M (>60%), A (20-60%), C (5-20%)
F (2-5%), R (<2%), B (no diatoms)**TRACE**あり*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 komurasae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavatulus exiguis**Cavatulus jouseanus**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus miocenicus**Cavatulus rectus**Cestodiscus kugleri**Cestodiscus trachus**Coccineis californica**Coccineis costata**Coccineis scutellum**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symboloruphorus**Cosmoldiscus insignis**Crucidenticula ikabei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamureae**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella***Core, section, interval (cm)**U1418C - 1H-5W, 139 cm**TOTAL PRESERVATION**

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

*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katoryamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis preakatayamae**Denticulopsis praesoluta**Denticulopsis simonisenii**Denticulopsis tanimurae**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**Fragilariopsis dolkulus**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis pilocena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebaea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumia tatsunokuchiensis**Kozloviella minor**Lisitzinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginensis**Navicula lyraeoides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatkae**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengerii**Nitzschia cylindrica**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Podosira stelligera**Porosira glaciata**Proboscia barbol**Proboscia curvirostris**Proboscia interposta**Proboscia praearbaroi**Pseudodimmericramus elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros***DATE: 2013 / June / 27****OBSEVER's NAME ITSKV.****RELATIVE ABUNDANCE of EACH TAXON**

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

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

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

X (present), B (barren)

Rhizosolenia hebetata f. *hiemalis**Rhizosolenia hebetata* f. *semispina**Rhizosolenia norwegica**Rhizosolenia praebargentii**Ropertia 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**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 marjanica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temporei**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabeli**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens****Chaetoceros Resting Spores*****TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

Barren

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418C - 1417C

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 komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathymophala
Bacteriosira fragilis
Cavitatus exiguis
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crudenticula ikebei
Crudenticula kanayae
Crudenticula nicobarica
Crudenticula paranicobarica
Crudenticula sawamureae
Cyclorella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonensis
Denticulopsis tamimurae
Denticulopsis vulgaris
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Disstaphanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 2013/June/25

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 praebengonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporal
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidai 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)

1418.C.3H4W90

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.
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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula Ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crudidenticula paranicobarica
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halampheora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsuokuchensis
Kozloviella minor
Liszkinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkaica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
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
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE of EACH TAXON

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

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Ropera fessulata
Rocella gelida
Rocella praeinitia
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shaloniscus oestrupili
Shaloniscus praesoestrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs 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 marjamicola
Thalassiosira mediacoconvexa
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.
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)

*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 exiguus**Cavatulus jousseanus**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus mioceneus**Cavatulus rectus**Cavatulus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmodiscus insignis**Crucidiscula ikebei**Crucidiscula kanayae**Crucidiscula nicobarica**Crucidiscula paranicobarica**Crucidiscula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Delphineis spp.*

Core, section, interval (cm)

1418, C. 345±138

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 laeta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolllus
Fragilariopsis 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
Kolzumla tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaula magna
Mediaula splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminaea
Nitzschia challengerii
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27.6.2013

OBSERVER's NAME KVNNO

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. hemialis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praesbergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupli
Shionodiscus praeoestrupli
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. incurvatum
Thalassionema nitzschiooides var. inflatum
Thalassionema nitzschiooides var. parvum
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira Jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira mlnutsslmna
Thalassiosira miocenea
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctitae
Thalassiosira singularis
Thalassiosira temper
Thalassiosira umaciensis
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

SPONGE

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418, C. JHCC

TOTAL PRESERVATION

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

DATE: 26.6.2013

OBSERVER'S NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON

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

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 lewisiatus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symboloruphorus
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 leuta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prahyalina
Denticulopsis pækata yamae
Denticulopsis paelauta
Denticulopsis simonsenii
Denticulopsis tamimurae
Denticulopsis vulgaris
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Flagilariopsis cylindrus
Fragilarlopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilcena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hydrodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Listiaria ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtchatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscidea barbol
Proboscidea curvirostris
Proboscidea interposita
Proboscidea praearbori
Pseudodimerogetra elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

R *Rhizosolenia hebetata* f. *hiemalis* T
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
R *Shionodiscus oestrupili* R E T
Shionodiscus praecoerupili
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
R *Thalassiosira eccentrica* R E
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
R *Thalassiosira leptopus* R E
Thalassiosira lineata
Thalassiosira lucsa
Thalassiosira manifesta
Thalassiosira marjamicola
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
R *Thalassiothrix longissima* T
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

1 → 20

closed colony +

sponge

Diatom zones (NPD)

Core, section, interval (cm)

1418. C. 4Hcc

TOTAL ABUNDANCE:

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

Trace

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinoplychus senarius**Actinoplychus vulgaris**Araniscus lewisianus**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Azpeitia biradiata**Azpeitia komureae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenudifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Bacteriosira bathyomphala**Bacteriosira fragilis**Cavilitus exiguus**Cavilitus jouseaeus**Cavilitus lanceolatus**Cavilitus linearis**Cavilitus mioceneus**Cavilitus rectus**Cestodiscus kugleri**Cestodiscus trochus**Coccoeis californica**Coccoeis costata**Coccoeis 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 sawamurai**Cyclotella striata**Cyclotella meneghiniana**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonensis**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 katayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis preakatayamae**Denticulopsis praelauta**Denticulopsis simonsenii**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**Fragilariopsis cylindrus**Fragilariopsis dololutis**Fragilariopsis fossilis**Fragilariopsis oceanica**Fragilariopsis pilocena**Goniothecium decoratum**Goniothecium rogersii**Halamphora costata**Hyalodiscus obsoletus**Ikebaea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kolzumla tatsunokuchiensis**Kozloviella minor**Lisitzinia ornata**Mediaria magna**Mediaria splendida**Melosira albicans**Navicula elginensis**Navicula lyrodes**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kolzumli**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 interposta**Proboscia praearbaroi**Pseudodimerogetrum elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Raphoneis amphiceros*

DATE: 26. 6. 2013

OBSERVER's NAME konno

RELATIVE ABUNDANCE of EACH TAXON

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

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

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

X (present), B (barren)

*Rhizosolenia hebetata f. hiemalis**Rhizosolenia hebetata f. semispina**Rhizosolenia norwegica**Rhizosolenia praebengonii**Rhizosolenia setigera**Roperia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouxia californica**Rouxia granda**Rouxia isoplica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii**Shionodiscus praeoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis lurris**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 maryjamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeabyssi**Thalassiosira robusta**Thalassiosira sanctaeae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaoensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiothrix longissima**Trachyneis aspera**Yoshidaia divergens**Chaetoceras Resting Spores*

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

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

Trace

Core, section, interval (cm)

1418, C, SH4W 68

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 velutissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavifatus exiguis**Cavifatus jouseanus**Cavifatus lanceolatus**Cavifatus linearis**Cavifatus micrenicus**Cavifatus rectus**Cavifatus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula kebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simsonenii**Delphineis surirella**Delphineis spp.**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praelauta**Denticulopsis simonensis**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis spp.**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis spp.**Distephanosira architecturalis**Distephanosira spp.**Ellerbeckia sol**Ellerbeckia spp.**Eunoia pectinalis var. minor**Eunoia praerupta var. praerupta**Eunoia spp.**Fragilaria construens**Fragilaria spp.**Fragilariopsis cylindrus**Fragilariopsis dolloides**Fragilariopsis fossils**Fragilariopsis oceanica**Fragilariopsis pilocena**Fragilariopsis spp.**Goniothecium decoratum**Goniothecium rogersii**Goniothecium spp.**Grammatophora spp.**Halampheora costata**Hyalodiscus 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 kamtschatkae**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengerii**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia spp.**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbarbol**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopixilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabelinae*

DATE: 27.6.2013

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)

*Raphoneis amphiceros**Raphoneis spp.**Rhizosolenia hebetata f. hemispira**Rhizosolenia norwegica**Rhizosolenia praebergonii**Rhizosolenia setigera**Rhizosolenia spp.**Roperia tesselata**Roella gelida**Roella praenitida**Roella semigelida**Roella vigilans**Rouxa californica**Rouzia granda**Rouzia isopolica**Rouzia naviculoides**Rouzia obesa**Shaloniscus oestrupil**Shaloniscus 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 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 nordenskiöldii**Thalassiosira orientalis**Thalassiosira praefragia**Thalassiosira praenidulus**Thalassiosira praeeyabei**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

closed capitate
Sponget

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.
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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella
Delphineis spp.

Core, section, interval (cm)

1418, C, 546W 70

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 praetulta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
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 lyraoides
Navicula merulinus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminaea
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae

DATE: 27.6.2013

OBSERVER's NAME Konkuo

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)

Raphoneis amphiceros
Raphoneis spp.
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 isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupilii
Shionodiscus praeoestrupilii
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 nordenkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabeiae
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaciensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

NPD12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418.5, SHCC

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 komurea
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavilitus exiguus
Cavilitus jouseanus
Cavilitus lanceolatus
Cavilitus linearis
Cavilitus mioceneus
Cavilitus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus T
Coscinodiscus oculus-iridis
Coscinodiscus radiatus T
Coscinodiscus rhombicus
Coscinodiscus symbolorophus
Cosmiodiscus insignis
Crudenticula ikebeli
Crudenticula kanayaiae
Crudenticula nicobarica
Crudenticula paranicobarica
Crudenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedti
Denticulopsis hyalina
Denticulopsis katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
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
Fragilariopsis dololutis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
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 interposta
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Raphoneis amphiceros

DATE: 26.6.2013

OBSERVER's NAME KONDO

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeburgonii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii T
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
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 maryjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeabyei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperae
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima T
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores T

TOTAL of VEGETATIVE CELLS

Sponge T

closed top part

foras —

Diatom zones (NPD)

undetermined

TOTAL ABUNDANCE:

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

heavy Barren

Core, section, interval (cm)

1418. C. 6 Hzw 117

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 Isogaruensis**Actinocyclus spp.**Actinopychus senarius**Actinopychus vulgaris**Actinopychus spp.**Araniscus lewisiensis**Araniscus spp.**Asteromphalus darwinii**Asteromphalus oligogenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus spp.**Azpeitia biradula**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.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Delphineis spp.**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praeplatata**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis spp.**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis spp.**Distephanosira architecturalis**Distephanosira spp.**Ellerbeckia sol**Ellerbeckia spp.**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Eunotia spp.**Fragilaria construens**Fragilaria spp.**Fragilariopsis cylindrus**Fragilarlopsis dollosus**Fragilarlopsis fossils**Fragilariopsis oceanica**Fragilarlopsis pilocena**Fragilariopsis 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**Liszimia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatka**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengerii**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia spp.**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praebarbol**Pseudodimorpha elegans**Pseudonitzschia seriata**Pseudotrixilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae*

DATE: 27.6.2013

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)

*Raphoneis amphiceros**Raphoneis spp.**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**Roula californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii**Shionodiscus praeoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**X 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 irregularata**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marjamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkoeldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctae**Thalassiosira singularis**Thalassiosira temperat**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**X Thalassiosira spp.**Thalassiothrix longissima**Thalassiothrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidai divergens**Yoshidai spp.*

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

foram -

Spong E7

Diatom zones (NPD)

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

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligoconica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira balthyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguus
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crudicentidula nicobarica
Crudicentidula paranicobarica
Crudicentidula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

148C 8H4W85

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 simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilaricopsis cylindrus
Fragilaricopsis dololus
Fragilaricopsis fossilis
Fragilaricopsis oceanica
Fragilaricopsis pilocena
Fragilaricopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenue
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tetsunokuchiensis
Kozloviella minor
Lisztsinia ornata
Mediaea magna
Mediaea splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkaica
Neodenticula koizumii
Neodenticula seminaes
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbolii
Pseudodinmogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudoficeratum radiosoreliculatum
Pyxidicula zabelinae

DATE: 27.6.2013

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergonii
Rhizosolenia sellgera
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 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
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 praeybæli
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yaboi
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Sponge +

Diatom zones (NPD)

Core, section, interval (cm)

1418 C. 6H 8C

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: 26. 6. 2013

OBSERVER's NAME kommo

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlvls/FOV)
 F (>3 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
Actinoprychus senarius
Actinoprychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorhus
Cosmiodiscus insignis
Crucidenticula ikebeli
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobacara
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis kawaiyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis 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
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odonella aurita
Paralia sulcata
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zebellinae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergonii
Rhizosolenia seligera
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 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 sanctaeiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaiia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

W1418C-7H-2W, 60cm

TOTAL PRESERVATION

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

DATE: 2013/June/27OBSERVER's NAME ITSUKI

RELATIVE ABUNDANCE OF EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes 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 komarae
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.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollosus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphepha costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Listinaria ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinboldii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbolii
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudotrixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

Raphoneis amphiceros
Raphoneis spp.
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 oestrupii
Shionodiscus praecostriplii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxids 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 marjoramica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiotrichix longissima
Thalassiotrichix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

*Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS*

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseae
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginalis
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidienticula ikebei
Crucidienticula kanayae
Crucidienticula nicobarica
Crucidienticula paranicobarica
Crucidienticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

U1418C-7H-Y, 36cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolllus
Fragilariopsis fossils
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 elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 2013/June/27

OBSERVER's NAME ITSVK1

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. hemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praesbergonii
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 oestrupii
Shionodiscus praecostripli
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 minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
*Thalassiothrix longissima **
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

+ close & open

Diatom zones (NPD)

Core, section, interval (cm)

1410. C. 7HCC

TOTAL ABUNDANCE:

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

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinopeltodus senarius
Actinopeltodus 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
Cavatulus exiguis
Cavatulus jouseaeus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus mioceneus
Cavatulus rectus
Cestodiscus kugleri
Cestodiscus trochus
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorhus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurea
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 katoryamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis preakatayamae
Denticulopsis praelauta
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplotheia bombus
Diplotheia puella
Diplotheia smithii
Diplotheia suborbicularis
Disstephanosira architecturalis
Ellerbeckia sol
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilaria cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
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
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 26.6.2013

OBSERVER's NAME KANUO

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidaea divergens

Cheatoceros Resting Spores

TOTAL of VEGETATIVE CELLS

SPORE -

Diatom zones (NPD)

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

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bibradiata
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 jousseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus reclus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coccoeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minutula
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella
Delphineis spp.

Core, section, Interval (cm)

1418. C. 9H2W50

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 praeplatyiae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Diplolepis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distiphanoisra architecturalis
Distiphanoisra spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaropsis cylindrus
Fragilaropsis dolobius
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilicena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiella tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kentischatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbolii
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixille americana
Pseudodiceratium radiosoreticulatum
Pyxidicula zabelinae

DATE: 27.6.2013

OBSERVER's NAME KOMUO

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia seligera
Ropera tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupili
Shionodiscus praeostrupili
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
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 joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicia
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeabyei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporis
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiotrix longissima
Thalassiotrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

SPORE

Diatom zones (NPD)

Core, section, interval (cm)

148. C. 9HCC

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
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus ocellatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinoptychus senarius
Actinoptychus vulgaris
Araniscus lewisiatus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira balthymophala
Bacteriosira fragilis
Cavitatus exiguus
Cavitatus jouseaeus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crudenticula ikebeli
Crudenticula kanayaee
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

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

DATE: 26.6.2017

OBSERVER's NAME: *Koano*

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiothrix longissima
Trachyneis aspera
Yoshidaia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, Interval (cm)

1418 C / 10H12.9

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus igneus
Actinocyclus igneus f. nodus
Actinocyclus igneus f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligoconica
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.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coccneis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedti
Denticulopsis hyalina
Denticulopsis kateyamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilaropsis cylindrus
Fragilaropsis dolobrata
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula alginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kermschatika
Neodenticula kolzumii
Neodenticula seminaea
Nitzschia challengeri
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
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27. 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)

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *hemialis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praevertita
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus paeoestrupili
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 marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctetiae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Sponge

Closed CUPULA

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 26.6.2013

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)

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 komurasae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacteriosira bathyomphala
Bacteriosira fragilis
Cavitatus exiguis
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cestodiscus kugleri
Cestodiscus trochus
Coccineis californica
Coccineis costata
Coccineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iris
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmoldiscus insignis
Crudenticula ikebei
Crudenticula kanayaæ
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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laetitia
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis pækata yamae
Denticulopsis paelauta
Denticulopsis simonisenii
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
Fragilariopsis dollos
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 kantschatica
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 barbolii
Proboscia curvirostris
Proboscia interposita
Proboscia praearborii
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia seligera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicana
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeabyei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperae
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiothrix longissima
Trachyneis aspera
Yoshidaiia divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Under

TOTAL ABUNDANCE:

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

Wimberly River

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 lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komarae
Azpeitia nodulifera
Azpeitia oligoconica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguum
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Coccoceras costata
Coccoceras scutellum
Coccoceras spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonensis
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

1418C-11H-3W, 70cm

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. *praesdimorpha*
Denticulopsis praetylalina
Denticulopsis paeakatayamae
Denticulopsis paelauta
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyaloniscus obsoletus
Hyaloniscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozlovella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula alginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumii
Neodenticula seminae
Nilzschia challengerii
Nilzschia jouseae
Nilzschia palea
Nilzschia reinholdii
Nilzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 2013/June/27OBSERVER'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)

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiermatis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roparia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia iscoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupili
Shionodiscus praesostrupili /
Shionodiscus trifilatus —/
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 mihutissima
Thalassiosira miocenica
Thalassiosira nordenstkioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabeli
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Rest spore T

Diatom zones (NPD)

NPD12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

14A. C. 11HCC

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus isugaruensis
Actinocyclus spp.
Actinophy whole senarius
Actinophy whole vulgaris
Actinophy whole spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bibradata
Azpeitia komureae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
Coccoeis scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praesoluta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pliocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kotzumii
Neodenticula seminae
Nitzschia challengeri
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
Pseudodimorpha elegans
Pseudonitzschia serifata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae
Raphoneis amphiceros

DATE: 20.6.2013

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 praebargoni
Rhizosolenia seligera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praelinita
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii T
Shionodiscus praeoestrupii
Shionodiscus 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 schradeni
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 praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge T

Diatom zones (NPD)

Under

TOTAL ABUNDANCE:

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

alonge 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 ocellatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus Tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Ananis lewisianus
Ananis spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurasae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatula exigua
Cavatula jouseanaus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus reclus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minula
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

1418C-12H-1W, 20cm

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 praelata
Denticulopsis simonsenii
Denticulopsis tannimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyadodiscus obsoletus
Hyadodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiatsunokuchiensis
Kozlovella minor
Lisitzinia ornata
Mediana magna
Mediana splendida
Melosira albicans
Navicula elginensis
Navicula lyraeides
Navicula menisculus
Navicula safinarum
Neodenticula kamtschatkica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia prebarbii
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudoficeratum radiosoreculatum
Pyxidicula zabeliae

DATE: 2013/June/27

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)

*Raphoneis amphiceros**Raphoneis spp.**Rhizosolenia hebetata* f. *hiemalis**Rhizosolenia hebetata* f. *semispina**Rhizosolenia norwegica***Rhizosolenia preebergonii***Rhizosolenia setigera**Rhizosolenia spp.**Repera tesselata**Rocella gelida**Rocella praeertiida**Rocella semigelida**Rocella vigilans***Rouxia californica***Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa***Shionodiscus oestrupii****Shionodiscus preeoestrupii***Shionodiscus trifulus**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 marjamicia***Thalassiosira mediaconvexa***Thalassiosira minutissima***Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeypabei**Thalassiosira robusta**Thalassiosira sanctae***Thalassiosira singularis****Thalassiosira temperi***Thalassiosira umaoensis**Thalassiosira undulosa***Thalassiosira yabei***Thalassiosira spp.**Thalassiothrix longissima**Thalassiothrix spp.**Trachyneis spp.**Yoshidaia divergens**Yoshidaia spp.*

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Sponge -

Rest spore -

Diatom zones (NPD)

Undetermined

TOTAL ABUNDANCE:

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

(C) almost Barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia paenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jousseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coschmidiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, Interval (cm)

1418 C, 12HCC

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 simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicatena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lizitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kantschikatza
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jousseaumei
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbolii
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbolii
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinea
Raphoneis amphiceros

DATE: 26.6.2013

OBSERVER's NAME KONNO

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jousseaumei
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marumajica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidalia divergens
Yoshidalia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

SPONGE -

Diatom zones (NPD)

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

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 bidriata
Azpeitia komurei
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenidulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
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.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus Insignis
Crucidentula ikebei
Crucidentula kanayae
Crucidentula nicobarica
Crucidentula paranicobarica
Crucidentula sawanurae
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. arsolata

Core, section, interval (cm)

1418.C.13HCC

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 spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunota pectinalis var. *minor*
Eunota praerupta var. *praerupta*
Eunota spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisztnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula alginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminas
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porusira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodinmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyridicula zabelinae
Raphoneis amphiceros

DATE: 26.6.2013OBSERVER's NAME KOMVO

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praeerida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupli
Shionodiscus praeoestrupli
Shionodiscus trifolius
Stephanopxis dimorpha
Stephanopxis horridus
Stephanopxis turris
Stephanopxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *infatum*
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 fusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeybægi
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidala divergens
Yoshidala spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

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

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinophlymus senarius
Actinophlymus vulgaris
Actinophlymus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavifatus exiguis
Cavifatus jousseanus
Cavifatus lanceolatus
Cavifatus linearis
Cavifatus miocenicus
Cavifatus reclus
Cavifatus 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
Crucidenicula ikebei
Crucidenicula kanayae
Crucidenicula nicobarica
Crucidenicula paranicobarica
Crucidenicula sawamurae
Cyclorella striata
Cyclorella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata

Core, section, Interval (cm)

1418.c, 144cc

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

Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katsuyamae
Denticulopsis leute
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. **praedimorpha**
Denticulopsis praetalyalna
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplolepis bombus
Diplolepis puelia
Diplolepis smithii
Diplolepis suborbicularis
Diplolepis spp.
Distaphanosira architecturalis
Distaphanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilis
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 exozensis
Kolzumia tatsuokuchiensis
Kozloviella minor
Lisztinya ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 26. 6. 2013

OBSERVER's NAME KONO

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassiosira schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira biculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira joussea
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidus
Thalassiosira praeypabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temporalis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabel
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Sponge +

Diatom zones (NPD)

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

Trace

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Aclinopcyclus senarius
Aclinopcyclus vulgaris
Aclinopcyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia fabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguus
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus reclus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeinia californica
Coccoeinia costata
Coccoeinia scutellum
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula samuraura
Cyclotella striata
Cyclotella meneghiniana
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Delphinella angustata
Delphinella ischabeensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surirella
Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*

Core, section, interval (cm)

1418, c. 15HCC

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 praeplatyema
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puello
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollofus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikoea tenuis
Kisseleviella carina
Kisseleviella ezorense
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyroidea
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseana
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbor
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae
Raphoneis amphiceros

DATE: 26.6.2013

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 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia preebergoni
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus 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 biculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseana
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjoramica
Thalassiosira mediocconvexa
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
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidiala divergens
Yoshidiala spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

W1418C - 16H-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
Actinoplychus senarius
Actinoplychus vulgaris
Araniscus lewisianus
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Bacterosira bathyomphala
Bacterosira fragilis
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
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
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Distephanosira architecturalis
Ellerbeckia sol
Eurotia pectinalis var. *minor*
Eurotia praerupta var. *praerupta*
Fragilaria construens (Ehrenberg) Grunow
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Goniothecium decoratum
Goniothecium rogersii
Halamphora costata
Hyalodiscus obsoletus
Ikeba tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula sinularum
Neodenticula kamtschatkae
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia cylindrica
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Podosira stelligera
Porosira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmericratera elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreticulatum
Pxydium zabeliae
Raphoneis amphiceros

DATE: 2013 / June / 26OBSERVER'S NAME ITSVK1

RELATIVE ABUNDANCE of EACH TAXON

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

Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebargentii
Rhizosolenia setigera
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia 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 biculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitudulus
Thalassiosira praeybabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiothrix longissima
Trachyneis aspera
Yoshidiala divergens

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Undet.

TOTAL ABUNDANCE:

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

almost barren

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus Tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurasae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguus
Cavitalus jousseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus reclus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellatum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

1418C-17H-2a, 138 cm

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praetypalina
Denticulopsis praekatayamiae
Denticulopsis praefluita
Denticulopsis simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis doloflus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisselovella carina
Kisselovella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumi
Neodenticula seminaea
Nitzschia challengerii
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodinmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

DATE: 2013/ June /25

OBSERVER's NAME AKEMI

RELATIVE ABUNDANCE of EACH TAXON

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

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia paebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Roccella gelida
Roccella praeinitida
Roccella semigelida
Roccella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupili
Shionodiscus praesoestrupili
Shionodiscus trifilus
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 joussea
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 praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiotrix longissima
Thalassiotrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge T
 fragment-e

Diatom zones (NPD)

Zones

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

Core, section, interval (cm)

1418C-17A-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 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 balthymophala
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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surrella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolllus
Fragilariopsis fossilis
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 elginiensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatcatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyddicula zabeliae

DATE: *2013/June/26*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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
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 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancteae
Thalassiosira singularis
Thalassiosira temperis
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**Français*

Diatom zones (NPD)

Core, section, interval (cm)

1418C - 1877cc

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 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.*Coccoconeis californica**Coccoconeis costata**Coccoconeis scutellum**Coccoconeis* spp.*Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella* spp.*Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella* spp.*Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simsonenii**Delphineis surirella**Delphineis* spp.*Denticulopsis crassa**Denticulopsis dimorpha* var. *dimorpha**Denticulopsis dimorpha* var. *areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha* var. *minor**Denticulopsis praedimorpha* var. *praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praelauta**Denticulopsis simsonenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis* spp.*Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis* spp.*Distephanosira architecturalis**Distephanosira* spp.*Ellerbeckia sol**Ellerbeckia* spp.*Eunoia pectinalis* var. *minor**Eunoia praerupta* var. *praerupta**Eunoia* spp.*Fragilaria construens**Fragilaria* spp.*Fragilariopsis cylindrus**Fragilariopsis dolloides**Fragilariopsis fossili**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**Kozuma tatsuokuchiensis**Kozloviella minor**Lisztnia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginensis**Navicula lyroides**Navicula menisculus**Navicula salinarum**Neodenticula kamtschatkae**Neodenticula kozumi**Neodenticula seminae**Nitzschia challengerii**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia* spp.*Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbaroi**Pseudodimmericramma elegans**Pseudonitzschia seriata**Pseudopyxilla americana**Pseudotriceratium radiosoreticulatum**Pyxis zabeliae*DATE: 2013/June/26OBSERVER's NAME AFEMZ

RELATIVE ABUNDANCE of EACH TAXON

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

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

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

X (present), B (barren)

*Raphoneis amphiceros**Raphoneis* spp.*Rhizosolenia hebetata* f. *hiemalis**Rhizosolenia hebetata* f. *semispina**Rhizosolenia norwegica**Rhizosolenia praebengonii**Rhizosolenia setigera**Rhizosolenia* spp.*Roparia tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Rouya californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shilonodiscus oestrupil**Shilonodiscus praeoestrupil**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 pseudonitzschia**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 manujamica**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temperata**Thalassiosira umaiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira* spp.*Thalassiothrix longissima**Thalassiothrix* spp.*Trachyneis aspera**Trachyneis* spp.*Yoshidiala divergens**Yoshidiala* spp.*Chaetoceros Resting Spores*

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1818C - 1944-CC

TOTAL ABUNDANCE:

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

TOTAL PRESERVATION

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes spp.**Actinocyclus curvatus**Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus spp.**Actinopytchus senarius**Actinopytchus vulgaris**Actinopytchus spp.**Araniscus lewisianus**Araniscus spp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus spp.**Azpeitia bidriata**Azpeitia komureae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia vetustissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavillatus exiguum**Cavillatus jouseanus**Cavillatus lanceolatus**Cavillatus linearis**Cavillatus mioceneicus**Cavillatus rectus**Cavillatus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Coccineis californica**Coccineis costata**Coccineis scutellum**Coccineis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Delphineis spp.**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katalayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praelauta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis spp.**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis spp.**Distephanosira architecturalis**Distephanosira spp.**Ellerbeckia sol**Ellerbeckia spp.**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Eunotia spp.**Fragilaria construens**Fragilaria spp.**Fragilariopsis cylindrus**Fragilariopsis doloflus**Fragilariopsis fossils**Fragilariopsis oceanica**Fragilariopsis pilocena**Fragilariopsis spp.**Goniothecium decoratum**Goniothecium rogersii**Goniothecium spp.**Grammatophora spp.**Halimphora costata**Hyalodiscus obsoletus**Hyalodiscus spp.**Ikebea tenulis**Kisseleviella carina**Kisseleviella ezoensis**Kozlumia 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 challengerii**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia spp.**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearboei**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopixylla americana**Pseudotriceratium radiosoreculatum**Pyxidicula zabelnae*

DATE: 2013/June/26

OBSERVER's NAME: ACEMZ

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

*Rhaphoneis amphiceros**Rhaphoneis spp.**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**Shionodiscus praeoestrupil**Shionodiscus trifolius**Stephanopyxis dimorpha**Stephanopyxis horridus**Stephanopyxis turris**Stephanopyxis spp.**Thalassionema bacillaris**Thalassionema nitzschioidea**Thalassionema nitzschioidea var. incurvatum**Thalassionema nitzschioidea var. inflatum**Thalassionema nitzschioidea var. parvum**Thalassionema pseudonitzschioidea**Thalassiosira schraderi**Thalassiosira spp.**Thalassiosira antiqua**Thalassiosira bioculata**Thalassiosira castanea**Thalassiosira convexa**Thalassiosira decipiens**Thalassiosira dubiosa**Thalassiosira eccentrica**Thalassiosira fasciculata**Thalassiosira fraga**Thalassiosira gravida**Thalassiosira grunowii**Thalassiosira hyalina**Thalassiosira irregulara**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lucsa**Thalassiosira manifesta**Thalassiosira marjamicia**Thalassiosira mediaconvexa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctetiae**Thalassiosira singularis**Thalassiosira temperat**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.**Thalassiothrix longissima**Trachyneis spp.**Trachyneis spp.**Yoshidaea divergens**Yoshidaea spp.*

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

fragments

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

1918C-

Core, section, interval (cm)

20H - 6W, 130 cm

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp. IEF 8
Actinocyclus curvulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisiensis
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidriata
Azpeitia komurasae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguus
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus reclus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp. T 2
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-ridis
Coscinodiscus radiatus 1
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crudenticula nicobarica
Crudenticula paranicobarica
Crudenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboenensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

 $\leftarrow 0.0 \rightarrow 5.0$ $\rightarrow 1.0$ $\leftarrow 2.0$ $\rightarrow 3.0$ $\leftarrow 4.0$

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 praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilaria cylindrus
Fragilarlopsis dololuta
Fragilarlopsis fossilis
Fragilarlopsis oceanica
Fragilarlopsis plicocena
Fragilarlopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora costata 1
Halamphora costata 1
Hydrodiscus obsoletus
Hydrodiscus spp. 1
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumiata tatsunokuchiensis
Kozlovella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkica
Neodenticula kolzumii
Neodenticula seminae IEF 24
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita 1
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodimeroigrana elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudofriterium radiosoreliculum
Pyxidicula zabeliae

 $\leftarrow 0.0 \rightarrow 5.0$ $\rightarrow 1.0$ $\leftarrow 2.0$ $\rightarrow 3.0$ $\leftarrow 4.0$

Rec spore IEF 11
 closed nema IEF 11
 silico - sponge F

DATE: 2013/June/27
 OBSERVER'S NAME

RELATIVE ABUNDANCE OF EACH TAXON

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

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis* IE 5
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia preebergonii
IE 1
Rhizosolenia setigera
Rhizosolenia spp.
Ropera tesselata
Rocella gelida
Rocella praeinitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shalonodiscus oestrupii
Shalonodiscus paoeostrupii
Shionodiscus trifilus IEF 9
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris 1
Stephanopyxis spp.
Thalassionema bacillaris
T 1
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incavatum*
Thalassionema nitzschioidea var. *inflatum* T 1
Thalassionema nitzschioidea var. *parvum*
Thalassionema pseudonitczschioidea
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua T 2
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida IEF 8
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
T 3
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicia
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
T 11
Thalassiosira yabei
Thalassiosira spp. IEF 11
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
 TOTAL OF VEGETATIVE CELLS

S1

TOD

Diatom zones (NPD)

Undee

TOTAL ABUNDANCE:

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

alnace fluviae

TOTAL PRESERVATION

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

Core, section, interval (cm)

1418C - 211-?

*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 lewisiensis**Araniscus spp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus spp.**Azpeitia biradiata**Azpeitia komurae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenodulifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis**Bacterosira spp.**Cavatulus exiguis**Cavatulus jouseanus**Cavatulus lanceolatus**Cavatulus linearis**Cavatulus mioceneus**Cavatulus rectus**Cavatulus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iris**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Delphineis spp.**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis praekatayamae**Denticulopsis praelauta**Denticulopsis simonensis**Denticulopsis tanimurae**Denticulopsis vulgaris**Denticulopsis spp.**Diploneis bombus**Diploneis puella**Diploneis smithii**Diploneis suborbicularis**Diploneis spp.**Distephanosira architecturalis**Distephanosira spp.**Ellerbeckia sol**Ellerbeckia spp.**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Eunotia spp.**Fragilaria construens**Fragilaria spp.**Fragilariopsis cylindrus**Fragilariopsis dollos**Fragilariopsis fissils**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**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 jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia spp.**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbaroi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopyxis americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae*

DATE: 2013/June/26

OBSERVER's NAME AKEMI

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)

*Raphoneis amphiceros**Raphoneis spp.**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**Rouya californica**Rouxia granda**Rouxia isopolica**Rouxia naviculoides**Rouxia obesa**Shilonodiscus oestrupil**Shilonodiscus 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 praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sancteiae**Thalassiosira singularis**Thalassiosira temperat**Thalassiosira umaciensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.**Thalassiotrix longissima**Thalassiotrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidaia divergens**Yoshidaia spp.*

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

R 2

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus T
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens 1. nodus
Actinocyclus Ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatitus exiguus
Cavatitus jouseanus
Cavatitus lanceolatus
Cavatitus linearis
Cavatitus miocenicus
Cavatitus rectus
Cavatitus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscindiscus asteromphalus
Coscindiscus marginatus
Coscindiscus oculus-iridis
Coscindiscus radiatus
Coscindiscus rhombicus
Coscindiscus symbolophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayaae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphinella angustata
Delphinella ischaboeensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsoni
Delphinella surirella
Delphinella spp.

Spondylia

Core, section, interval (cm)

1418. C. 25H2W172

TOTAL PRESERVATION

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hastedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praefluita
Denticulopsis simonseni
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolichus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans X
Navicula elginiensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkae
Neodenticula kolzumii
Neodenticula insinuata ~~NEED TO IDENTIFY~~
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata ~~NEED TO IDENTIFY~~
Paralia spp.
Podosira stelligera
Porusira glaciatis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreliculatum
Pyxidicula zabeliae

* + Rand T

DATE: 28. 6. 2013

OBSERVER's NAME KO NHO

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)

*Rhaphoneis amphiceros**Rhaphoneis* spp.R 2 *Rhizosolenia hebetata* 1. *hiemalis* T*Rhizosolenia hebetata* 1. *semispina**Rhizosolenia norvegica***Rhizosolenia praebergonii***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 praecoestrupii***Shionodiscus trifultus**Stephanopyxis dimorpha***Stephanopyxis horridus***Stephanopyxis tumis**Stephanopyxis* spp. T T*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**R 2 *Thalassiosira leptopus* T*Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta***Thalassiosira marjamicia***Thalassiosira mediaconvexa***Thalassiosira minutissima***Thalassiosira miocenica**Thalassiosira nordenstkioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenudulus**Thalassiosira praeybabei**Thalassiosira robusta**Thalassiosira sanctaeiae***Thalassiosira singularis****Thalassiosira temperata***Thalassiosira umaoensis**Thalassiosira undulosa***Thalassiosira yabei***Thalassiosira* spp.F 11 *Thalassiothrix longissima* T T*Thalassiothrix* spp.*Trachyneis aspera**Trachyneis* spp.*Yoshidaiia divergens**Yoshidaiia* spp.F 6 **Chaetoceros Resting Spores** T

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

NPD 12

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418C-25H-4W, 72 cm

TOTAL PRESERVATION

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

F 7 *NET*

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus *NET*
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. nodus
Actinocyclus Ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus sugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisanus
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 vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguus
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoeis californica
Coccoeis costata
X Coccoeis scutellum
Coccoeis spp.
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 *T*
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsonii
Delphineis surirella
Delphineis spp.

R 1 *+*X *+*R 2 *T*R 1 *-*Silico Dino
Dose capu*\$1.0*

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 praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplolepis bombycina
Diplolepis puella
Diplolepis smithii
Diplolepis suborbicularis
Diplolepis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebaea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginiensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kantschikoffi
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podostira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopixylla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae

C 65

R 1 *-*R 1 *EEEEE*R 2 *EEEEE*Q 1 *-*
Q 2 *-*C 51 *EEEEE*
Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

100

(21.9, 5.0)
(91.0, 5.0)

NEW SPECIES!

R 3 *EE*R 4 *EE*R 5 *EE*R 6 *EE*R 7 *EE*R 8 *EE*R 9 *EE*R 10 *EE*R 11 *EE*R 12 *EE*R 13 *EE*R 14 *EE*R 15 *EE*R 16 *EE*R 17 *EE*R 18 *EE*R 19 *EE*R 20 *EE*R 21 *EE*R 22 *EE*R 23 *EE*R 24 *EE*R 25 *EE*R 26 *EE*R 27 *EE*R 28 *EE*R 29 *EE*R 30 *EE*R 31 *EE*R 32 *EE*R 33 *EE*R 34 *EE*R 35 *EE*R 36 *EE*

Diatom zones (NPD)

undet.

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U1418C-25H-5W, 12 cm

TOTAL PRESERVATION

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

浅<佳<良<OK

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
 X *Actinocyclus curvatus*
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bidriata
Azpeitia komarae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
 X *Bacterosira bathyomphala*
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguus
Cavatulus jouseae
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coccoineis spp.
 X *Coscinodiscus asteromphalus*
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbophorus
Cosmoldiscus Insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobatica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsonii
Delphinella surrella
Delphinella spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praeslauta
Denticulopsis simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolikos
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposta
Proboscia praearbarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyridicula zabeliae

DATE: 2013/ June / 28

OBSERVER'S NAME ITSOKI

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata I. *hiemalis*
Rhizosolenia hebetata I. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebargentii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tesselata
Rocella gelida
Rocella praenitida
Rocella semifigida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
 X *Shilonodiscus oestrupli*
Shilonodiscus praeoestrupli
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turnis
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *curvatum*
Thalassionema nitzschioidea var. *infatum*
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 marjamicosa
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 yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

X *Chaetoceros Resting Spores* T
 TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

Bowman

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

14180-254-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.
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccineis californica
Coccineis costata
Coccineis scutellum
Coccineis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
Delphineis surirella
Delphineis spp.

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 praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelauta
Denticulopsis simonensis
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollosus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora costata
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchensis
Kozloviella minor
Lisztiaria ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula algienensis
Navicula lyraeoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatkae
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

DATE: 20/3/June/26

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)

Raphoneis amphiceros
Raphoneis spp.
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
Rouya californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shlondiscus oestrupilii
Shlondiscus praeeestrupilii
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 miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperelii
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabelii
Thalassiosira spp.
Thalassiotrich longissima
Thalassiotrich spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Undet. In BARREN

Core, section, Interval (cm)

u4418c - 264-2W, 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)

Fragments present

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 tsugariensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradifida
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.
Coccineis californica
Coccineis costata
Coccineis scutellum
Coccineis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobatica
Crucidenticula sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsonii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheleis bombus
Diplotheleis puelia
Diplotheleis smithii
Diplotheleis suborbicularis
Diplotheleis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia peclinis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolichos
Fragilariopsis fossalis
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Listonema ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrae
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengeri
Nitzschia joussea
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimorpha elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyrdicula zabeliae

DATE: 2013/June/28

OBSERVER'S NAME: TSVLCI

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
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 marumajica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperis
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

closed up
sponge

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

U718C, 26H-SW, 81cm

TOTAL PRESERVATION

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

DATE: 2013 / June / 28**OBSERVER's NAME** ITSUNIKI**RELATIVE ABUNDANCE of EACH TAXON**

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes 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.
Actinophy whole senarius
Actinophy whole vulgaris
Actinophy whole spp.
Araniscus lewisanus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenidulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathymopha
Bacterosira fragilis
Bacterosira spp.
Cavilatus exiguis
Cavilatus jouseanus
Cavilatus lanceolatus
Cavilatus linearis
Cavilatus miocenicus
Cavilatus rectus
Cavilatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coccoineis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis paeata
Denticulopsis paeata
Denticulopsis simonisenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella exzoensis
Koizumiella tatsuokuchiensis
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 jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
 Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboai
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudoxiphidium americana
Pseudotriceratium radiosoreculatum
Pyxidicula zabelinae

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praesbergeri
Rhizosolenia setigera
Rhoparia tessellata
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
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bloculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira 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 umoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD123

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)

ARE WE OK?

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bivalvata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavatulus exiguis
Cavatulus jouseanus
Cavatulus lanceolatus
Cavatulus linearis
Cavatulus miocenicus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccoineis californica
Coccoineis costata
Coccoineis scutellum
Coccoineis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphinella angustata
Delphinella ischaboensis
Delphinella kippae
Delphinella sachalinensis
Delphinella simonsenii
Delphinella surirella
Delphinella spp.

Core, section, interval (cm)

Wx18C 26H-6W 23mARE WE OK?

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 praefluita
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilariopsis dolichus
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
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula karstschaka
Neodenticula kolzumii
Neodenticula seminaea
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Ponisira glaciata
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 2013/ June /28

OBSERVER'S NAME ITSVKI

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)

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
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 praesoestrupii
Shionodiscus trifultus
Stephanopxis dimorpha
Stephanopxis horridus
Stephanopxis turris
Stephanopxis spp.
Thalassionema bacillaris
X Thalassionema nitzschioidea
Thalassionema nitzschioidea var. *incurvatum*
Thalassionema nitzschioidea var. *infatum*
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 praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaoensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix 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)

U-18C-27H-3W, 5km

TOTAL PRESERVATION

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

DATE: 2013/June/28

OBSERVER's NAME ITSVIS

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 levianus
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 mioceneus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
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 spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilloena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula sinilarum
Neodenticula kamtschatkae
Neodenticula kozumi
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *semispina*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengtssonii
Rhizosolenia setigera
Rhizosolenia spp.
Ropera tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roulea californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs 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 miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
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)

NPD 12

TOTAL ABUNDANCE:

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

*Achnanthes groenlandica**Achnanthes inflata**Achnanthes lanceolata**Achnanthes lineariformis**Achnanthes spp.**Actinocyclus curvatus* EF*Actinocyclus ellipticus**Actinocyclus ingens**Actinocyclus ingens f. nodus**Actinocyclus ingens f. planus**Actinocyclus oculatus**Actinocyclus ochotensis**Actinocyclus octonarius**Actinocyclus robustus**Actinocyclus tsugaruensis**Actinocyclus spp.**Actinoptychus senarius**Actinoptychus vulgaris**Actinoptychus spp.**Araniscus levisianus**Araniscus spp.**Asteromphalus darwinii**Asteromphalus oligocenicus**Asteromphalus parvulus**Asteromphalus robustus**Asteromphalus spp.**Azpeitia biradaria**Azpeitia komurae**Azpeitia nodulifera**Azpeitia oligocenica**Azpeitia praenudilifera**Azpeitia salisburyana**Azpeitia tabularis**Azpeitia velutissima**Azpeitia spp.**Bacterosira bathyomphala**Bacterosira fragilis* T*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**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus* T*Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidenticula ikebei**Crucidenticula kanayae**Crucidenticula nicobarica**Crucidenticula paranicobarica**Crucidenticula sawamuriae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simsonenii**Delphineis surirella**Delphineis spp.*

Core, section, interval (cm)

1418.C.27H5wd

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 laeta
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 spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollosus
Fragilariopsis fossilis
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
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula sinularum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminaiae EF
Nitzschia challenger
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita —
Paralia sulcata EF
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboarbi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

DATE: 28.6.2017OBSERVER'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 *Raphoneis amphiceros*
Raphoneis spp.
Rhizosolenia hebetata f. *semispina* EF

Rhizosolenia hebetata f. *hiemalis**Rhizosolenia norwegica**Rhizosolenia praebengtssonii**Rhizosolenia setigera**Rhizosolenia spp.**Ropera tesselata**Rocella gelida**Rocella praenitida**Rocella semigelida**Rocella vigilans**Roude californica**Rouxia granda**Rouxia isoplica**Rouxia naviculoides**Rouxia obesa**Shionodiscus oestrupii* E*Shionodiscus praeoestrupii**Shionodiscus trifultus**Stephanopyxis dimorpha**Stephanopyxs horridus**Stephanopyxis turris**Stephanopyxis spp.* EF EF EF EF EF*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 mediaconverxa**Thalassiosira minutissima**Thalassiosira miocenea**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefraga**Thalassiosira praenidulus**Thalassiosira praeyabei**Thalassiosira robusta**Thalassiosira sanctaeiae**Thalassiosira singularis**Thalassiosira temperat**Thalassiosira umaiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.* EF*Thalassiothrix longissima* EF*Thalassiothrix spp.**Trachyneis aspera**Trachyneis spp.**Yoshidaia divergens**Yoshidaia spp.**Chaetoceros Resting Spores* EFTOTAL of VEGETATIVE CELLS

SP68R EF EF Rads F silico - X T
+ + -
Corophunema? - 388

8.6.2017
 ok,

Diatom zones (NPD)

Balmer

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

1418C - 27H - CC

TOTAL PRESERVATION

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

DATE: 2013/June/16

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
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 komrae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira balthymophala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Coccneis californica
Coccneis costata
Coccneis scutellum
Coccneis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilli
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammalophora spp.
Halimphora costata
Hydrodiscus obsoletus
Hydrodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rockella gelida
Rockella praenitida
Rockella semigelida
Rockella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
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 praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
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)

Core, section, interval (cm)

1418.C.28H2W60

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: 28.6.2011

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)

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.
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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophus
Cosmoldiscus insignis
Crucidenticula ikabei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamiae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamiae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis 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
Kozuma tatsuokuchensis
Kozlovella 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 jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearborai
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelnae

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roparia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxa californica
Rouxia granda
Rouxia ispolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs horridus
Stephanopyxs 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 miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeae
Thalassiosira singularis
Thalassiosira temperale
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge T

Diatom zones (NPD)

Core, section, interval (cm)

1418. C, 284 SW32

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: 28.6.2013OBSERVER'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)

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 levianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburiana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Caviflatus exiguis
Caviflatus jouseanus
Caviflatus lanceolatus
Caviflatus linearis
Caviflatus miccenicus
Caviflatus rectus
Caviflatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikabei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamuriae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simsonenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. *minor*
Eunoia praerupta var. *praerupta*
Eunoia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolloides
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plicofera
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Kozuma tatsuokuchiensis
Kozlovialla 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 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
Pseudodinmerogramma elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs 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 manjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
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)

Core, section, interval (cm)

1418. C. 28400

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 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 biradata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitalus exiguis
Cavitalus jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus mioceneus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trachus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololutus
Fragilariopsis 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
Kozumla tatsunokuchiensis
Kozloviella minor
Liszitnia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeoides
Navicula menisculus
Navicula sinularum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimerogetra elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

DATE: 27 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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctae
Thalassiosira singularis
Thalassiosira temperet
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

Sponge -

Diatom zones (NPD)

Core, section, interval (cm)

1418.C.29H5W32

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 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 exiguis
Cavitalus jouseanus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus micogenicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariaopsis cylindrus
Fragilarlopsis dololus
Fragilarlopsis fossils
Fragilariaopsis oceanica
Fragilariaopsis pilocena
Fragilariaopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 28.6.2013

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)

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roparia tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roulea californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschiooides
Thalassionema nitzschiooides var. *incurvatum*
Thalassionema nitzschiooides var. *inflatum*
Thalassionema nitzschiooides var. *parvum*
Thalassionema pseudonitzschiooides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperata
Thalassiosira umaloensis
Thalassiosira undulosa
Thalassiosira yabeli
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)

1418. c. 29H6 Bottom

DATE: 27.6.2013

OBSERVER's NAME KORVNO

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 levianus
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.
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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula kebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simsonenii
Delphineis surirella
Delphineis spp.

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 laeta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheis bombus
Diplotheis puella
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia peckiana var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossilli
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula sinilarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearborai
Pseudodimerogetra elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shlondiscus oestrupii
Shlondiscus praeeestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs 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 miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
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.
Yoshidaea divergens
Yoshidaea spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

1418.5.30 H6 Bottom

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

Trace

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

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 komurasae
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 mioceneus
Cavatulus rectus
Cavatulus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolorophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunoia pectinalis var. minor
Eunoia praerupta var. praerupta
Eunoia spp.
Fragilaria construens
Fragilaria spp.
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
Kozumiella tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraeides
Navicula menisculus
Navicula safinarum
Neodenticula kamtschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearboei
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27.6.2013OBSERVER'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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. hemispira
Rhizosolenia hebetata f. semispina
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Ropera tesselata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouda californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxs 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 marjamicia
Thalassiosira mediaconvergexa
Thalassiosira minutissima
Thalassiosira miocenea
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
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)

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 jouseaeus
Cavitalus lanceolatus
Cavitalus linearis
Cavitalus miocenicus
Cavitalus rectus
Cavitalus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

14/8.c 31H1W1P

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

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puelia
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
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
Kotzumia tatsunokuchensis
Kozloviella minor
Liszkinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyraoides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kotzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbaroi
Pseudodimerogetrum elegans
Pseudonitzschia seriata
Pseudopixilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 28.6.2017OBSERVER's NAME Koumo

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)

Raphoneis amphiceros
Raphoneis spp.
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
Roudia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus ostrupili
Shionodiscus praecostupill
Shionodiscus trifilus
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 marjamicia
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 umaoiensis
Thalassiosira undulosa
Thalassiosira yabeli
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

SPONGE

Diatom zones (NPD)

Core, section, interval (cm)

1418.5, 31H4W35

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: 28.6.2013

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 levianus**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 balthymophala**Bacterosira fragilis**Bacterosira spp.**Cavitalus exiguis**Cavitalus jouseaeus**Cavitalus lanceolatus**Cavitalus linearis**Cavitalus miocenicus**Cavitalus rectus**Cavitalus spp.**Cestodiscus kugleri**Cestodiscus trochus**Cestodiscus spp.**Cocconeis californica**Cocconeis costata**Cocconeis scutellum**Cocconeis spp.**Coscinodiscus asteromphalus**Coscinodiscus marginatus**Coscinodiscus oculus-iridis**Coscinodiscus radiatus**Coscinodiscus rhombicus**Coscinodiscus symbolophorus**Cosmoldiscus insignis**Crucidienticula ikebei**Crucidienticula kanayae**Crucidienticula nicobarica**Crucidienticula paranicobarica**Crucidienticula sawamurae**Cyclotella striata**Cyclotella meneghiniana**Cyclotella spp.**Cymbella cistula**Cymbella minuta**Cymbella subaequalis**Cymbella spp.**Delphineis angustata**Delphineis ischaboensis**Delphineis kippae**Delphineis sachalinensis**Delphineis simonsenii**Delphineis surirella**Delphineis spp.**Denticulopsis crassa**Denticulopsis dimorpha var. dimorpha**Denticulopsis dimorpha var. areolata**Denticulopsis hustedtii**Denticulopsis hyalina**Denticulopsis katayamae**Denticulopsis lauta**Denticulopsis praedimorpha var. minor**Denticulopsis praedimorpha var. praedimorpha**Denticulopsis praehyalina**Denticulopsis pækatayamae**Denticulopsis paelauta**Denticulopsis simonsenii**Denticulopsis tanimurae**Denticulopsis vulgaris**Diploaneis spp.**Dislephanosira architecturalis**Dislephanosira spp.**Ellerbeckia sol**Ellerbeckia spp.**Eunotia pectinalis var. minor**Eunotia praerupta var. praerupta**Eunotia spp.**Fragilaria construens**Fragilaria spp.**Fragilariopsis cylindrus**Fragilarlopsis dololus**Fragilarlopsis fossilia**Fragilariopsis oceanica**Fragilariopsis pilocena**Fragilariopsis spp.**Goniothecium decoratum**Goniothecium rogersii**Goniothecium spp.**Grammatophora spp.**Halamphora costata**Hydrodiscus obsoletus**Hydrodiscus spp.**Ikebea tenuis**Kisseleviella carina**Kisseleviella ezoensis**Kozuma latsumukuchiensis**Kozloviella minor**Lisitzinia ornata**Medilaria magna**Medilaria splendida**Melosira albicans**Navicula elginensis**Navicula lyrodes**Navicula menisculus**Navicula salinarum**Neodenticula kamschatka**Neodenticula kolzumii**Neodenticula seminae**Nitzschia challengerii**Nitzschia jouseae**Nitzschia palea**Nitzschia reinholdii**Nitzschia rolandii**Odontella aurita**Paralia sulcata**Paralia spp.**Podosira stelligera**Porosira glacialis**Proboscia barbol**Proboscia curvirostris**Proboscia interposita**Proboscia praearbaroi**Pseudodimmerogramma elegans**Pseudonitzschia seriata**Pseudopyxilla americana**Pseudotriceratium radiosoreticulatum**Pyxidicula zabeliae**Rhaphoneis amphiceros**Rhaphoneis spp.**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**Roudia 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 irregularata**Thalassiosira jacksonii**Thalassiosira jouseae**Thalassiosira leptopus**Thalassiosira lineata**Thalassiosira lusca**Thalassiosira manifesta**Thalassiosira marujamica**Thalassiosira mediaconverxa**Thalassiosira minutissima**Thalassiosira miocenica**Thalassiosira nordenskioldii**Thalassiosira orientalis**Thalassiosira praefragia**Thalassiosira praenidulus**Thalassiosira praeeyabei**Thalassiosira robusta**Thalassiosira sancteiae**Thalassiosira singularis**Thalassiosira temperet**Thalassiosira umaoiensis**Thalassiosira undulosa**Thalassiosira yabel**Thalassiosira spp.**Thalassiothrix longissima**Trachyneis spp.**Trachyneis spp.**Yoshidai divergens**Yoshidai spp.**Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS*

Diatom zones (NPD)

Core, section, interval (cm)

1418. C. 31H5 Bottom

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: 27.6.2013

OBSERVER's NAME KENNO

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 levianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bibradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguis
Caviflatus jouseanus
Caviflatus lanceolatus
Caviflatus linearis
Caviflatus micogenicus
Caviflatus rectus
Caviflatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurensis
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheia bombus
Diplotheia puella
Diplotheia smithii
Diplotheia suborbicularis
Diplotheia spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolollus
Fragilariopsis fossils
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
Kozuma tatsuokuchensis
Kozlovella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyrodes
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumili
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Roula californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incavatum*
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 nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenudulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctaeiae
Thalassiosira singularis
Thalassiosira temperalis
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)

Core, section, interval (cm)

1418 C. 32HCC

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 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 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
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmoldiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crudicentica nicobarica
Crudicentica paranicobarica
Crudicentica sawamurai
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diplotheis bombus
Diplotheis puelia
Diplotheis smithii
Diplotheis suborbicularis
Diplotheis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolilosis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocema
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halimphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumiella tatsunokuchensis
Kozlovella minor
Lisitzinia ornata
Medilaria magna
Medilaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praearbarbi
Pseudodimmerogramma elegans
Pseudonitzschia serata
Pseudopyxis americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabeliae

DATE: 27.6.2013

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)

Raphoneis amphiceros
Raphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebengonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Roella gelida
Roella praenitida
Roella semigelida
Roella vigilans
Rouxia californica
Rouxia granda
Rouxia isoplica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *infatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema 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 marjamicia
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenea
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.
Yoshidai divergens
Yoshidai spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS