

Diatom zones (NPD)

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 oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunirella
Delphineis spp.

Core, section, interval (cm)

U14 20A-32-CC

TOTAL ABUNDANCE:

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira 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 pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratum ziboloreticulatum
Pyxidicula zabelinae

DATE: 2013/July/19
OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL 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.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella sinata
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)

U14-0A-SP-CC

TOTAL ABUNDANCE:

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilitaria construens
Fragilitaria spp.
Fragilitariopsis cylindrus
Fragilitariopsis doliolus
Fragilitariopsis fossilis
Fragilitariopsis oceanica
Fragilitariopsis pilocena
Fragilitariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtchatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboti
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudonitzschium radiosoreticulatum
Pyxidicula zabelinae

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

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 hebelata f. *hiemalis*
Rhizosolenia hebelata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
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Thalassionema spp.
Thalassiosira antiqua
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Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira frugida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
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Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperii
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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) **B**

Core, section, interval (cm)

U14 20A-9R-CC

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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Coscinodiscus marginalis
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
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Cyclotella spp.
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Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

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Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
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Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
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Diploneis suborbicularis
Diploneis spp.
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Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinatis var. minor
Eunotia praerupta var. praerupta
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocera
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
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Hyalodiscus spp.
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Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medaria magna
Medaria splendida
Melosira albicans
Navicula elginensis
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Pseudonitzschium radiosoreticulatum
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Stephanopyxis spp.
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Thalassionema nitzschoides
Thalassionema nitzschoides var. incurvatum
Thalassionema nitzschoides var. inflatum
Thalassionema nitzschoides var. parvum
Thalassionema pseudonitzschoides
Thalassionema schraderi
Thalassionema spp.
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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 marujamiae
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Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
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Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
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Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 Zo. A. 14R cc

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 15

OBSERVER'S NAME AF (SK) IS

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)

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Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
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Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
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Azpeitia biradiata
Azpeitia komurae
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Azpeitia praenodulifera
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Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
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Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula parnicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 praealyalina
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 dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenula
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge f

Diatom zones (NPD)

undef.

Core, section, interval (cm)

U14 20A.16R cc

DATE: 2013/July/ 15

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

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

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Denticulopsis dimorpha var. *areolata*
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Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praealyalina
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 praeurupta var. *praeurupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis doliofus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicata
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
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Sponge IT

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Diatom zones (NPD)

Barren

Core, section, interval (cm)

U14 20. A. 18Rcc

DATE: 2013/July/15

OBSERVER'S NAME AF (SK) IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptylchus senarius
Actinoptylchus vulgaris
Actinoptylchus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia saisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmirodiscus 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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolifolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
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Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
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Rocella praenitida
Rocella semigelida
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Rouxia californica
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Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
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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
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Thalassiosira orientalis
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Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A, 19Rcc

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 15

OBSERVER'S NAME AF (SK) IS

RELATIVE ABUNDANCE of EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
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R (>3 vlv/traverse & <1 vlv/10FOVs)
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Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
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Cavitatus rectus
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Coscinodiscus marginatus
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Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
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Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
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Delphineis sachalinensis
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Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
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Fragilariopsis fossilis
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Fragilariopsis pilocena
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Goniothecium rogersii
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Hyalodiscus spp.
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Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
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Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praerbaroi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotruncatum radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20A, 20R cc

DATE: 2013/July/ 15

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
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 praealyalina
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.
Fragiliariopsis cylindrus
Fragiliariopsis doliolus
Fragiliariopsis fossilis
Fragiliariopsis oceanica
Fragiliariopsis plocana
Fragiliariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL PRESERVATION

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

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

Core, section, interval (cm)

U14 20 A-25R-1, bottom

TOTAL ABUNDANCE:

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyaline
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.
Fragilaropsis cylindrus
Fragilaropsis dollolus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis ploccona
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiansis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae

DATE: 2013/July/15

OBSERVER'S NAME AF SK IS

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/July/15

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE OF EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineaniformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 praealyalina
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 dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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Rhizosolenia praeborgonii
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Rhizosolenia spp.
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Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderei
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
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Thalassiosira jacksonii
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Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira maruamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14

TOTAL ABUNDANCE:

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

DATE: 2013/July/15

OBSERVER'S NAME (AF) SK IS

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 lineaniformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus danvinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
Fragilaropsis cylindrus
Fragilaropsis dollolus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis plocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebartoi
Pseudodimmerograma elegans
Pseudonitzschia seriala
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

B

Core, section, interval (cm)

U14 20A-35R-1,

DATE: 2013/July/ 76

OBSERVER'S NAME AF (SK) IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 (baren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *arcolata*
Denticulopsis hustodtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis 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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatca
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphiceros
Rhaphoneis 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 praeeostrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horrius
Stephanopyxis turris
Stephanopyxis spp.
Suriella spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravidia
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamica
Thalassiosira medioconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praebraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-38R-1

DATE: 2013/July/ 16

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonanus
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-indis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus 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 ischaboenis
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 praehtyalina
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 dolioilus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

u14 20 A, 42 R cc

TOTAL ABUNDANCE:

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

DATE: 2013/July/16

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligogenica
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-indis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus 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 surella
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.
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 dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenulis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmergrana elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis 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 praecoestrupii
Shionodiscus inflatus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella 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 marjamicia
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge -

Diatom zones (NPD)

Karren

Core, section, interval (cm)

U14 Z0. A. 44R cc

DATE: 2013/July/ 16

OBSERVER'S NAME AF (SK) IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
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 dollivolis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undec.

Core, section, interval (cm)

U14 20A-48P-CC

DATE: 2013/July/16

OBSERVER'S NAME AF SK IS

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

almost none

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

RELATIVE ABUNDANCE of EACH TAXON

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

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
- Actinocyclus curvatulus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens* f. *nodus*
- Actinocyclus ingens* f. *planus*
- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinopychus senarius*
- Actinopychus vulgaris*
- Actinopychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darvini*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocena*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- 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.
- 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.
- Fragilaropsis cylindrus*
- Fragilaropsis dollolus**
- Fragilaropsis fossilis**
- Fragilaropsis oceanica*
- Fragilaropsis plocena**
- Fragilaropsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Koizumia tatsunokuchiensis**
- Koizumia* spp.
- Lisitzinia ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kozumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbot**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboti*
- Pseudodimmerograma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabeilinae**

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

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

0
2

sponge 7

fragment

Diatom zones (NPD)

B

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A - 49R - 1 bottom

TOTAL ABUNDANCE:

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

DATE: 2013/July 16

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus Ingens
Actinocyclus Ingens f. *nodus*
Actinocyclus Ingens f. *pianus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseaui
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus 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
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 sunirella
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 praeahyalina
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.
Fragilaropsis cylindrus
Fragilaropsis dollois
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis plocena
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Koizumia tatsunokuchionis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge
fragments

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Fragment

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 octonanus
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radialis
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

Core, section, interval (cm)

U14 20A-51R-1W, 20 cm

TOTAL ABUNDANCE:

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

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

DATE: 2013/July/ 17

OBSERVER'S NAME AF SK IS

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. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schradleri
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaeniensis
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

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20 A - 5 IR - 1W - 60 cm

DATE: 2013/July 17

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-indis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus 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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praeilauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinatis 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
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbot
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

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

Diatom zones (NPD)

undet,

Core, section, interval (cm)

U14 20A-5/12-cc

TOTAL PRESERVATION

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

G almost barren

TOTAL ABUNDANCE:

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula parnicobarica
Crucidentricula 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 surella
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 dolliculus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimerotheca elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotracerium radiosreticulatum
Pyxidicula zabelinae

DATE: 2013/July/18

OBSERVER'S NAME AF SK IS

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)

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

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Sponge

Diatom zones (NPD)

Uhdet

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20 A. 52 R 1w 7M

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 17

OBSERVER'S NAME AF (SK) IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsonii
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 praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsonii
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 dollotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Koizumia spp.
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schradri
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira tempoeri
Thalassiosira umaolensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Foram F
 Sponge IF

Diatom zones (NPD)

under

Core, section, interval (cm)

U14 *20A-52R-1, bottom*

DATE: 2013/July/16

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

almost barren

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia braidiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-indis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella sinata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sureirella
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 praelaiuta
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 plicata
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsolitus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschalica
Neodenticula koizumi
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

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

fraguene

Diatom zones (NPD)

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 (6A-53R-1, bottom)

TOTAL ABUNDANCE:

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

DATE: 2013/July/16

OBSERVER'S NAME (AF) SK IS

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 lineaniformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseae
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus 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
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula 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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolioleus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plocenae
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kantschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergrana elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifidus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Burken

Core, section, interval (cm)

U14 20A 57800

DATE: 2013/July/17

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tubularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sureirella
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 praeahyalina
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 dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisztinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge -

Diatom zones (NPD)

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

fragments

Core, section, interval (cm)

U14 20A.58R2w/00

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 17

OBSERVER'S NAME AF (SK) IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *plenus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenicus
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 praeupta var. *praeupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula tyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Ropenia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeustrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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
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Thalassiosira leptopus
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Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenicus
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetae
Thalassiosira singularis
Thalassiosira temperlei
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)

Barren

TOTAL PRESERVATION

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

fragment

Core, section, interval (cm)

U14 20A. SDR 3638

TOTAL ABUNDANCE:

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

DATE: 2013/July/17

OBSERVER'S NAME AF SK IS

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)

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Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptylchus senarius
Actinoptylchus vulgaris
Actinoptylchus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseaui
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
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Coscinodiscus rhombicus
Coscinodiscus symbolophorus
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Crucidentricula sawamurae
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Cyclotella spp.
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Cymbella minuta
Cymbella subaequalis
Cymbella spp.
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Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

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Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
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Denticulopsis vulgaris
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Distephanosira spp.
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Ellerbeckia spp.
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Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
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Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kozioviella minor
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Navicula lyroides
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Proboscia praebarboi
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Pseudotriceratium radiosreticulatum
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Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
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Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
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Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
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Thalassiosira manifesta
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Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umauiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Spore T

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A 582cc

TOTAL ABUNDANCE:

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

DATE: 2013/July/17

OBSERVER'S NAME AF SK IS

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)

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Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopterychus senarius
Actinopterychus vulgaris
Actinopterychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
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Cavitatus jouseanus
Cavitatus lanceolatus
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Cavitatus miocenicus
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Cestodiscus spp.
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Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonensis
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 praequalina
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 dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undet.

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20A 59R-1W.25m

DATE: 2013/July 17

OBSERVER's NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

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

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

X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
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.
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergrana elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semipinna*
Rhizosolenia norvegica
Rhizosolenia praebraeronii
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 praesostrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis lurnis
Stephanopyxis spp.
Suirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira maruamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoniensis
Thalassiosira undulosa
Thalassiosira yabei
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)

Undet

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A - 59R-2W 100cm

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 17

OBSERVER'S NAME AF SK (S)

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 ocellatus
Actinocyclus ochotensis
Actinocyclus oclonarius
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 oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunirella
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 praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

sponge

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-59A-3.85cm

DATE: 2013/July 17

OBSERVER's NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira 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 pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebregonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira maruamlica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
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)

Barren

TOTAL PRESERVATION

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

Fragments

Core, section, interval (cm)

U14 20A, 59Rcc

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 17

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-indis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus 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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dollolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoleteus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchlensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatlica
Neodenticula kolzumii
Neodenticula seminata
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praeparboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
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 isopatica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schradleri
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praeefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sanctetae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

undet.

Core, section, interval (cm)

U14 20A-60R-CC

DATE: 2013/July 17

OBSERVER's NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp. \times (90.0, 14.9)
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
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 surella
Delphineis spp.

(94.8, 7.6)

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustodtii
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 praeurpta var. *praeurpta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolioilus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatca
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

R Neod. sp? -
(84.5, 14.9)

Rhaphoneis amphicerus
Rhaphoneis 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 praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella spp.
Thalassionema bacillans
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

R ***Chaetoceros* Resting Spores** IE 5
TOTAL of VEGETATIVE CELLS 2

Sponge

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-61R-1

DATE: 2013/July/17

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praeodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
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.
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 dolioleus
Fragilariopsis fossils
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aunita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A 62R-1

TOTAL ABUNDANCE:

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

DATE: 2013/July/17

OBSERVER'S NAME AF (SK) IS

RELATIVE ABUNDANCE of EACH TAXON

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

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

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

X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozioviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotraceratium radiosreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-63R-CC

DATE: 2013/July/17

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

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

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis leuta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis 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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabolinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-6XR-CC

TOTAL ABUNDANCE:

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

DATE: 2013/July 17

OBSERVER'S NAME AF SK IS

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.
Actinolychnus senarius
Actinolychnus vulgaris
Actinolychnus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocentica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischapoensis
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.
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 dolotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia omata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis lurreis
Stephanopyxis spp.
Surirella 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 marjamicca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicca
Thalassiosira nordenkioeldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

B

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-65R-00

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 12

OBSERVER'S NAME (AF) SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptylchus senarius
Actinoptylchus vulgaris
Actinoptylchus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 prae-hyalina
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kotzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicros
Rhaphoneis spp.
Rhizosolenia hebelata f. *hiemalis*
Rhizosolenia hebelata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 marjamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

U14 20A-62R-2, bottom

DATE: 2013/July 12

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 prae katayamae
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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Listizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediacconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temporei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
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 PRESERVATION

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

Core, section, interval (cm)

U14 20A-19R-CC

TOTAL ABUNDANCE:

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

DATE: 2013/July 17

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE OF EACH TAXON

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

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

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

X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenicus
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
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 doliolus
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 canina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebegonii
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 praeeustrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis lurnis
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderei
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicus
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umauiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

B

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14

20A-21R-1 bottom

TOTAL ABUNDANCE:

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

DATE: 2013/July/12

OBSERVER'S NAME (AF) SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

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

Denticulopsis crassa
Denticulopsis dimorpha var. dimorpha
Denticulopsis dimorpha var. areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praeahyalina
Denticulopsis praeatayamae
Denticulopsis praeluta
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 dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabalinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillariss
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira 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)

Barren

Core, section, interval (cm)

U14 20A. 13Rcc

DATE: 2013/July/ 18

OBSERVER's NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* 1. *nodus
Actinocyclus ingens* 1. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus Isugaruensis
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 oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentula ikebei
Crucidentula kanayae
Crucidentula nicobarica
Crucidentula paranicobarica
Crucidentula 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 crasse
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis prae-hyalina
Denticulopsis prae-katayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Koizumiella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula meniscus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata 1. *hiemalis*
Rhizosolenia hebetata 1. *semispina*
Rhizosolenia norwegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoidea
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeustrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-74R-1

TOTAL ABUNDANCE:

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

DATE: 2013/July 18

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

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

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

X (present), B (barren)

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchlensis
Koizumiella minor
Listizinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabalinae

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

Cheetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 ZO A-75R-1

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 18

OBSERVER's NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
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 oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radialus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus 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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
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 dolius
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
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabalinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U1420A-76R-1

DATE: 2013/July/ 18

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* 1. *nodus
Actinocyclus ingens* 1. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia bifurcata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelaeta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinatis var. *minor*
Eunotia praeurupta var. *praeurupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolivulus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikobea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozumia minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula tyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

***Chaetoceros* Resting Spores**

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

vhdet

Core, section, interval (cm)

U14 20A, 80R 1A 90

DATE: 2013/July/ 19

OBSERVER'S NAME AF (SK) IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE OF EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kotzoviella minor
Listizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kotzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmergramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella 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 marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge T.

Diatom zones (NPD)

NPD12

TOTAL PRESERVATION

G (good), M (moderate), F (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 ocellatus***
- 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 oligocenicus*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus ocellus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus 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 ischaboenis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii***
- Delphineis surirella*
- Delphineis* spp.

Core, section, interval (cm)

U14 20A 20R1A25

TOTAL ABUNDANCE:

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

- Denticulopsis crassa***
- Denticulopsis dimorpha* var. *dimorpha***
- Denticulopsis dimorpha* var. *areolata***
- Denticulopsis hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
- Denticulopsis praedimorpha* var. *minor***
- Denticulopsis praedimorpha* var. *praedimorpha***
- Denticulopsis praeahalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Denticulopsis* spp.
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis* 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 pilocena***
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis***
- Kozloviella minor*
- Lisitinia ornata*
- Medlaria magna***
- Medlaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtchatica***
- Neodenticula kolzumii***
- Neodenticula seminiae***
- Nitzschia challengerii*
- Nitzschia jouseae***
- Nitzschia pala*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae***

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

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. *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 praeeustrupii***
- Shionodiscus trifidulus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* 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 marjamicus***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenicus*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperii***
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge T

Diatom zones (NPD)

NPD 12

Core, section, interval (cm)

U14 20A 80R2A01

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 lewisianus*
- Araniscus* spp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata**
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginalis*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmidiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- 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.
- 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 dolifus**
- Fragilariopsis fossilis**
- Fragilariopsis oceanica*
- Fragilariopsis plocana**
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna**
- Medlaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kozumii**
- Neodenticula seminiae**
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmergramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabelinae**

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

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

3p=4CF

Diatom zones (NPD)

undet

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20 A 80R 2A 96

DATE: 2013/July/ 18

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE OF EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbotophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praeurupta var. *praeurupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikobea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kolzumii
Neodenticula sominae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge IT

Diatom zones (NPD)

NPD 12?

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-80R-2A, 100cm

TOTAL ABUNDANCE:

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

DATE: 2013/July 18-19

OBSERVER'S NAME AF SK IS

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 ocellatus
Actinocyclus ochotensis
Actinocyclus oclonarius +
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 saisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus +
Coscinodiscus oculus-iridis
Coscinodiscus radiatus +
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp. +
Halamphora costata
Hyalodiscus obsoletus +
Hyalodiscus spp. +
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozoviella minor
Lisitizina ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kotzumii
Neodenticula seminae +
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp. +
Podosira stelligera
Porosira glacialis
Proboscia barbol ? + ① 3048
Proboscia curvirostris (42.0, 78.0)
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. hiemalis +
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praeborgii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii +
Shionodiscus praesoestrupii
Shionodiscus trifolius +
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris +
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. incurvatum
Thalassionema nitzschioides var. inflatum +
Thalassionema nitzschioides var. parvum
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica +
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida +
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata +
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaomensis
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
b foram

Rest spore
Thalassiosira sp.

Diatom zones (NPD)

undet.

Core, section, interval (cm)

U14 ZOA, 80P ZAI16

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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.
- Actinocyclus senarius*
- Actinocyclus vulgaris*
- Actinocyclus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwini*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae***
- Azpeitia nodulifera*
- Azpeitia oligocenic*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbotophorus*
- Cosmiodiscus 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 hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
- Denticulopsis praedimorpha* var. *minor***
- Denticulopsis praedimorpha* var. *praedimorpha***
- Denticulopsis praehyalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Denticulopsis* spp.
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis* spp.
- Distephanosira architecturalis*
- Distephanosira* spp.
- Ellerbeckia sol*
- Ellerbeckia* spp.
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Eunotia* spp.
- Fragilaria construens*
- Fragilaria* spp.
- Fragilariopsis cylindrus*
- Fragilariopsis dolotus***
- Fragilariopsis fossilis***
- Fragilariopsis oceanica*
- Fragilariopsis pilocena***
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis***
- Kozioviella minor*
- Lisitzinia ornata*
- Mediaria magna***
- Mediaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica***
- Neodenticula kolzumii***
- Neodenticula saminiae***
- Nitzschia challengerii*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata* IFZ
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyridicula zabelinae***

- Rhaphoneis amphicerus*
- Rhaphoneis* 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 trifidus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* spp.
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderei***
- Thalassionema* spp.
- Thalassiosira antiqua***
- Thalassiosira bioculata*
- Thalassiosira castanea***
- Thalassiosira convexa***
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii***
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii***
- Thalassiosira jouseae***
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamca***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenic*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praepraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temporei***
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Sponge IFZ

* -

closed copura T

Diatom zones (NPD)

Undet

Core, section, interval (cm)

U14 20A DOR3A13

DATE: 2013/July/19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens***
- Actinocyclus ingens* f. *nodus***
- Actinocyclus ingens* f. *planus***
- Actinocyclus oculus***
- Actinocyclus ochotensis*
- Actinocyclus oclonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinoplychus senarius*
- Actinoplychus vulgaris*
- Actinoplychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae***
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis***
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- 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 praelaeta***
- 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 dolotus***
- Fragilariopsis fossilis***
- Fragilariopsis oceanica*
- Fragilariopsis plocena***
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis***
- Kisseleviella canina*
- Kisseleviella ezoensis*
- Kotzumia tatsunokuchiensis***
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna***
- Medlaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamschatka***
- Neodenticula kolzumii***
- Neodenticula seminae***
- Nitzschia challengerii*
- Nitzschia jouseae***
- Nitzschia pala*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praebarbol*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae***

- Rhaphoneis amphiceros*
- Rhaphoneis* spp.
- 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 isopofica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii***
- Shionodiscus praecoestrupii***
- Shionodiscus trifolius*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* spp.
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi***
- Thalassionema* spp.
- Thalassiosira antiqua***
- Thalassiosira bioculata*
- Thalassiosira castanea***
- Thalassiosira convexa***
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii***
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii***
- Thalassiosira jouseae***
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenica*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperii***
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

sponge F

Diatom zones (NPD)

NPD 12

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A 80R3A55

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF (SK) IS

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 lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula parancobarica
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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis 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 triflutus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge FF

Diatom zones (NPD)

NPD 12

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20A - 80R-4A, 62cm

DATE: 2013/July 19

OBSERVER's NAME AF SK IS

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.
P1 *Actinocyclus curvatus*
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
A1 *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 oligocenicus
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Koizumiella minor
Listizinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Psuedotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgii
Rhizosolenia setigera
Rhizosolenia spp.
Ropenia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeustrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
R2 *Thalassionema nitzschioides*
R2 *Thalassionema nitzschioides* var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenicus
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

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

sponge

Diatom zones (NPD)

undet

Core, section, interval (cm)

U14 20A-80R-5A, 44 cm

DATE: 2013/July/19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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.
- Actinocyclus senarius*
- Actinocyclus vulgaris*
- Actinocyclus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwini*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenicus*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis**
- Crucidentricula ikebei*
- Crucidentricula kanayae*
- Crucidentricula nicobarica*
- Crucidentricula parnicobarica*
- Crucidentricula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- 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 hustodtii*
- 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 dolotus**
- Fragilariopsis fossilis**
- Fragilariopsis oceanica*
- Fragilariopsis pilocena**
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna**
- Medlaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kozumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabelinae**

- Rhaphoneis amphicerus*
- Rhaphoneis* spp.
- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praeborgii**
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Ropenia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praeeustrupii**
- Shionodiscus trifidulus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* 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*
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- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregulara*
- Thalassiosira jacksonii**
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- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenicus*
- Thalassiosira nordenskiöldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sanctetae*
- Thalassiosira singularis**
- Thalassiosira temperlei**
- 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

0
3

sponge

Diatom zones (NPD)

NPD 12

Core, section, interval (cm)

U14 20A 80R-6A 35 cm

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

M (>60%), A (20-60%), C (5-20%)
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RELATIVE ABUNDANCE OF EACH TAXON

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X (present), B (barren)

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- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
- Actinocyclus curvatulus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens* f. **nodus**
- Actinocyclus ingens* f. **planus**
- Actinocyclus oculatus*
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Actinoptychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula parnicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cyclotella* spp.
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Cymbella* spp.
- Delphineis angustata*
- Delphineis ischaboensis*
- Delphineis kippae*
- Delphineis sachalinensis*
- Delphineis simonsenii**
- Delphineis surella*
- 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.
- 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*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- 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 kamschatica**
- Neodenticula kolzumii**
- Neodenticula seminae** IFT
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata* IFT IFT IFT IFT IFT IFT
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotruncatulum radiosreticulatum*
- Pyxidicula zabelinae**

- Rhaphoneis amphiceros*
- Rhaphoneis* 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*
- R2 **Shionodiscus oestrupii** T
- R2 **Shionodiscus praecoestrupii**
- R1 *Shionodiscus trifidulus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Stephanopyxis* spp. IFT
- Surirella* spp.
- Thalassionema bacillarum*
- X *Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. **incurvatum**
- Thalassionema nitzschioides* var. **inflatum**
- Thalassionema nitzschioides* var. **parvum**
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi**
- Thalassionema* spp.
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediiconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenitidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperlei**
- Thalassiosira umaoensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiosira* spp. T
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.
- R **Chaetoceros Resting Spores** IFT 5

TOTAL of VEGETATIVE CELLS

closed
Dino
Sponge

全田

Diatom zones (NPD)

NPD 12

Core, section, interval (cm)

U14 20A-80R-6A 65cm

DATE: 2013/July/19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 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.
- Cavilatus exiguus*
- Cavilatus jouseanus**
- Cavilatus lanceolatus*
- Cavilatus linearis*
- Cavilatus miocenicus*
- Cavilatus rectus*
- Cavilatus* 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*
- Cosmidiscus 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 sunirella*
- 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.
- 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 dolius**
- Fragilariopsis fossilis**
- Fragilariopsis oceanica*
- Fragilariopsis plicocana**
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kolzumia tatsunokuchlensis**
- Kozloviella minor*
- Listizinia ornata*
- Medlaria magna**
- Medlaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula tyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kolzumii**
- Neodenticula seminiae** T
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotraceratium radiosreticulatum*
- Pyxidicula zabelinae**

- Rhaphoneis amphicerus*
- Rhaphoneis* spp.
- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norvegica*
- Rhizosolenia praeborgonii**
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- R2 **Shionodiscus oestrupii** T
- Shionodiscus praesoestrupii**
- Shionodiscus trifolius*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Suirella* spp.
- Thalassionema bacillaris*
- Thalassionema nitzschioides*
- Thalassionema nitzschioides* var. *incurvatum*
- Thalassionema nitzschioides* var. *inflatum*
- Thalassionema nitzschioides* var. *parvum*
- Thalassionema pseudonitzschioides*
- Thalassionema schraderi**
- Thalassionema* spp.
- Thalassiosira antiqua**
- Thalassiosira bioculata*
- Thalassiosira castanea**
- Thalassiosira convexa**
- Thalassiosira decipiens*
- Thalassiosira dubiosa*
- Thalassiosira eccentrica*
- Thalassiosira fasciculata*
- Thalassiosira fraga*
- Thalassiosira gravida*
- Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- Thalassiosira jacksonii**
- Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperoi**
- Thalassiosira umaoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

R **Cheetoceros Resting Spores** F3
TOTAL of VEGETATIVE CELLS

sponge

Diatom zones (NPD)

NPD12

Core, section, interval (cm)

U14 20A - 80R - 6A 80cm

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 ocholensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinoptylchus senarius*
- Actinoptylchus vulgaris*
- Actinoptylchus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwini*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- Cyclotella* spp.
- Cymbella cistula*
- Cymbella minuta*
- Cymbella subaequalis*
- Cymbella* spp.
- Delphineis angustata*
- Delphineis ischabensis*
- 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 praekatyamae**
- 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 doliolus**
- 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 canina*
- Kisseleviella ezoensis*
- Kolzumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna**
- Medlaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kozumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Porosira stelligera*
- Porosira glacialis*
- Proboscia barbol**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarbol*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosreticulatum*
- Pyxidicula zabelinae**

- Rhaphoneis amphicerus*
- Rhaphoneis* 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 praеоestrupii**
- Shionodiscus trifolius*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* 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 marjameica**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperii**
- Thalassiosira umaoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

1
44

Diatom zones (NPD)

um det

Core, section, interval (cm)

U14 20A 20R-6A 106cm

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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* 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.
- Actinopychus senarius*
- Actinopychus vulgaris*
- Actinopychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwini*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae***
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- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus***
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum* A
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis***
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- 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.
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis* spp.
- Distephanosira architecturalis*
- Distephanosira* spp.
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- Ellerbeckia* spp.
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- Eunotia praerupta* var. *praerupta*
- Eunotia* spp.
- Fragilaria construens*
- Fragilaria* spp.
- Fragilariopsis cylindrus*
- Fragilariopsis dolotus***
- Fragilariopsis fossilis***
- Fragilariopsis oceanica*
- Fragilariopsis plocena***
- Fragilariopsis* spp.
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- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis***
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tatsunokuchiensis***
- Kozioviella minor*
- Lisitzinia ornata*
- Medlaria magna***
- Medlaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica***
- Neodenticula kozumii***
- Neodenticula seminae***
- Nitzschia challengerii*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata* EEEET
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae***

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- Rhaphoneis* 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 praecoestrupii***
- Shionodiscus trifolius*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* 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 leptota*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- Thalassiosira marujamica***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenic*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praepraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperei***
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

23

Diatom zones (NPD)

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-81A-CC

TOTAL ABUNDANCE:

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

DATE: 2013/July 18

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
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 oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunirella
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 praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchiensis
Koizumiella minor
Lisitizinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidula zabelinae

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

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

全A

Diatom zones (NPD)

undet

Core, section, interval (cm)

U14 20A-83R-1W 23 cm

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

FRAGMENT

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE OF EACH TAXON

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

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

R2

T

↑

sponge

- Denticulopsis crassa***
- Denticulopsis dimorpha* var. *dimorpha***
- Denticulopsis dimorpha* var. *areolata***
- Denticulopsis hustedii***
- Denticulopsis hyalina***
- Denticulopsis katayamae***
- Denticulopsis lauta***
- Denticulopsis praedimorpha* var. *minor***
- Denticulopsis praedimorpha* var. *praedimorpha***
- Denticulopsis praehyalina***
- Denticulopsis praekatayamae***
- Denticulopsis praelauta***
- Denticulopsis simonsenii***
- Denticulopsis tanimurae***
- Denticulopsis vulgaris***
- Denticulopsis* spp.
- Diploneis bombus*
- Diploneis puella*
- Diploneis smithii*
- Diploneis suborbicularis*
- Diploneis* spp.
- Distephanosira architecturalis*
- Distephanosira* spp.
- Ellerbeckia sol*
- Ellerbeckia* spp.
- Eunotia pectinalis* var. *minor*
- Eunotia praerupta* var. *praerupta*
- Eunotia* spp.
- Fragilaria construens*
- Fragilaria* spp.
- Fragilariopsis cylindrus*
- Fragilariopsis dolioles***
- Fragilariopsis fossilis***
- Fragilariopsis oceanica*
- Fragilariopsis pilocena***
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis***
- Kisseleviella canina*
- Kisseleviella ezoensis*
- Kolzumia tatsunokuchiensis***
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna***
- Medlaria splendida***
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatka***
- Neodenticula kolzumii***
- Neodenticula seminiae***
- Nitzschia challengerii*
- Nitzschia jouseae***
- Nitzschia palea*
- Nitzschia reinholdii***
- Nitzschia rolandii***
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi***
- Proboscia curvirostris***
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmergramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotraceratium radiosoreticulatum*
- Pyxidicula zabelinae***

- Rhaphoneis amphiceros*
- Rhaphoneis* spp.
- Rhizosolenia hebetata* f. *hiemalis*
- Rhizosolenia hebetata* f. *semispina*
- Rhizosolenia norwegica*
- Rhizosolenia praeborgonii***
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica***
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii***
- Shionodiscus praesoestrupii***
- Shionodiscus triflutus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus***
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Suirella* 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 marujamca***
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima***
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis***
- Thalassiosira temperlei***
- Thalassiosira umaensis*
- Thalassiosira undulosa*
- Thalassiosira yabei***
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

0

Diatom zones (NPD)

undet

Core, section, interval (cm)

U14 20A 83R-1W 49 cm

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

Fragment

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE OF EACH TAXON

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

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens* f. **nodus**
- Actinocyclus ingens* f. **planus**
- Actinocyclus oculatus**
- Actinocyclus ochotensis*
- Actinocyclus otonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Actinoptychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwinii*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- Coscinodiscus asteromphalus*
- Coscinodiscus marginatus*
- Coscinodiscus oculus-iridis*
- Coscinodiscus radiatus*
- Coscinodiscus rhombicus*
- Coscinodiscus symbolophorus*
- Cosmodiscus insignis**
- Crucidenticula ikebei*
- Crucidenticula kanayae*
- Crucidenticula nicobarica*
- Crucidenticula paranicobarica*
- Crucidenticula sawamurae*
- Cyclotella striata*
- Cyclotella meneghiniana*
- 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 crasse**
- Denticulopsis dimorpha** var. **dimorpha**
- Denticulopsis dimorpha** var. **areolata**
- Denticulopsis hustedii**
- Denticulopsis hyalina**
- Denticulopsis katayamae**
- Denticulopsis lauta**
- 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 doliulus**
- Fragilariopsis fossilis**
- Fragilariopsis oceanica*
- Fragilariopsis pilocena**
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kolzumia tatsunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Mediaria magna**
- Mediaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kolzumii**
- Neodenticula seminiae**
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barbol**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae**

- Rhaphoneis amphicerus*
- Rhaphoneis* spp.
- Rhizosolenia hebetata* f. **hiemalis**
- Rhizosolenia hebetata* f. **semispina**
- Rhizosolenia norwegica*
- Rhizosolenia praeborgonii**
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- Shionodiscus oestrupii**
- Shionodiscus praeoestrupii**
- Shionodiscus triflutus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis turris*
- Stephanopyxis* spp.
- Surirella* 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 marjamicia**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temperlei**
- Thalassiosira umaoiensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.

R

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

sponge closed cap

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Fragment

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

Core, section, interval (cm)

U14 20A 83R-1W, 64 cm

TOTAL ABUNDANCE:

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

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 praeekatayamae
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 dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatka
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudonitzschium radiosoreticulatum
Pyxidicula zabelinae

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE OF EACH TAXON

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

Rhaphoneis amphicerus
Rhaphoneis 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 praeeostrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. **incurvatum**
Thalassionema nitzschioides var. **inflatum**
Thalassionema nitzschioides var. **parvum**
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamicla
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-83R-CC

TOTAL ABUNDANCE:

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

DATE: 2013/July/18

OBSERVER's NAME AF SK IS

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. *plenus*
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus otonarius
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 oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 crasse
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 praeekatayamae
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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikoëa tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Koizumiella minor
Lisitizina ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengeri
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabalinae

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

Cheetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U1420A-86R-CC

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sunrella
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 praeahalina
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.
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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 pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
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Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudonitzschium radiosoreticulatum
Pyxidicula zabelinae

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Rhaphoneis spp.
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Rhizosolenia hebetata f. *semispina*
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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
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Shionodiscus praeeustrupii
Shionodiscus trifultus
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Stephanopyxis horridus
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Stephanopyxis spp.
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Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
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Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravis
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenitidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-87R 2 100 cm

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK (IS)

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula parnicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
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 dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikabea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella auita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radioreticulatum
Pyxidicula zabelinae

Rhaphoneis amphiceros
Rhaphoneis spp.
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 praesoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Reating Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

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.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia prae-nodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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)

U14 20A-87R-2W-138cm

TOTAL ABUNDANCE:

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis prae-hyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diptoneis bombus
Diptoneis puella
Diptoneis smithii
Diptoneis suborbicularis
Diptoneis 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 plicosa
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia pala
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboti
Proboscia curvirostris
Proboscia interposita
Proboscia praebartoi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudonitzschium radiosoreticulatum
Pyxidicula zabelinae

DATE: 2013/July/19

OBSERVER'S NAME AF SK IS

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 amphicerus
Rhaphoneis spp.
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 praesostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis lurrus
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schradleri
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 marjamicca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocena
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperis
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge

ting for 2m

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-87R-3W 33 cm

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinopychus senarius
Actinopychus vulgaris
Actinopychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia komurae
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 hustodtii
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.
Fragilaropsis cylindrus
Fragilaropsis dolioalis
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 tatsunokuchiensis
Kozloviella minor
Lisitinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores**TOTAL of VEGETATIVE CELLS**

Diatom zones (NPD)

NPD 42

Core, section, interval (cm)

U14 20A - 87R - 504 100 cm

DATE: 2013/July/19

OBSERVER'S NAME (AF) SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

- Achnanthes groenlandica*
- Achnanthes inflata*
- Achnanthes lanceolata*
- Achnanthes lineariformis*
- Achnanthes* spp.
- Actinocyclus curvatus*
- Actinocyclus ellipticus*
- Actinocyclus ingens**
- Actinocyclus ingens* f. **nodus**
- Actinocyclus ingens* f. **planus**
- Actinocyclus oculatus**
- Actinocyclus ochotensis*
- Actinocyclus octonarius*
- Actinocyclus robustus*
- Actinocyclus tsugaruensis*
- Actinocyclus* spp.
- Actinoptychus senarius*
- Actinoptychus vulgaris*
- Actinoptychus* spp.
- Araniscus lewisianus*
- Araniscus* spp.
- Asteromphalus darwini*
- Asteromphalus oligocenicus*
- Asteromphalus parvulus*
- Asteromphalus robustus*
- Asteromphalus* spp.
- Azpeitia biradiata*
- Azpeitia komurae**
- Azpeitia nodulifera*
- Azpeitia oligocenica*
- Azpeitia praenodulifera*
- Azpeitia salisburyana*
- Azpeitia tabularis*
- Azpeitia vetustissima*
- Azpeitia* spp.
- Bacterosira bathyomphala*
- Bacterosira fragilis*
- Bacterosira* spp.
- Cavitatus exiguus*
- Cavitatus jouseanus**
- Cavitatus lanceolatus*
- Cavitatus linearis*
- Cavitatus miocenicus*
- Cavitatus rectus*
- Cavitatus* spp.
- Cestodiscus kugleri*
- Cestodiscus trochus*
- Cestodiscus* spp.
- Cocconeis californica*
- Cocconeis costata*
- Cocconeis scutellum*
- Cocconeis* spp.
- 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*
- 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.
- 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 dolotus**
- Fragilariopsis fossilis*
- Fragilariopsis oceanica*
- Fragilariopsis plocana**
- Fragilariopsis* spp.
- Goniothecium decoratum*
- Goniothecium rogersii*
- Goniothecium* spp.
- Grammatophora* spp.
- Halamphora costata*
- Hyalodiscus obsoletus*
- Hyalodiscus* spp.
- Ikebea tenuis**
- Kisseleviella carina*
- Kisseleviella ezoensis*
- Kozumia tataunokuchiensis**
- Kozloviella minor*
- Lisitzinia ornata*
- Medlaria magna**
- Medlaria splendida**
- Melosira albicans*
- Navicula elginensis*
- Navicula lyroides*
- Navicula menisculus*
- Navicula salinarum*
- Neodenticula kamtschatica**
- Neodenticula kolzumii**
- Neodenticula seminae**
- Nitzschia challengerii*
- Nitzschia jouseae**
- Nitzschia palea*
- Nitzschia reinholdii**
- Nitzschia rolandii**
- Odontella aurita*
- Odontella* spp.
- Paralia sulcata*
- Paralia* spp.
- Podosira stelligera*
- Porosira glacialis*
- Proboscia barboi**
- Proboscia curvirostris**
- Proboscia interposita*
- Proboscia praebarboi*
- Pseudodimmerogramma elegans*
- Pseudonitzschia seriata*
- Pseudopyxilla americana*
- Pseudotriceratium radiosoreticulatum*
- Pyxidicula zabelinae**

- Rhaphoneis amphicerus*
- Rhaphoneis* spp.
- Rhizosolenia hebetata* f. **hiemalis**
- Rhizosolenia hebetata* f. **semispina**
- Rhizosolenia norvegica*
- Rhizosolenia praeborgonii**
- Rhizosolenia setigera*
- Rhizosolenia* spp.
- Roperia tessellata*
- Rocella gelida*
- Rocella praenitida*
- Rocella semigelida*
- Rocella vigilans*
- Rouxia californica**
- Rouxia granda*
- Rouxia isopolica*
- Rouxia naviculoides*
- Rouxia obesa*
- R5 Shionodiscus oestrupii**
- R5 Shionodiscus praecoestrupii**
- Shionodiscus trifidus*
- Stephanopyxis dimorpha*
- Stephanopyxis horridus**
- Stephanopyxis lurrus*
- Stephanopyxis* spp.
- Surirella* 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*
- R8 Thalassiosira grunowii**
- Thalassiosira hyalina*
- Thalassiosira irregularata*
- R6 Thalassiosira jacksonii**
- R6 Thalassiosira jouseae**
- Thalassiosira leptopus*
- Thalassiosira lineata*
- Thalassiosira lusca*
- Thalassiosira manifesta*
- R6 Thalassiosira marujamca**
- Thalassiosira mediaconvexa*
- Thalassiosira minutissima**
- Thalassiosira miocenica*
- Thalassiosira nordenskioldii*
- Thalassiosira orientalis*
- Thalassiosira praefraga*
- Thalassiosira praenidulus*
- Thalassiosira praeyabei*
- Thalassiosira robusta*
- Thalassiosira sancettae*
- Thalassiosira singularis**
- Thalassiosira temporei**
- Thalassiosira umaoniensis*
- Thalassiosira undulosa*
- Thalassiosira yabei**
- Thalassiosira* spp.
- Thalassiothrix longissima*
- Thalassiothrix* spp.
- Trachyneis aspera*
- Trachyneis* spp.
- Yoshidaia divergens*
- Yoshidaia* spp.
- R6 Chaetoceros Resting Spores**
- TOTAL of VEGETATIVE CELLS**

R X

R 1

F 32

F 19

R 3

R 5

X

sponge
Silico

pear glue

11-30

5
100

Diatom zones (NPD)

undet

TOTAL PRESERVATION

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

fragments

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 otonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis sirella
Delphineis spp.

Core, section, interval (cm)

U14 20 A. 87R4W51

TOTAL ABUNDANCE:

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

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. *minor*
Denticulopsis praedimorpha var. *praedimorpha*
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis 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 plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozlovella minor
Listizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidula zabelinae

DATE: 2013/July/

OBSERVER'S NAME AF SK IS

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Sponge FT

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptylchus senarius
Actinoptylchus vulgaris
Actinoptylchus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseaui
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus 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
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula 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 sunirella
Delphineis spp.

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20A-87R-46) 100 cm

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK (S)

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 amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis lurrus
Stephanopyxis spp.
Sunirella 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 marujamka
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A 87R-CC

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK (IS)

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 lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula parnicobarica
Crucidentricula 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 sunirella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustodtii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praeahyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis 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
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikobea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimetrogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radioreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebelata f. hiemalis
Rhizosolenia hebelata f. semispina
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeeostrupii
Shionodiscus trifidulus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Sunirella 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 gravis
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

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 darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Zeptilia biradiata
Zeptilia komurae
Zeptilia nodulifera
Zeptilia oligocenica
Zeptilia praenodulifera
Zeptilia salisburyana
Zeptilia tabularis
Zeptilia vetustissima
Zeptilia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula 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)

U14 20A 88R1W73

TOTAL ABUNDANCE:

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

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

DATE: 2013/July/ 20

OBSERVER'S NAME AF SK IS

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

sponge -

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20A-8 & R-2W, 100cm

DATE: 2013/July/20

OBSERVER'S NAME AF SK IS

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 lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligogenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculis-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula 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 surella
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 praealyalina
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 dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatka
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
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.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marjamic
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-88R-cc

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmiodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischabensis
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 praeahalina
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 dolioalis
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

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

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-89R-1

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischabensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
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.
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 dolotus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 marujamca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praepraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U1420A-90R-CC

TOTAL ABUNDANCE:

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

DATE: 2013/July/19

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus otonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
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 praealyalina
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimetrograma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radioreticulatum
Pyxidicula zabelinae

Rhaphoneis amphiceros
Rhaphoneis spp.
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 castrupii
Shionodiscus praecastrupii
Shionodiscus trifultus
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 gravis
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

Core, section, interval (cm)

U14 20A. 9/RCC

DATE: 2013/July/ 19

OBSERVER's NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
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 oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula parnicobarica
Crucidentacula 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 surella
Delphineis spp.

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

Rhaphoneis amphiceros
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norwegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella geilda
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella 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 marjamic
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Reeting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

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 oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptylchus senarius
Actinoptylchus vulgaris
Actinoptylchus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenic
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula parnicobarica
Crucidentacula 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 surella
Delphineis spp.

Core, section, interval (cm)

U14 30A-92R-CC

TOTAL ABUNDANCE:

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

Denticulopsis crasse
Denticulopsis dimorpha* var. *dimorpha
Denticulopsis dimorpha* var. *areolata
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
Denticulopsis vulgaris
Denticulopsis spp.
Diploneis bombus
Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira 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 pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula saminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidula zabelinae

DATE: 2013/July/ 19

OBSERVER'S NAME AF SK IS

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)

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praeoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 marjamic
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenic
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperi
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Reeting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Core, section, interval (cm)

DATE: 2013/July/19

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

OBSERVER'S NAME AF SK IS

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 ocholensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptylchus senarius
Actinoptylchus vulgaris
Actinoptylchus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus 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
Crucidentacula ikebei
Crucidentacula kanayae
Crucidentacula nicobarica
Crucidentacula paranicobarica
Crucidentacula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischabensis
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 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 dolifolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikobea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarbol
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis 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 trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregulara
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-95R-CC

DATE: 2013/July/ 20

OBSERVER's NAME AF SK JS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE of EACH TAXON

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

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

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Denticulopsis praedimorpha* var. *minor
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Denticulopsis praehyalina
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Denticulopsis praelauta
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Ellerbeckia spp.
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Eunotia spp.
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Fragilaria spp.
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Fragilariopsis fossilla
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikoëa tenuis
Kisseleviella carina
Kisseleviella ezoensis
Koizumia tatsunokuchensis
Koizumiella minor
Listizinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula koizumii
Neodenticula seminae
Nitzschia challengeri
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Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
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Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
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Rouxia isopollica
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Shionodiscus praeoestrupii
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Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
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Thalassiosira castanea
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Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularis
Thalassiosira jacksonii
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Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

Barren

Core, section, interval (cm)

U14 20.A. 97RCC

DATE: 2013/July/ 20

OBSERVER'S NAME AF (SK) IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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)

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Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus reclus
Cavitatus 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
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula 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 hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praealyalina
Denticulopsis praekatayamae
Denticulopsis praelaui
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 dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kozloviella minor
Lisitinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatcica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia pala
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
Rhizosolenia hebetata f. *semispina*
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 marjamicca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperii
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores
TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Bakken

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A 98R3W/00

TOTAL ABUNDANCE:

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

DATE: 2013/July/20

OBSERVER'S NAME AF (SK) IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. nodus
Actinocyclus ingens f. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoptychus senarius
Actinoptychus vulgaris
Actinoptychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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.
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.
Fragilaropsis cylindrus
Fragilaropsis doliofus
Fragilaropsis fossilis
Fragilaropsis oceanica
Fragilaropsis pilocana
Fragilaropsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamschatkica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

Core, section, interval (cm)

U14 20.A. 98R2W/00

DATE: 2013/July/ 20

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. planus
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
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.
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 dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kotzumia tatsunokuchiensis
Kotzumia minor
Lisztinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula eigenensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kotzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicros
Rhaphoneis spp.
Rhizosolenia hebetata 1. hiemalis
Rhizosolenia hebetata 1. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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
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Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-98R-YW 10cm

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 20

OBSERVER'S NAME AF SK IS

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 lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
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Cymbella spp.
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Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

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Denticulopsis dimorpha var. areolata
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Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha var. minor
Denticulopsis praedimorpha var. praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelauta
Denticulopsis simonsenii
Denticulopsis tanimurae
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Denticulopsis spp.
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Diploneis puella
Diploneis smithii
Diploneis suborbicularis
Diploneis spp.
Distephanosira architecturalis
Distephanosira spp.
Ellerbeckia sol
Ellerbeckia spp.
Eunotia pectinalis var. minor
Eunotia praerupta var. praerupta
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Fragilariopsis dolioleus
Fragilariopsis fossilis
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Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
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Hyalodiscus spp.
Ikebea tenuis
Kisseleviella canina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisztinia ornata
Mediaria magna
Mediaria 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
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Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmergramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. hiemalis
Rhizosolenia hebetata f. semispina
Rhizosolenia norvegica
Rhizosolenia praebergonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praecoestrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella 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 marjamicca
Thalassiosira mediaconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskioldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperlei
Thalassiosira umaensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

Core, section, interval (cm)

U14 20A-98R-C C

DATE: 2013/July/20

OBSERVER'S NAME AF SK (S)

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischabensis
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 praealyalina
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 praeupta var. *praeupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis doliolus
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 canina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozlovella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praearboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotriceratium radiosreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A.99R cc

TOTAL ABUNDANCE:

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

DATE: 2013/July/20

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus otonarius
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 oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia velutissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmioliscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
Delphineis spp.

Denticulopsis crassa
Denticulopsis dimorpha var. *dimorpha*
Denticulopsis dimorpha var. *areolata*
Denticulopsis hustedii
Denticulopsis hyalina
Denticulopsis katayamae
Denticulopsis lauta
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 dolius
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
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Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata f. *hiemalis*
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Rhizosolenia norvegica
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Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
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Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesostrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Surirella spp.
Thalassionema bacillarum
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
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Thalassionema spp.
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Thalassiosira praeyabei
Thalassiosira robusta
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Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barkey

Core, section, interval (cm)

U14 20A. 101Rcc

DATE: 2013/July/ 20

OBSERVER'S NAME AF SK IS

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

RELATIVE ABUNDANCE OF EACH TAXON

A (>10 valves/FOV), C (1-10 vlv/FOV)
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X (present), B (barren)

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Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
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Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens* f. *nodus
Actinocyclus ingens* f. *planus
Actinocyclus oculus
Actinocyclus ochotensis
Actinocyclus oclonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
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Actinoplychus spp.
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Asteromphalus parvulus
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Azpeitia komurae
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Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
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Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
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Cocconeis scutellum
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Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
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Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surirella
Delphineis spp.

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Denticulopsis katayamae
Denticulopsis lauta
Denticulopsis praedimorpha* var. *minor
Denticulopsis praedimorpha* var. *praedimorpha
Denticulopsis praehyalina
Denticulopsis praekatayamae
Denticulopsis praelata
Denticulopsis simonsenii
Denticulopsis tanimurae
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Eunotia spp.
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Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dolioilus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocana
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Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozoviella minor
Lisitizina ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
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Nitzschia palea
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Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium diadosoreticulatum
Pyxidicula zabelinae

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Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperei
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
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Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**

TOTAL OF VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A.102 Rcc

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 20

OBSERVER'S NAME AF (SK) IS

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 lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidenticula ikebei
Crucidenticula kanayae
Crucidenticula nicobarica
Crucidenticula paranicobarica
Crucidenticula sawamurae
Cyclotella sinata
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 dolioles
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis pilocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikobea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Medlaria magna
Medlaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtchatica
Neodenticula kolzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia pala
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbot
Proboscia curvirostris
Proboscia interposita
Proboscia praerbarboti
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudonitzschium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

Barren

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20.A. 103RCC

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 20

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE OF EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens 1. nodus
Actinocyclus ingens 1. plenus
Actinocyclus ocellatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinoplychus senarius
Actinoplychus vulgaris
Actinoplychus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwini
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia saisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmodiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
Cyclotella spp.
Cymbella cistula
Cymbella minuta
Cymbella subaequalis
Cymbella spp.
Delphineis angustata
Delphineis ischaboensis
Delphineis kippae
Delphineis sachalinensis
Delphineis simonsenii
Delphineis surella
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 praeahyalina
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 doliulus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kozumia tatsunokuchiensis
Kozloviella minor
Listizinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kozumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia senata
Pseudopyxilla americana
Pseudotraceratium radiosoreticulatum
Pyxidicula zabelinae

Rhaphoneis amphicerus
Rhaphoneis spp.
Rhizosolenia hebetata 1. hiemalis
Rhizosolenia hebetata 1. semispina
Rhizosolenia norvegica
Rhizosolenia praeborgonii
Rhizosolenia setigera
Rhizosolenia spp.
Roperia tessellata
Rocella gelida
Rocella praenitida
Rocella semigelida
Rocella vigilans
Rouxia californica
Rouxia granda
Rouxia isopolica
Rouxia naviculoides
Rouxia obesa
Shionodiscus oestrupii
Shionodiscus praesostrupii
Shionodiscus trifolius
Stephanopyxis dimorpha
Stephanopyxis horridus
Stephanopyxis turris
Stephanopyxis spp.
Suirella spp.
Thalassionema bacillaris
Thalassionema nitzschioides
Thalassionema nitzschioides var. *incurvatum*
Thalassionema nitzschioides var. *inflatum*
Thalassionema nitzschioides var. *parvum*
Thalassionema pseudonitzschioides
Thalassionema schraderi
Thalassionema spp.
Thalassiosira antiqua
Thalassiosira bioculata
Thalassiosira castanea
Thalassiosira convexa
Thalassiosira decipiens
Thalassiosira dubiosa
Thalassiosira eccentrica
Thalassiosira fasciculata
Thalassiosira fraga
Thalassiosira gravida
Thalassiosira grunowii
Thalassiosira hyalina
Thalassiosira irregularata
Thalassiosira jacksonii
Thalassiosira jouseae
Thalassiosira leptopus
Thalassiosira lineata
Thalassiosira lusca
Thalassiosira manifesta
Thalassiosira marujamica
Thalassiosira mediiconvexa
Thalassiosira minutissima
Thalassiosira miocenica
Thalassiosira nordenskiöldii
Thalassiosira orientalis
Thalassiosira praefraga
Thalassiosira praenidulus
Thalassiosira praeyabei
Thalassiosira robusta
Thalassiosira sancettae
Thalassiosira singularis
Thalassiosira temperoi
Thalassiosira umaoiensis
Thalassiosira undulosa
Thalassiosira yabei
Thalassiosira spp.
Thalassiothrix longissima
Thalassiothrix spp.
Trachyneis aspera
Trachyneis spp.
Yoshidaia divergens
Yoshidaia spp.

***Chaetoceros* Resting Spores**

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARREN

TOTAL PRESERVATION

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

Core, section, interval (cm)

U14 20A-104A-1

TOTAL ABUNDANCE:

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

DATE: 2013/July/ 20

OBSERVER'S NAME AF SK IS

RELATIVE ABUNDANCE of EACH TAXON

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

Achnanthes groenlandica
Achnanthes inflata
Achnanthes lanceolata
Achnanthes lineariformis
Achnanthes spp.
Actinocyclus curvatulus
Actinocyclus ellipticus
Actinocyclus ingens
Actinocyclus ingens f. *nodus*
Actinocyclus ingens f. *planus*
Actinocyclus oculatus
Actinocyclus ochotensis
Actinocyclus octonarius
Actinocyclus robustus
Actinocyclus tsugaruensis
Actinocyclus spp.
Actinocyclus senarius
Actinocyclus vulgaris
Actinocyclus spp.
Araniscus lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocena
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
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
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 praeahyalina
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 pectinatis var. *minor*
Eunotia praerupta var. *praerupta*
Eunotia spp.
Fragilaria construens
Fragilaria spp.
Fragilariopsis cylindrus
Fragilariopsis dololus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plicocena
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikobea 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 kamtchatica
Neodenticula kolzumii
Neodenticula seminiae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia pala
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barbol
Proboscia curvirostris
Proboscia interposita
Proboscia praebartoi
Pseudodimmergramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotriceratium radiosoreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS

Diatom zones (NPD)

BARRÉN

Core, section, interval (cm)

U14 20A-105R-cc

DATE: 2013/July/ 21

OBSERVER'S NAME AF SK (IS)

TOTAL PRESERVATION

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

TOTAL ABUNDANCE:

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

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 lewisianus
Araniscus spp.
Asteromphalus darwinii
Asteromphalus oligocenicus
Asteromphalus parvulus
Asteromphalus robustus
Asteromphalus spp.
Azpeitia biradiata
Azpeitia komurae
Azpeitia nodulifera
Azpeitia oligocenica
Azpeitia praenodulifera
Azpeitia salisburyana
Azpeitia tabularis
Azpeitia vetustissima
Azpeitia spp.
Bacterosira bathyomphala
Bacterosira fragilis
Bacterosira spp.
Cavitatus exiguus
Cavitatus jouseanus
Cavitatus lanceolatus
Cavitatus linearis
Cavitatus miocenicus
Cavitatus rectus
Cavitatus spp.
Cestodiscus kugleri
Cestodiscus trochus
Cestodiscus spp.
Cocconeis californica
Cocconeis costata
Cocconeis scutellum
Cocconeis spp.
Coscinodiscus asteromphalus
Coscinodiscus marginatus
Coscinodiscus oculus-iridis
Coscinodiscus radiatus
Coscinodiscus rhombicus
Coscinodiscus symbolophorus
Cosmidiscus insignis
Crucidentricula ikebei
Crucidentricula kanayae
Crucidentricula nicobarica
Crucidentricula paranicobarica
Crucidentricula sawamurae
Cyclotella striata
Cyclotella meneghiniana
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 prae-hyalina
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 doliolus
Fragilariopsis fossilis
Fragilariopsis oceanica
Fragilariopsis plocana
Fragilariopsis spp.
Goniothecium decoratum
Goniothecium rogersii
Goniothecium spp.
Grammatophora spp.
Halamphora costata
Hyalodiscus obsoletus
Hyalodiscus spp.
Ikebea tenuis
Kisseleviella carina
Kisseleviella ezoensis
Kolzumia tatsunokuchiensis
Kozloviella minor
Lisitzinia ornata
Mediaria magna
Mediaria splendida
Melosira albicans
Navicula elginensis
Navicula lyroides
Navicula menisculus
Navicula salinarum
Neodenticula kamtschatica
Neodenticula kotzumii
Neodenticula seminae
Nitzschia challengerii
Nitzschia jouseae
Nitzschia palea
Nitzschia reinholdii
Nitzschia rolandii
Odontella aurita
Odontella spp.
Paralia sulcata
Paralia spp.
Podosira stelligera
Porosira glacialis
Proboscia barboi
Proboscia curvirostris
Proboscia interposita
Proboscia praebarboi
Pseudodimmerogramma elegans
Pseudonitzschia seriata
Pseudopyxilla americana
Pseudotraceratium radiosreticulatum
Pyxidicula zabelinae

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

Chaetoceros Resting Spores

TOTAL of VEGETATIVE CELLS