

CENOZOIC

QUATERNARY
PLEISTOCENE AND RECENT

Q

Undifferentiated Quaternary sediments.

DEVONIAN
MIDDLE AND UPPER DEVONIAN

DHB

HECLA BAY FORMATION (Little Cornwallis Island): poorly indurated, poorly exposed, fine-grained quartz arenite, locally micaceous. Thickness unknown.
HECLA BAY FORMATION (Rookery Creek): poorly indurated, poorly exposed, fine-grained quartz arenite, locally micaceous. Sparse fossiliferous intervals are trilobite-crinoid grainstone with whole atrypid brachiopods, and quartz arenite with plant remains.

MIDDLE DEVONIAN

DBI

BIRD FIORD FORMATION (Little Cornwallis Island): dolomitic skeletal floatstone containing ramose bryozoa, domical stromatoporoids, and whole brachiopods, overlain by fine-grained sparsely micaceous calcareous sandstone containing brachiopods and Zoophycos burrows. Thickness unknown.
BIRD FIORD FORMATION (Rookery Creek): basal, flaggy- to platy-weathering buff- to brown-weathering dolostone (~50 m) overlain by resistant, pale grey-weathering massive fenestral lime mudstone with rare ramose bryozoa - stromatoporoid oncoid rudstone interlayers (~30–40 m).

DBL

BLUE FIORD FORMATION (Little Cornwallis Island): in part, blue-grey-weathering skeletal wackestone containing trilobites, brachiopods, gastropods. Thickness unknown.

DDB

DISAPPOINTMENT BAY FORMATION (Little Cornwallis Island): basal lag of angular pebbles (predominantly chert; thickness variable) overlain by fine-grained sandstone (4 m), followed by vuggy, commonly bitumenous, locally banded to laminated, fine to medium crystalline dolostone in lower half (~30 m), and with rare leached bivalves, millimetric intraclasts, vermiform voids, fenestral fabric, and hardgrounds in upper half. Estimated thickness 50 m.

LOWER DEVONIAN

Dcgl

Devonian conglomerate (Little Cornwallis Island): poorly exposed and poorly lithified conglomerate of framework-supported, subrounded pebble- to cobble-sized clasts, predominantly dolostone, in dolomitic matrix. Thickness extremely variable.
Devonian conglomerate (Rookery Creek): poorly exposed and poorly lithified conglomerate of framework-supported, subrounded pebble-sized dolostone and chert clasts, in dolomitic matrix. Locally contains ramose bryozoa.

SILURIAN AND DEVONIAN

SDB

BARLOW INLET FORMATION: thin- to medium-bedded brown siltstone to fine sandstone with ripple crosslamination, brachiopods and corals (18 m), grading into massive, white crinoid grainstone with abundant corals, stromatoporoids, and brachiopods. 0–40 m.

PALEOZOIC

ORDOVICIAN AND SILURIAN
UPPER ORDOVICIAN TO UPPER SILURIAN

OSCP-E

CAPE PHILLIPS FORMATION: E member: thin-bedded, light to medium grey lime mudstone with skeletal wackestone to packstone interbeds containing abundant brachiopod, crinoid, and trilobite fragments. 115 m.

OSCP-D

D member: thin- to medium-bedded, light to medium grey siltstone with graptolites, whole brachiopods and nautiloids, and fish fragments. 160 m.

OSCP-CcyOSCP-Ct

C member: thin-bedded medium to dark grey dolomitic siltstone and mudstone with abundant graptolites. Lithologically monotonous but spans 10 graptolite zones with a total thickness of 195 m. Two biostratigraphic assemblages are recognized: OSCP-Ccy: Cyrtograptid assemblage (sakmaricus to testis zones) which corresponds to the Wenlock (125 m). OSCP-Ct: Bohemograptid assemblage (dubius to tenuis zones), which corresponds to the Ludlow (70 m).

OSCP-B

B member: medium- to thick-bedded black, cherty or dolomitic siltstone and mudstone with abundant 5– 50 cm diameter carbonate concretions. 60 m.

OSCP-A

A member: thin-bedded, grey to black, argillaceous, bitumenous lime/dolomudstone. 115 m.

OSCP-R

Ridge member: orange-brown weathering, resistant, massive skeletal dolo/lime wackestone with macrofossils of Arctic Ordovician Fauna. ~10 m.

ORDOVICIAN
UPPER ORDOVICIAN

Oci

IRENE BAY FORMATION: green mudstone with variable proportions of skeletal wackestone nodules. 50–60 m.

MIDDLE AND UPPER ORDOVICIAN

OCTu

THUMB MOUNTAIN FORMATION: Upper Thumb Mountain: basal, thick-bedded lime/dolowackestone with white-weathering, grey silicified burrows and macrofossils (~5 –10 m), overlain by medium-bedded, burrowed lime/dolowackestone (~50 m) and massive skeletal dolo/lime wackestone with macrofossils of Arctic Ordovician Fauna (~25 m). 80 m.

OCTl

Lower Thumb Mountain: lower unit of massive dolostone with brown chert nodules and silicified macrofossils (~50 m) overlain by thick-bedded grey dolostone/limestone with sparse ostracodes (~180 m), and variably fossiliferous lime/dolowackestone containing Tetradium, gastropods, red algae, trilobites, and ostracodes (~20–30 m). 260 m.

MIDDLE ORDOVICIAN

OCBu

BAY FIORD FORMATION: Upper Bay Fiord: recessive, interbedded green terrigenous mudstone and nodular, grey dolostone/limestone. Carbonates typically skeletal wackestone with trilobite and brachiopod fragments. Mudstone dominant near top. 30 m.

OCBl

Lower Bay Fiord: lower gypsum/anhydrite overlain by grey-brown, burrowed, laminated, mottled or featureless dolostone/limestone interbedded with green-grey mudstone. 110 m.

Lithological contact (approximate, assumed)

Limit of mapping

Normal fault (approximate, assumed); solid circles indicate downthrown side

Thrust fault (approximate, assumed); teeth indicate hanging wall

Fault (approximate)

Strike/Slip Fault Sinistral (approximate, assumed)

Strike/Slip Fault Dextral (approximate, assumed)

Anticline

Syncline

Bedding

Outcrop observation point

Mine

Zn-Pb showing