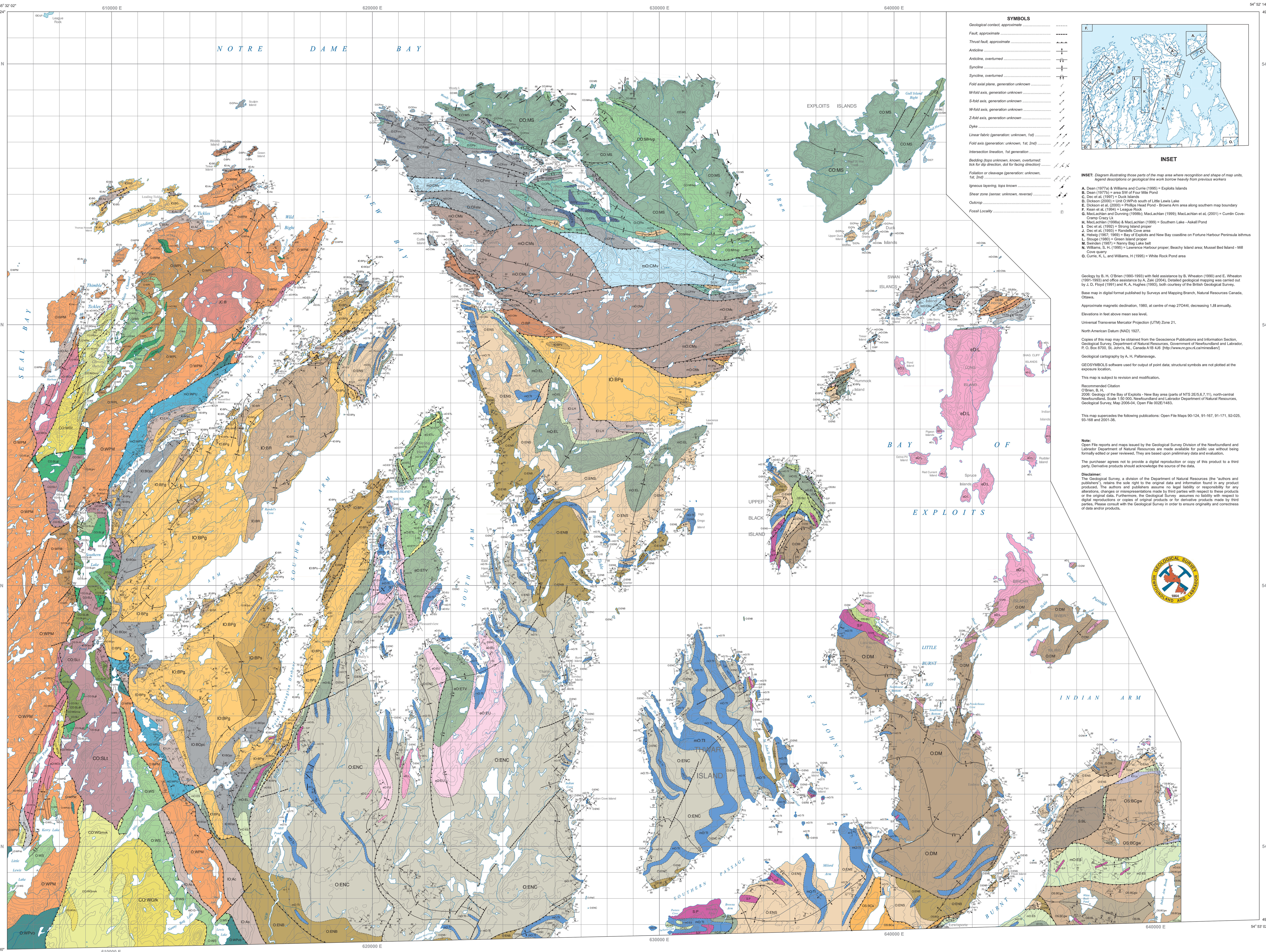


MAP 2006-04
GEOLOGY OF THE BAY OF EXPLOITS - NEW BAY AREA (PARTS OF NTS 2E/5,6,7,11) NORTH CENTRAL NEWFOUNDLAND

Scale 1:50 000

Kilometres

LEGEND

POST-ORDOVICIAN INTRUSIVE ROCKS

Post-tectonic Intrusions

Middle Jurassic to Early Cretaceous

Budgell Harbour Gabbro

J:CB — Analcite gabbro, hornblende gabbro, hornblende pyroxenite, biotite gabbro and associated lamprophyre dykes (Kean et al., 1981; MacLachlan, 1999)

Syn- to Post-tectonic Intrusions

Early Devonian

Long Island plutonic suite

eD:L — Marginal phases of banded hornblende-biotite orthogneiss and gneissic porphyritic granite; tightly folded dykes of quartz-phyric tonalite; locally schistose feldspar-megacrystic biotite granite; minor bodies of equigranular gabbro (uralitized, epidotized and chloritized within small fracture zones that are locally invaded by granodiorite or diabase). Central isotropic phase of hornblende-biotite granodiorite, probable correlatives of which occur within the Loon Bay batholith (Elliot et al., 1991; Currie and Williams, 1995). Satellite bodies of variably silicified and sericitized quartz-feldspar porphyry and microporphyritic felsite dykes near major faults; peripheral diorite sheets hosted by microgranite and adjacent units of tectonic melange

Pre- to Syn-tectonic Intrusions

Post-Late Ordovician

Porterville gabbro

S:P — Massive to foliated, medium-grained gabbro sheets intruding Silurian and older stratified and intrusive country rocks; folded dykes of fine-grained diorite locally altered to ankerite-pyrite schist; highly vesicular, variably sheared and locally quartz-veined diabase dyke swarms; fresh diabase dykelets. Relations to early gabbroic phases of Long Island plutonic suite are unknown

SILURIAN AND OLDER STRATIFIED AND INTRUSIVE ROCKS

Terrestrial Strata overlying Exploits Subzone of the Dunnage Zone
Post-Late Ordovician Regressive Overlap Sequences

Early to Late Silurian

BOTWOOD GROUP

Wigwam Formation

S:BW — Light-grey and grey-green, ripple-marked and mud-cracked, medium- and thick-bedded sandstone having abundant detrital mica (a locally reddened variety contains secondary ferroan carbonate and pyrite near faults); minor thin-bedded, cross-stratified, quartz-rich sandstone; rare microconglomerate that have distinctive black shale clasts

Lawrenceton Formation

S:BL — Dark-grey, plagioclase-porphyritic, vesicular basalt; purple and green amygdaloidal basalt locally with autobrecciated flow tops; coarse volcanic breccias and graded mafic tuffs; chlorite-sericite schist; minor pink, well-bedded felsic crystal tuff; light-grey, poorly stratified, lithic agglomerate. In Lewisporte and on Freak Island, some sheared basaltic breccias assigned to this unit may belong instead to the Lawrence Head Formation of the Exploits Group

IAPETUS OCEAN
Notre Dame Subzone of the Dunnage Zone

Early to Middle Ordovician

CUTWELL GROUP?

O:CU? — Pillowed and massive basalts; crosscutting intrusions in this unit on League Rock possess ultramafic xenoliths that may have originated in part of the Early - Middle Cambrian Lushs Bight Group (Kean and Evans, 1994a,b)

COTTRELLS COVE GROUP?

O:C? — Unseparated volcanosedimentary rock units, including the tholeiitic pillowed basalts, grey and red chert, and graded volcaniclastic turbidites that outcrop on the southeast coast of eastern Exploits Island and easterly adjacent archipelago (cf. Dec and Swinden, 1994)

Middle Ordovician

COTTRELLS COVE GROUP

Moores Cove Formation

mO:CMs — An exclusively sedimentary rock unit, whose stratigraphically lower part contains laterally continuous, fine-grained sandstone turbidites interstratified with thinly bedded, red and green siltstones and red laminated mudstone. In the intermediate part of the unit, distinctive reddish-brown weathered, greenish-grey, medium- to thick-bedded, graded, feldspathic, trace fossil-bearing wacke is interbedded with less common grey siliceous argillite; in the upper part of the unit, poorly sorted pebbly wacke and grey polymict conglomerate display intraformational rafts of interbedded wacke and mudstone, epiclastic boulders of calc-alkaline basalt and chert, and well-rounded outsized clasts of jasper, granite, calc-arenite and fossiliferous limestone (Dec et al., 1997). Generally, turbidites are thinner bedded, finer grained, more siliceous and dominantly red or green in the oldest part of the Moores Cove Formation and thicker bedded, coarser grained, more polymictic and dominantly green or grey in the youngest part of the formation

mO:CMv — A dominantly volcanic rock unit made up of pillowed and massive tholeiitic basalt; discontinuous interbeds of conodont-bearing limestone (located within the uppermost mafic flows); greyish-red, radiolarian-bearing ribbon chert and red laminated argillite; thin-bedded, grey-green, silicified volcaniclastic wacke that is intercalated with and overlies the pillowed basalt and red laminated argillite sequence (Dec et al., 1997)

Early to Middle Ordovician

Fortune Harbour Formation

O:CFg — Gabbro laccoliths, diorite sills; diabase dykes

O:CFs — Interbedded light-grey, red and maroon chert; dark-grey, laminated, manganiferous mudstone; red and turquiose interbeds of ferruginous siltstone; banded siliceous argillite; relatively thin intervals of well-bedded felsic tuff; minor diorite sills. In the Fortune Harbour area, medium-bedded, graded, feldspathic and lithic wacke is intercalated with and overlies the chert, argillite and felsic tuff sequence. Toward the east, in thicker parts of the unit, wacke is interstratified with greyish-green volcaniclastic conglomerate and unsorted debrite enriched in volcanic and chert clasts

O:CFfv — In the Fortune Harbour area and farther east, laterally continuous horizons of buff crystal-lithic tuff, felsic ash tuff and pumice-rich tuffaceous wacke; in the west near Fleury Bight, volcanic breccia having mixed mafic and felsic blocks, rhyolitic agglomerate and rare ignimbrite; abundant mafic dykes

O:CFmv — Well stratified, dark-green, pillowed basalt and andesite with minor intervals of greyish -red radiolarian chert; subordinate massive basalt; locally cupriferous pillow breccia

Sansom greywacke

OS:BSc — On northeast Long Island and southeast Hornet Island, clast-supported polymict conglomerate illustrating well-rounded granite, volcanic and limestone boulders; also outsized detrital fragments of laminated chert and bedded wacke; minor, hornfelsed, pebbly wacke interstratified with cobble conglomerate

OS:BSa — On northwestern Hummock Island, a thinly bedded, locally slump-folded subunit of light-grey siltstone and dark-grey argillite (underlying a massive granular wacke succession and rare exotic blocks of nodular argillite and limestone); on Hornet Island, minor slump sheets consisting of interbedded dark-grey argillite and siltstone with minor intervals of quicksand, amalgamated sandstone and pebble dykes (overlying a thick-bedded sandstone turbidite succession)

OS:BS — Mainly light-grey, massive granular wacke (some sets have a pebbly base); subordinate, thick- to medium-bedded, well-graded sandstone turbidite; rare interbeds of dark-grey siltstone and conglomeratic wacke

Note: The Late Ordovician to earliest Silurian (?) Sansom Formation is formally defined, occurring on South Samson Island, and possibly extending along strike within the map area to Hornet and Hummock Islands.

Randels Cove conglomerate

lO:BR — *Late Ordovician.* Light-grey, cross-stratified, clast-supported boulder conglomerate and interbedded sandy wacke; matrix-supported cobble conglomerate; debrite horizons with large rafts of siliciclastic sedimentary strata and re-sedimented carbonate nodules, giant blocks of coralline limestone and rip-up clasts of concretionary sandstone turbidites; polymict conglomerate displaying felsic and mafic volcanic rock clasts, tonalitic, gabbroic and ultramafic plutonic rock clasts, bioclastic carbonate and limestone conglomerate clasts, and interlayered ribbon chert and siliceous mudstone clasts (Dec et al., 1993)

Point Leamington Formation

lO:BPs — *Late Ordovician.* Thinly stratified, graptolite-bearing argillaceous turbidite; dominantly dark-grey, graded siltstone interbedded with dark-grey to black carbonaceous shale and subordinate light-grey, thin-bedded, quartz-rich sandstone; multiple olistostrome horizons with slump-folded siltstone, shale, chert and limestone blocks set in a black shale matrix

lO:BOpc — *Late Ordovician.* Goldson-type, grey, polymictic conglomerate containing distinctive clasts of reefal limestone and well-rounded boulders and cobbles of basalt, chert, gabbro and jasper; associated with massive to poorly stratified pebbly wacke; interbedded with graded, feldspathic, granular wacke

Note: In one locality on West Arm Brook, the base of the Point Leamington Formation is represented by a thick polymictic conglomerate lenticle (Unit lO:BOpc) that lies with erosional disconformity above fossiliferous black pyritic shale of the upper Lawrence Harbour Formation. In other places, conglomerate assigned to this unit generally forms tongues in Unit lO:BPg wacke below the overlying argillaceous turbidite unit. However, at Whitehorn Cove, thin discontinuous lenticules of Unit lO:BOpc conglomerate underlie Unit lO:BPg but overlie Unit lO:BPs of the Point Leamington Formation

lO:BPg — *Late Ordovician.* Light-grey, thin-bedded sandstone turbidite displaying secondary, soft sediment-deformed carbonate nodules; subordinate, medium-bedded, graded, quartz- and feldspar-rich wacke; minor, grey-laminated siltstone gradational to, or interbedded with, dark-grey shale; rare, thick-bedded to massive, granular sandstone and lithic wacke

Note: North of Lawrence Harbour, laterally continuous beds of sandstone and medium-bedded sandy wacke dominate the lowest part of Unit lO:BPg of the Point Leamington Formation. There, this unit is devoid of mappable conglomerate lenticles. It is succeeded by a much thicker stratigraphic interval of thin-bedded, light-grey sandstone-dark-grey siltstone rhythmites as well as a thin discontinuous lenticule of Unit OS:BPs shaley flysch. In contrast, northwest of Babies Cove in Osmonton Arm, similar fine-grained rhythmites overlie the lowest and thickest conglomerate lenticle in Unit lO:BOpc and contain slump sheets of partially disaggregated, soft-sediment folds as well as indurated rip-up blocks of fossiliferous black argillite, grey bioturbated chert and massive limestone.

Gull Island Formation

lO: BG — *Late Ordovician.* On Thomas Rowsell, Burnt, Cull and Tinker islands, dominantly light-grey, massive granular wacke and graded pebbly to feldspathic wacke; subordinate, thick-bedded, concretionary, sandstone turbidite; localized, Goldson-type, pebble to cobble, siliciclastic conglomerate (unseparated) yielding minor clasts of conodont-bearing limestone; rare laminated siltstone on northeastern Burnt Island

Late Ordovician

Lawrence Harbour Formation

lO:LH — *Late Ordovician.* Unseparated subunits of dark-grey shale interbedded with light-grey laminated argillite; black and dark-grey carbonaceous shale; black siliceous siltstone with pyritic black shale partings; light grey and buff radiolarian chert with bioturbated black shale laminae

Note: Dark-grey to- black, lutaceous sedimentary strata have yielded graptolites (Williams, 1995) in all subdivisions of the Lawrence Harbour Formation.

Luscombe Formation

lO:Ls — *Late and late Middle (?) Ordovician.* Graptolite-bearing, pyritic and pyrrhotitic, black carbonaceous shale; minor, black, parallel-laminated siliceous argillite; light-green, mottled, tuffaceous siltstone; greenish-grey, silicified, thin-bedded lithic wacke; rare, dark grey, manganiferous chert beds

Note: Only the black carbonaceous shale and siliceous argillite subunit of the upper Luscombe Formation has been recognized in the eastern part of the map area; however, manganiferous chert beds have been locally assigned to the underlying Strong Island chert of the upper Exploits Group.

Shoal Arm Formation

lO:As — *Late Ordovician.* Graptolite-bearing, black, pyritic, carbonaceous shale; minor, black argillaceous siltstone

lO:Ac — *Late and late Middle (?) Ordovician.* Light-grey, bioturbated, radiolarian chert; green, mottled, sandstone turbidite interbedded with black chert; red and turquoise, radiolarian chert interstratified with dark-grey, manganiferous, siltstone turbidite; minor siliceous tuff

Note: Black pyritic shale assigned to the upper subunit (lO:As) of the Shoal Arm Formation is exposed on Cull Island and islands offshore of Leading Tickles. The multicoloured chert and mottled manganiferous beds from the lower subunit (lO:Ac) of the Shoal Arm Formation are more widespread, outcropping near Leading Tickles East, Alcock Island, Lock's Harbour, Thimble Tickles Head and adjacent to the lower Wild Bight Group, east of Nanny Bag Lake.

IAPETUS OCEAN
Exploits Subzone of the Dunnage Zone

Middle Ordovician

Thwart Island gabbro

mO:TI — *Late Middle Ordovician.* Layered or massive, medium- to coarse-grained, hornblende-pyroxene gabbro laccoliths; quartz diorite sills and diabase dykes; hornblende-bearing pegmatite; Unit mO:TI intrusions are hosted by the Exploits Group and the Dunnage Melange

Gummy Brook gabbro

mO:G — *Early Middle Ordovician.* Coarse-grained glomeracrystic gabbro sills crosscut by diabase; on Kerry Lake, also medium-grained equigranular epidotized diorite; in the southwest of the map area, Unit mO:G gabbro intrudes the Sparrow Cove Formation of the Wild Bight Group

mO:Wd — *Early Middle Ordovician.* Medium-grained gabbro sills and small gabbroic laccoliths; associated diorite and diabase dykes (MacLachlan, 1999); Unit mO:Wd intrusions are hosted by the volcanic rocks of the Sparrow Cove Formation and the sedimentary rocks of the lower and middle members of the Pennys Brook Formation of the Wild Bight Group

Note: In the northwest map area, some gabbros assigned to Unit mO:Wd are co-magmatic with Wild Bight Group basalts in the middle member of the Pennys Brook Formation (MacLachlan and Dunning, 1998b).

mO:Wdu — *Early Middle Ordovician (?).* Layered ultramafic rocks located at the base of a gabbro sill (MacLachlan, 1999); restricted to one locality in the northwest map area, the intrusion is hosted by the middle member of the Pennys Brook Formation of the Wild Bight Group

Early to Middle Ordovician

BOONES POINT COMPLEX

O:BP — Dark-grey, pyritic, pebbly mudstone; outsized blocks of silicified sandy wacke, polymict conglomerate, pillowed basalt, limestone breccia, ribboned chert, mottled siliceous argillite, and black laminated siltstone set in the scaly-foliated or laminated argillaceous matrix of the melange; the internally stratified or massive sedimentary blocks are mainly derived from the early Middle Ordovician Moores Cove Formation of the Cottrells Cove Group, but also include exotic olistoliths probably derived from other units of the Notre Dame and Exploits subzones

O:BPc — Buff, massive, late Middle Ordovician limestone on Woody Island (Stouge, 1980); partially broken formation of calcareous wacke and interbedded bioclastic limestone; marble and calcareous mylonite

O:BPv — Light-green, unstratified, basaltic breccia on Green Island; partially broken formation of interbedded mafic tuff, pillow breccia and rare pillowed basalt; epidotized metabasite and mafic mylonite

DUNNAGE MELANGE

O:DM — Dark-grey, pyritic, pebbly mudstone; unbroken sedimentary formations consisting of thin-bedded, light-grey siltstone turbidite interstratified with distinctive coticule-bearing argillite, calcsilicate-rich nodular sandstone and well-graded pebbly wacke; outsized blocks of mainly massive or graded sandstone, cobble conglomerate, pillowed basalt, limestone and granite set in a variably deformed chaotic matrix of dark-grey argillite; blocks and matrix intruded by Thwart Island and Porterville gabbro and Loon Bay felsic porphyry; exotic olistoliths of sheared metasedimentary schist are located west of Barrow Cove in Little Burnt Bay and on Sivier Island at Eastern Harbour; northeast of the map area, the melange matrix encloses shelly bioclasts as old as the Cambrian, contains graptolitic black mudstone partings as old as the Early Ordovician, and displays mud-magma mixing relationships with intrusions as young as the Middle Ordovician

Latest Cambrian to Middle Ordovician

EXPLOITS GROUP

Hummock Island limestone

mO:EH — *Middle Ordovician.* Light-grey massive limestone; bedded, conodont-bearing bioclastic limestone; rare marble and calcareous mylonite

Strong Island chert

mO:ES — *Middle Ordovician.* Ribboned radiolarian chert with rare graptolitic mudstone partings; cream laminated, mottled or orbicular chert; light-green, medium-bedded, graded, crystal-lithic wacke interstratified with light-grey, thin-bedded concretionary siltstone, cryptocrystalline argillite and rare nodular limestone; minor, rhythmically bedded intervals of red banded argillite and green siliceous sandstone; minor pillow breccia interbedded with ferruginous turquoise chert, variegated tuffaceous sandstone, chert-rich conglomerate and basalt-rich debrite; rare, very thinly bedded, pumiceous tuff (Dec et al., 1992)

Lawrence Head Formation

mO:EL — *Middle Ordovician.* Basaltic pillow lava with red, green and grey interstitial chert; subordinate, dark-grey pillow breccia and light-green mafic tuff; minor intervals of dark-green and turquoise chert and greyish-green volcaniclastic sandstone; columnar-jointed diorite sills and rare diabase dykes

New Bay Formation

O:ENS — *Late Early Ordovician to Middle Ordovician. Saltwater Pond Member:* Light-grey, nodular, siliceous argillite interbedded with siltstone turbidite; thin-bedded, slump-folded sandstone; grey and red olistostrome containing resedimented cobble conglomerate blocks and detached soft-sediment folds of volcaniclastic wacke set in a chaotically deformed sandstone or mudstone matrix; graded conglomeratic turbidite and pebbly wacke containing distinctive clasts of tonalite, limestone and basalt; minor, red and green chert rhythmically interstratified with banded siliceous argillite; rare, graptolite-bearing mudstone

O:ENB — *Early to Middle Ordovician. Brook Harbour Member:* Dominantly dark-grey, very thinly - bedded siltstone turbidite interstratified with black pyritic slate; thinly laminated shale locally containing fragmentary graptolites; subordinate light-grey, thin-bedded sandstone grading to dark-grey siltstone

O:ENC — *Early to Middle Ordovician. Charles Brook Member:* Dominantly light-grey, graded, medium-bedded sandstone turbidite interstratified with greyish-green laminated argillite; minor, light-grey, massive pebbly wacke containing common rip-up clasts of slump-folded argillite and displaying rare polymictic conglomerate lags; light-green andesite-rich lapilli stone; tuffaceous wacke with abundant sandstone dykes

Saunders Cove Formation

eO:EU — *Early to Middle Ordovician.* Thin-bedded red chert intercalated with rare basalt flows; red chert interbedded with red and green, well-banded, siliceous argillite; minor interval of dark-grey shale and light-grey carbonaceous argillite; red and green siltstone turbidite and buff, thin-bedded, parallel-laminated sandstone; light-grey, graded, pebbly and sandy wacke having rare polymictic conglomerate lags

Tea Arm Formation

eO:ETV — *Early to Middle Ordovician. Pleasantview Member:* Dominantly dark-grey, pillowed basalt and pillow breccia; minor crinoid-bearing limestone and rare red chert intercalated with pillowed basalt; local zones of chlorite schist intruded by banded veins of variegated chert and dykelets of vesicular diabase; minor, green pillow lava grading to red basalt breccia and grey volcaniclastic wacke

eO:ETP — *Early Ordovician. Pushthrough Member:* Dominantly felsic lithic tuff and rhyolitic breccia; mixed pumiceous and andesitic lapilli tuff (locally containing altered ejecta); layered quartz-feldspar crystal tuff intruded by diabase that was disrupted during pyroclastic flow; buff felsic agglomerate carrying outsized blocks of, or capped by, a hematite-rich chert

eO:ETL — *Early Ordovician. Little Arm East Member:* Dark-grey, poorly stratified, porphyritic basalt flows hosting swarms of multiple diabase dykes as well as younger sills of layered gabbro; minor, highly vesicular, pillowed basalt and laminated vitrophyric lava; rare hyaloclastite

WILD BIGHT GROUP

Pennys Brook Formation

mO:WPU — *Middle Ordovician to early Late Ordovician. Upper member:* Dominantly red, green and grey, interbedded chert and banded siliceous argillite; subordinate, light-green and light-grey, thin-bedded, silicified, mottled siltstone turbidite; minor, light-grey and buff, thin- to medium-bedded, slump-folded, fine-grained sandstone turbidite; minor, light-green, thick-bedded, medium- to fine-grained, size-graded tuffaceous sandstone interstratified with laminated turquoise chert; rare, light grey, limestone breccia and bioclastic limestone; rare, black graptolitic shale. Altered turbidites in Unit mO:WPU locally contain deformed ferroan carbonate and hematized pyrite pseudoporphyroblasts

Note: Unit mO:WPU is a partial lithologic and temporal equivalent of the Strong Island chert (Unit mO:ES) of the Exploits Group. Certain rocks in the upper member may also be correlative with strata assigned to the lower division (Unit lO:Ac) of the Shoal Arm Formation.

O:WPM — *Late Early Ordovician to Middle Ordovician. Middle member:* Dominantly dark-green, massive to thickly stratified, medium-grained tuffaceous wacke with predominant vesicular basalt and less common felsic volcanic clasts; subordinate, pebbly to granular wacke rich in basalt and chert clasts; medium-bedded epiclastic sandstone illustrating siliceous nodules or zoned carbonate concretions; minor, thin- and thick-bedded, greyish green sandstone turbidite displaying rip-up clasts of slump-folded banded argillite and grading to parallel laminated sandstone; minor, clast-supported conglomeratic turbidite and subangular pebble breccia interbedded with grey siliceous argillite

O:WPvb — *Late Early Ordovician to Middle Ordovician.* Dominantly light-green, dark-green and locally red, coarse-grained volcanic breccia mainly composed of vesicular basalt fragments; subordinate, pillow lava and interstitial chert interstratified with thick-bedded pillow breccia grading to massive basalt breccia; vesicular diabase dykes; sharp-based sand-matrix olistostrome displaying angular rafts of porphyroblast-bearing siliceous argillite as well as rounded olistoliths of indurated nodular chert and partially lithified siltstone; unstratified, chaotically slumped debrite containing epiclastic turbidite blocks and volcanic clasts of basalt and andesite from the Pennys Brook Formation

Note: The mafic volcanic rocks of Unit O:Pvb comprise laterally discontinuous lenticles within the sedimentary rocks of Unit O:WPM, especially in areas where the middle member of the Pennys Book Formation directly succeeds the Omega Point Formation. The volcanosedimentary debrite division in Unit O:WPvb is located at the bottom or top of many of the thicker lenticles

O:WPL — *Late Early Ordovician to Middle Ordovician. Lower member:* Dominantly light-green to buff, thick-bedded, coarse- to medium-grained, mafic-dominated, volcaniclastic sandstone turbidite; massive to thick-bedded pebbly wacke (locally with basal conglomerate lags); subordinate, polymictic, boulder to cobble conglomerate containing rounded clasts of jasper, limestone, basalt and granite; minor, medium-bedded lithic tuff with mafic and felsic lapilli; minor, thin-bedded, size-graded, quartz-feldspar crystal tuff grading from breccia composed of pillow lava, felsic porphyry and chert blocks; rare, light-green, thin-bedded, amorphous chert and light-grey, laminated, siliceous argillite

Sparrow Cove Formation

O:WS — *Early Ordovician.* Dominantly dark-grey, plagioclase-porphyritic pillow lava and variegated interstitial chert; subordinate, light green, thin-bedded graded sandstone and light-grey, parallel-laminated argillite (interstratified with vesicular basalt and andesite flows); minor mafic tuff and gabbro; rare basalt displaying bedded rip-up clasts, up to several metres in diameter, of tuffaceous wacke

Omega Point Formation

eO:WOs — *Early Ordovician.* In the Lock's Harbour area, red laminated chert and red siliceous argillite; red and green, cross-laminated siltstone turbidite; minor, thin-bedded, laterally continuous, pinkish-red sandstone and light green tuffaceous wacke; rare, thin-bedded to laminated, pumiceous tuff. In the Long Pond area, red laminated chert interbedded with red siliceous argillite and maroon siltstone; minor, red conglomeratic wacke and grey-green granular wacke; rare, massive to thick-bedded conglomerate with sub-rounded cobbles and boulders of hematized rhyolite breccia and quartz-feldspar porphyry

eO:WOa — *Early Ordovician.* In the Little Lewis Lake area, dark-grey, thin-bedded shale and light-grey laminated siltstone; light-grey, well-banded, siliceous argillite; dark-grey carbonaceous slate; minor debrite displaying altered volcanic blocks set in a chaotically bedded shale and siltstone matrix

eO:WOv — *Early Ordovician.* In Long Pond area, dark-green pillowed basalt with interstitial red chert interstratified with red siliceous argillite and maroon siltstone

Glovers Harbour Formation

CO:WGmg — *Latest Cambrian to Early Ordovician.* Coarse grained sill of alkalic gabbro intruding Unit CO:WGmv in the type area of the Glovers Harbour Formation (MacLachlan, 1999)

CO:WGf — *Latest Cambrian to Early Ordovician.* Dominantly felsic volcanic rocks of the Glovers Harbour area: quartz and plagioclase-phyric felsic volcanic flows; minor, quartz-feldspar crystal tuff, and felsic lapilli tuff; rare, volcaniclastic sedimentary rocks (MacLachlan, 1999; MacLachlan et al., 2001)

CO:WGmv — *Latest Cambrian to Early Ordovician.* Dominantly mafic volcanic rocks of the Glovers Harbour area: green to red, pillow lavas, pillow breccias and other mafic volcanic flows; abundant mafic dykes and sills; minor, red and green chert and subordinate siliceous argillite (MacLachlan, 1999)

CO:WGfp — *Latest Cambrian to Early Ordovician.* Dominantly felsic intrusive and volcanic rocks of the Long Pond area: hematite-rich, quartz-feldspar porphyry (locally injected by red chert veinlets); light-grey rhyolite breccia and pyritic felsic tuff; rare, purplish-red rhyolite dykes

CO:WGmvp — *Latest Cambrian to Early Ordovician.* Dominantly mafic volcanic rocks of the Long Pond area: dark-green pillow breccia and light-green basalt flows; minor mixed mafic-felsic volcanic breccia

CO:WGmvl — *Latest Cambrian to Early Ordovician.* Dominantly mafic volcanic rocks of the Little Lewis Lake area: red basalt breccia containing disseminated jasper; green vesicular basalt with pyritic quartz stringers; minor slump-folded grey argillite (partially enclosing mafic volcanic blocks)

CO:WGfk — *Latest Cambrian to Early Ordovician.* Dominantly felsic volcanic rocks of the Kerry Lake-Nanny Bag Lake area: light-grey, well-banded, flow-folded rhyolite intruded by diabase dykes; minor basalt flows

CO:WGmvk — *Latest Cambrian to Early Ordovician.* Dominantly mafic volcanic rocks of the Kerry Lake-Nanny Bag Lake area: dark-green, chloritic, pillowed basalt; light-green, epidote-rich, pyritic, net-veined basalt; minor variegated, red and green, vesicular pillow lava

Latest Cambrian to Early Ordovician

SOUTH LAKE IGNEOUS COMPLEX

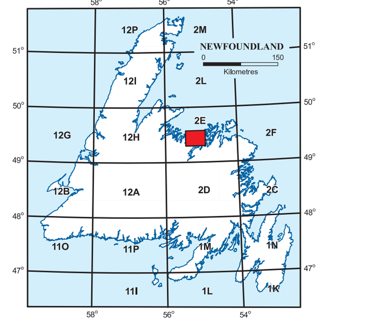
CO:SLt — *Early Ordovician.* Course-grained, isotropic, blue-quartz tonalite containing accidental xenoliths of highly sheared metasedimentary and metaplutonic rocks; inhomogeneously foliated tonalite illustrating variably deformed, back-veined mafic dykes and cognate xenoliths; minor, fine-grained, quartz-biotite granodiorite forming narrow intrusive sheets in older parts of the igneous complex (MacLachlan, 1999)

CO:SLdq — *Early Ordovician.* Medium-grained, equigranular, quartz-hornblende diorite; in the northern part of the complex, such intrusions crosscut Unit CO:SLgl and contain large enclaves in which fresh mafic dykes intrude banded metabasites; host to sericitic and pyritic alteration zones (MacLachlan, 1999)

CO:SLdh — *Latest Cambrian (?) to Early Ordovician.* Coarse-grained, isotropic, hornblende porphyritic diorite containing melanocratic schlieren or diffuse pods of very coarse euhedral crystals; fine-grained, equigranular, leucocratic diorite illustrating ophitic hornblende; minor, layered diorite displaying cumulate plagioclase; composite mafic -felsic dykes preferentially hosted by schistose hornblende diorite (MacLachlan, 1999)

CO:SLgm — *Latest Cambrian to Early Ordovician.* Massive, course grained, equigranular, two-pyroxene gabbro; minor gabbro pegmatite (MacLachlan, 1999)

CO:SLgl — *Latest Cambrian to Early Ordovician.* Primary cumulate layered gabbro passing gradationally into tectonically banded flaser gabbro; isoclinally folded leucogabbro veins in flaser metagabbro; hornblendite pods and veinlets in metagabbro; inhomogeneously sheared swarm of sheeted mafic dykes (crosscutting cumulate and flaser gabbro); later intermediate dykes (MacLachlan, 1999)



INDEX MAP

REFERENCES