LEGEND

NOTE: Specific age ranges for Carboniferous lithostratigraphic units are not precisely defined.

Undivided PERMO-CARBONIFEROUS (PCr): Redbeds: red sandstone, siltstone and shale (present in the offshore only).

MORIEN GROUP

SYDNEY MINES FORMATION (LCSM): grey mudstone, shale, siltstone and sandstone with minor red mudstone, siltstone, diagenetic carbonate, algal limestone and major economic coal seams.

WADDENS COVE FORMATION (LCWC): red and grey siltstone, mudstone, sandstone, calcrete, (silcrete) and minor coal.

SOUTH BAR FORMATION (LCSB): grey sandstone, pebbly sandstone with minor conglomerate and mudstone and rare coal.

Regional unconformity

CANSO GROUP (CC: undivided)

POINT EDWARD FORMATION (CPE): red and minor grey-green variably calcareous siltstone and sandstone; minor limestone.

CAPE DAURPHIN FORMATION (CCD): grey shale and siltstone with red shale and minor limestone, rare gypsum and anhydrite.

WINDSOR GROUP (↑CW↓ undivided Windsor Group

WOODBINE ROAD FORMATION (↑CWR↓): red siltstone, sandstone and conglomerate with intercalated marine limestone and dolostone and minor gypsum and anhydrite.

MACDOMALDS BROOK FORMATION (CMB): grey limestone.

UIST FORMATION (CU): similar to the marginal carbonate facies of the Woodbine Road Formation, name from the Loch Lomond Basin and applied only in the map area south of Mira Bay.

Disconformity

MEADOWS ROAD FORMATION (↑CMR↓): red siltstone, sandstone and conglomerate with gypsum and anhydrite and thin intercalated marine carbonate beds; rhythmic attenuation of these rock units is typical.

Disconformity

ARMITAGE FORMATION (↑CAR↓): halite, grey and white with thin interbeds of anhydrite and grey gypsum; minor potassium salts (sylvite, carnallite, kainite, langbeinite).

SYDNEY RIVER FORMATION (↑CSR↓): anhydrite and gypsum, red conglomerate and sandstone, grey siltstone and shale with minor halite, limestone and dolomitic limestone (Forsyth Member) and potash.

GAYE RIVER FORMATION (↑CGR↓): limestone, minor dolostone, thinly bedded, argillaceous, in part pelletal, locally thickly bedded and highly fossiliferous in mound-shaped deposits resting upon pre-Carboniferous rocks.

MacBETH BROOK FORMATION (↑CMB↓): limestone in part dolomitic, laminated and/or thinly bedded, argillaceous, in part pelletal, locally fossiliferous.

MACCUMBER FORMATION (↑CM↓): limestone in part dolomitic, laminated, pelletal sparsely fossiliferous. Known only at the southwestern end of Boisdale Hills but inferred to be present in some of the deeper parts of the Sydney Basin including St. Andrews Channel.

HORTON GROUP

GRANTMIRE FORMATION (↑CG↓): red conglomerate, sandstone and shale with minor pedogenic limestone.

Regional angular unconformity–nonconformity.

Undivided HADRYNIAN TO DEVONIAN ROCKS (H-D) volcanic rocks, granitoid rocks, shale, slate, sandstone, conglomerate variably deformed and metamorphosed; may include, in the subsurface, rocks equivalent to the Pomquet, George River, Bourinot and Kelvin Glen Groups. These rocks were not mapped other than in the vicinity of the limits of the Carboniferous Sydney Basin rocks.

SYMBOLS

Rock outcrop (limestone, dolostone; commonly fossiliferous; gypsum, anhydrite; sandstone, conglomerate and volcanic rocks; granitoid rocks)

Bedding (horizontal, inclined, vertical, overturned, tops unknown)

Geological boundary (approximate, assumed)

Unconformity (defined, approximate, assumed)

Fault (approximate, assumed, extrapolated beneath cover rocks)

Thrust fault, barbs point down-dip, (offset is typically less than 10km)

Coal seam, defined, approximate, assumed

Anticline, synocline (defined, approximate, assumed)

Spore sample locality

Diamond - drill hole (unlabelled, labelled)

Mine or quarry (operating, abandoned; coal unless otherwise indicated, see below)

Mineral occurrence or prospect in specified rock type (Pb-lead, Zn-zinc, Cu-Copper, Ba-barite, Ce-celestite, Na-halite, K-sylvite and/or carnallite, Li-limestone, dol-dolomite)

Contour Interval 50 feet

Topographic symbols after National Topographic Series Map 11K/SE compiled and published by Surveys and Mapping Branch, Canada Department of Energy, Mines and Resources.
Transverse Mercator projection.
Preliminary drafting by Nova Scotia Department of Mines and Energy.
Cartography and base-map preparation by:
Surveys and Mapping Management Service from National Topographic Series 1:50,000 maps published by Surveys and Mapping Branch, Canada Department of Energy, Mines and Resources.

Structural contours and structure of the Harbour Seam in subsea areas after Forgeron, (1979).
Geology of pre-Carboniferous basement areas was not mapped.
Geology of Carboniferous basin areas compiled from Geology of Cape Breton Island Sheet 40 compiled from Kelley, I.1968, Geological Survey of Canada, Map 1211A) Geology in the Caledonia Lake area in part compiled from Weeks and Cameron, (1950), Geological Survey of Canada, Map 1088A)

JOINT PROJECT NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY AND CANADA DEPARTMENT OF ENERGY, MINES AND RESOURCES CANADA-NOVA SCOTIA COOPERATIVE MINERAL PROGRAM 1981-84.

STRATIGRAPHIC SEQUENCE OF MORIEN GROUP COAL SEAMS

Murphy.....(M)
Point Acono.....(PA)
Lloyd Cove.....(LC)
Hub.....(Hu)
Harbour.....(Ha)
Boutdillier.....(Bo)
Backpit.....(Bp)
Phalan.....(Ph)
Emery.....(Em)
Gardiner.....(Ga)
Mullins.....(Mu)
Mullary.....(Mu3)
Coalbrook.....(Co)
Tracy.....(Tr)
Shoremake.....(Sh)
McAuley.....(Mc)

Type Section: Cape Dauphin Formation.

Reference Section: Woodbine Road Formation.

Reference Section: Gays River Formation.

Type Section: Point Edward Formation
Reference section: Cape Dauphin Formation and Woodbine Road Formation.

Type Section: South Bar Formation.

Type Section: Sydney Mines Formation.

Type Area: Glantmire Formation.

Type Section: Kempt Head Formation.

Type Section: MacBeth Brook Formation.

Reference Section: Meadows Road Formation.

Reference Section: Sydney River Formation.

Type Area: Sydney River Formation.

Type Section: Woodbine Road Formation.
Reference Section: Meadows Road Formation and Sydney River Formation.

Type Section: Waddens Cove Formation.

Area with very gently undulating folds and insufficient outcrop to define the structure. This area also coincides with the facies transition between the Waddens Cove and South Bar Formations.

Structural Contours and Structure of the Harbour Seam in the Subsea Areas after Forgeron (1979)

Fault trace at level of Harbour Seam

Location Map

Diagrammatic representation of major stratigraphic relationships. No scale or location is implied.

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

MAP 86-1

GEOLOGICAL MAP OF THE

SYDNEY BASIN

CAPE BRETON ISLAND

NOVA SCOTIA

R.C. BOEHNER and P.S. GILES

SCALE 1:50 000

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY
HONOURABLE JOEL R. MATHESON, Q.C. — MINISTER
JOHN J. LAVOIE, P.ENG., FEC — DEPUTY MINISTER

HALIFAX, NOVA SCOTIA

1986

Department of Mines and Energy

Energy, Mines and Resources Canada / Energie, Mines et Ressources Canada

Geological Survey of Canada / Commission géologique du Canada