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FLAT BAY - MAIN GUT

DETAILS

ES OWENS

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- LEGEND**
- PENNSYLVANIAN**
- BARACHOIS GROUP**
- 6 Green and grey sandy conglomerates with plant fossils; grey and buff conglomeratic, arkosic sandstone; grey, micaceous sandstone; green and red shales; coal seams: 6a - greyish purple, pebbly arkose (Brow Pond Lentil).
- MISSISSIPPIAN**
- CODROY GROUP**
- 5 Highlands Formation: Red, calcareous, arkosic sandstone and siltstone, with calcite and green reduction spots (bull's eyes) common; red conglomerate and muddy sandstones.
- 4 Woodville Formation: Bedded evaporites; red, green, purple and yellow shales, containing numerous halite pseudomorphs; yellow, grey and red siltstones; grey and purplish red fossiliferous limestone; grey algal limestone with evaporite beds. Limestone beds are intercalated with red calcareous sandstones and siltstones.
- 3 Ship Cove Formation: Dark grey to black, well laminated, oncolithic, pisolitic, and oolitic limestone interbedded with greyish green, muddy sandstone.
- ANGUILLE GROUP**
- 2 Spout Falls Formation (Fischells Conglomerate Member): Greenish grey, polyimictic conglomerate with muddy sandstone lenses.
- PRE CARBONIFEROUS**
- 1 Pre-Carboniferous crystalline basement rocks.

- SYMBOLS**
- Geological boundaries, defined, approximate, assumed
- Bedding, tops known; inclined, overturned
- Fault; approximate, assumed
- Syncline; approximate
- Anticline; approximate
- Fossil locality
- Gypsum or sinkhole
- Diamond drill hole
- Limit of mapping
- Strontium
- Halite

Geology by C.C.K. Fong (1973, 1974, 1975).

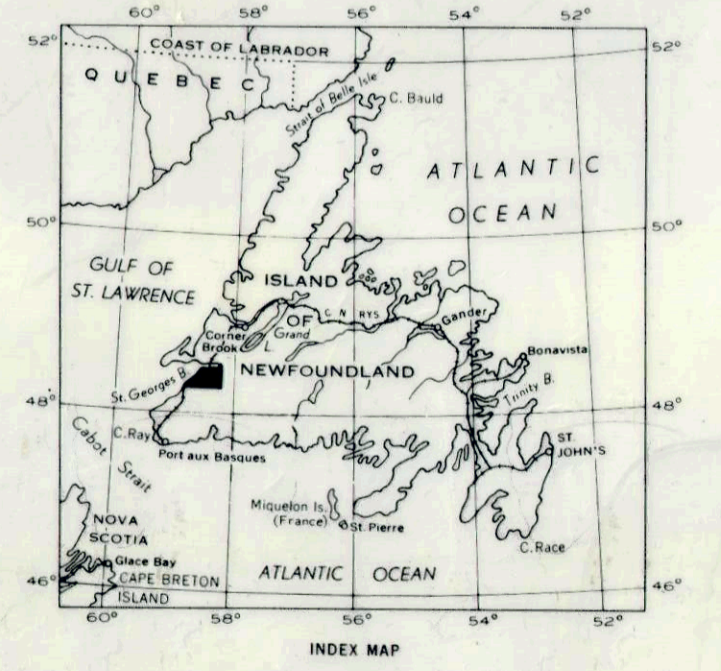
This map is available as Open File Release 774.

Geological cartography by Mineral Development Division, Department of Mines and Energy, Government of Newfoundland.

Copies of this map may be obtained from the Mineral Development Division, Department of Mines and Energy, St. John's, Newfoundland.

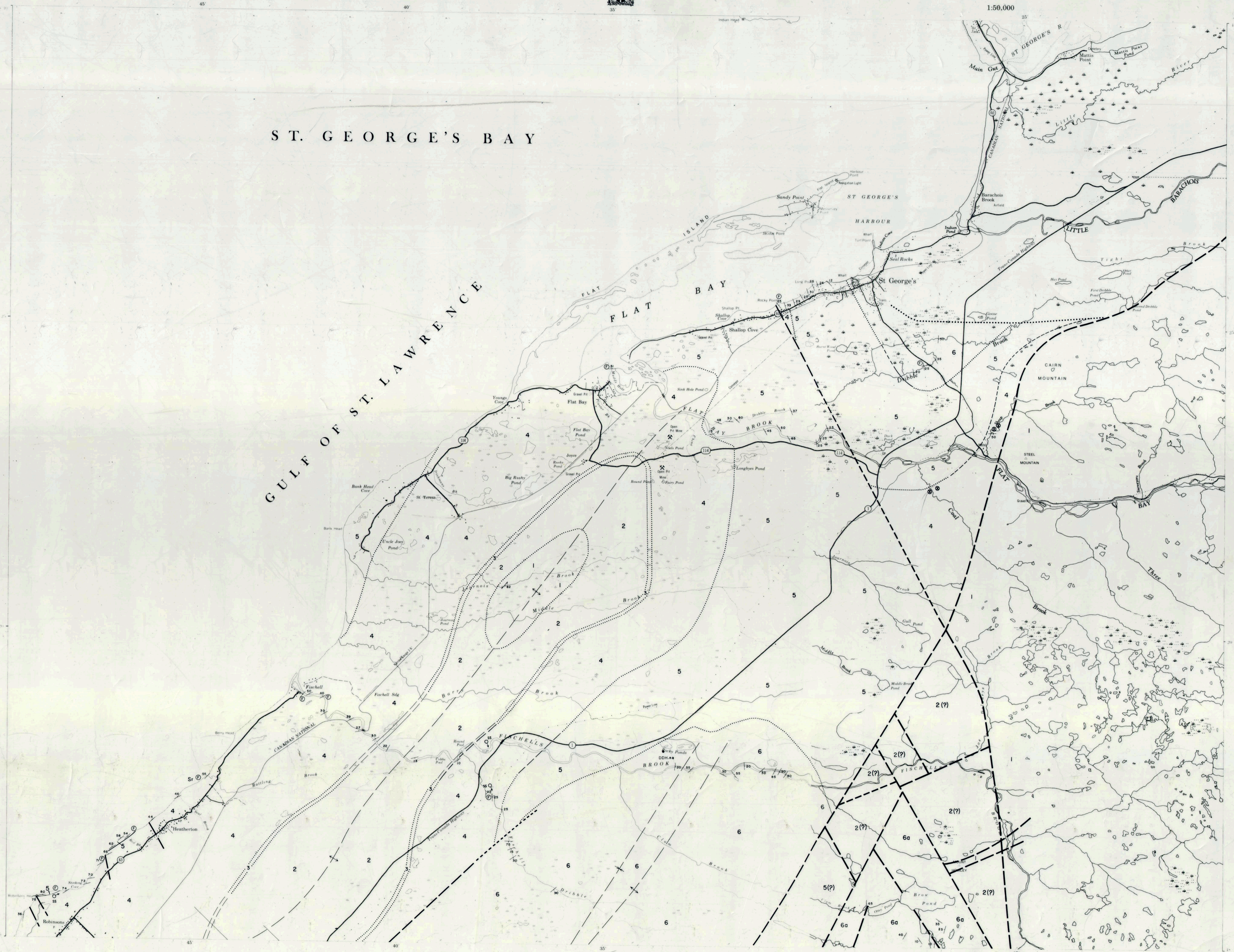
Base map at same scale published by the Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, 1972 and 1973.

Approximate magnetic declination, 1972, 26° 52' west, decreases 3.4' annually.

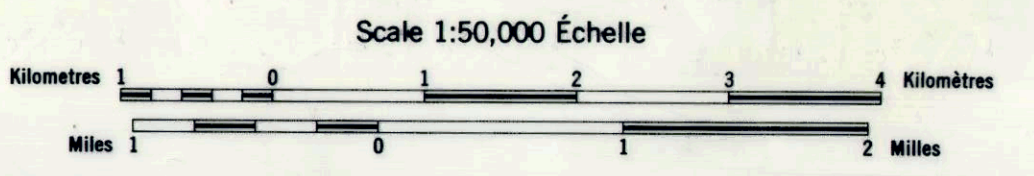


ST. GEORGE'S BAY

GULF OF ST. LAWRENCE



FLAT BAY - MAIN GUT



MARGINAL NOTES

FLAT BAY - MAIN GUT

The Carboniferous rocks which form the northern part of the northward narrowing St. George's Bay Carboniferous basin underlie the western half of the map area. The map area is dominated by the gently rolling, drift-covered St. George's Bay lowland that rises in elevation, in a southeasterly direction, from a low coastal cliff, 15 m in elevation, to an elevation of 274 m in the vicinity of Mount Howley; the area then rises abruptly into a rugged, dissected mountainous region of up to 450 m in elevation. Most of the lowland area reaches an elevation of less than 122 m. It is gently rolling and was shaped by the Wisconsin Glaciation which retreated to leave a thick cover of glacial drift over most of the lowlands. As a result, the area is covered with extensive bogs and stunted shrubby forests. A number of young, west-flowing streams meander across the area; Flat Bay and Fischells Brooks are the larger ones.

The Trans-Canada Highway crosses the lowlands and secondary branch roads lead to small communities along the southern shore of St. George's Bay. A number of logging roads also provide access to much of the map area.

Pre-Carboniferous rocks (Unit 1) outcrop in the rugged mountains of the eastern part of the map area; these rocks are predominantly anorthosite (Riley, 1962). Two small exposures of coarse grained basic gneiss and coarse grained orthic gneiss outcrop in Jounois Brook. The extent of the pre-Carboniferous crystalline basement rock in the Jounois Brook area was inferred from a gravitational survey by Verral (1955).

A sequence of greenish-grey coarse, sandy, polyimictic conglomerate of the Mississippian Anguille Group comprises the oldest Carboniferous unit (Unit 2). The conglomerate is well exposed in Fischells Brook and is also thought to outcrop near Mt. Howley, where the sediments are in fault contact with other basement rocks. Constituents of the conglomerate include cobbles of igneous and metamorphic rocks as well as carbonates of the Ordovician St. George's Group and Table Head Formation. Cross-bedded sandstone lenses also occur throughout the conglomerate. The top unit of the Anguille conglomerate is a clean, white, quartzitic sandstone indicating that a marine transgression predated the deposition of the Ship Cove Formation, which disconformably overlies Unit 2.

Codroy Group (Units 3-5) rocks are divisible into three formations.

The Ship Cove Formation (Unit 3) comprises a sequence of alternating black, laminated limestone and greenish-grey, muddy sandstone. Limestone beds are oolitic, pisolitic and oncolithic. The greenish-grey muddy sandstone is thin-bedded with common mudcracks and well developed load casts.

Rocks of the Woodville Formation (Unit 4) conformably overlie Unit 3. They comprise great thicknesses of evaporites, red and green siltstone beds and marine limestone beds. Three horizons of evaporites occur in the formation, two close to the base and one near the top. The two evaporite horizons near the top of the formation are composed of varicoloured, fine to coarse crystalline gypsum and anhydrite. These two horizons attain great thicknesses at the community of Flat Bay where they are being commercially mined. The horizon of gypsum occurring near the top of the formation is thinner in the map area.

Siltstone is the main lithology in the Woodville Formation. The two horizons of evaporites are overlain by red and brown siltstone with minor green and grey beds. The lower siltstone is commonly symmetrically rippled whereas that near the top of the sequence is cross-stratified. Numerous pseudomorphs of halite are present in the siltstone.

A number of marine limestone beds occur at the top of the Woodville Formation. These limestone beds are intercalated with well bedded, red, calcareous, arkosic sandstone beds considered to be similar to those of the overlying Highlands Formation and the uppermost, thin unit of gypsum. The limestone beds show a marked change from highly fossiliferous in the lowest beds of the sequence to fossiliferous with algal oncoides and then eventual stromatolite reef structures in the middle and upper beds of the sequence. The lowest beds contain a Windsor fauna (Bell, 1948).

Well bedded, red, calcareous, arkosic sandstone and siltstone beds of the Highlands Formation (Unit 5) succeeded the Woodville Formation following deposition of the last algal reef limestone. Two thin beds of red limestone, apparently of nonmarine origin (Bell, 1948), are tentatively considered to mark the boundary between the Woodville and the Highlands Formations. The main lithologies in the Highlands Formation are red, calcareous, arkosic sandstone and siltstone with minor conglomerates, Kankar beds and thin, red mud seams occur sporadically throughout the formation. Green reduction spots, known as "bull's eyes", are common on red clastic beds. In the northeastern part of the basin, the sandstones become very argillaceous and the conglomerates more abundant.

Rocks of the Pennsylvanian Barachois Group (Unit 6) form the northern end of a northeast trending synclinal basin in the southeastern corner of the map area. The main lithologies are greenish-grey micaceous sandstone, dark greyish-brown micaceous siltstone, dark grey shale and greenish-grey sandy conglomerates. Exposures in the map area, however, are poor and limited to scattered outcrops in streams. Pebbly arkoses form a late sedimentary unit (6a) that outcrops around Brow Pond; although in fault contact with the Barachois Group, it is believed to be younger. It is poorly sorted and massive bedded and possibly represents an alluvial fan deposit.

Carboniferous rocks in the map area were folded into two northeast trending folds, an open anticline that involves mainly rocks of Mississippian age and occupies most of the central part of the area and an open syncline that involves mainly rocks of Pennsylvanian age and occupies the southeastern corner of the area. A northeast trending fault, extending into the map area from the adjoining St. Fintan's map area, separates the two folds. Other small faults, trending northwesterly, also occur along the St. George's Bay coast. The area of Mt. Howley is affected by both northeast and northwest trending faults (based on aerial photograph studies).

No metallic deposits of economic significance are known in the area. The many occurrences of great thicknesses of gypsum, however, host the only producing gypsum mine in the province near Flat Bay. Halite deposits have recently been encountered in subsurface drilling in the map area (Fleming, 1974).

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MAP 774