Figure 7. Reconstruction of stages in the development of the Alexander Terrane. Ordovician through
Pennsylvanian rocks show a sequence of sedimentary and volcanic environments related to a
generally upward-shoaling cycle of volcanic arcs.

NW   SE

| KUIU | ISLAND | SUMMER STRAIT | KOSCIUSKO | HECETA | PRINCE | OF | WALES | ISLAND | ALASKA C-ANADA | DIXON ENTRANCE |

Saginaw Bay   Bay of Pillars   Edna Bay   Big Salt Lake Craig Pt.Refugio   Hydaburg   Klakas Inlet

Sea Level
0   10   20   30   40   50 miles   100 miles   150 miles
                                          80 km   160 km   240 km

A—EARLY SILURIAN

Cateniporα (chain coral)-bearing, massive limestone
Breccia of Luck Creek   Graywacke, mudstone and basaltic flow and fragmental rocks (SOs)
(SObl)
carbonate compensation depth
SILURIAN   438 m.y.
ORDOVICIAN   435
Descon Formation (SOdv)   450±10 m.y.   446 m.y.
?   SOd   Wales Group (PzPew)   (Pzic)

Early Ordovician through Early Silurian was a time of thick accumulation of graptolitic shale, graywacke turbidites,
pillow basalt, tuff, and breccia in deep water mainly below the carbonate compensation depth. Basement unknown in north-
ern area; in southern area, basement apparently is Wales Group (remnant volcanic arc of pre-Middle Ordovician and Precam-
brian(?) age metamorphosed mainly to greenschist). General upward shoaling reached the carbonate compensation depth only
locally by latest Ordovician time.

B—LATE SILURIAN

Limestone, sandstone, mudstone and conglomerate of
Staney Creek region (DSs)   Breccia of Luck Creek
(SObl)
Sea Level
Kuiu Limestone   (SOdv)
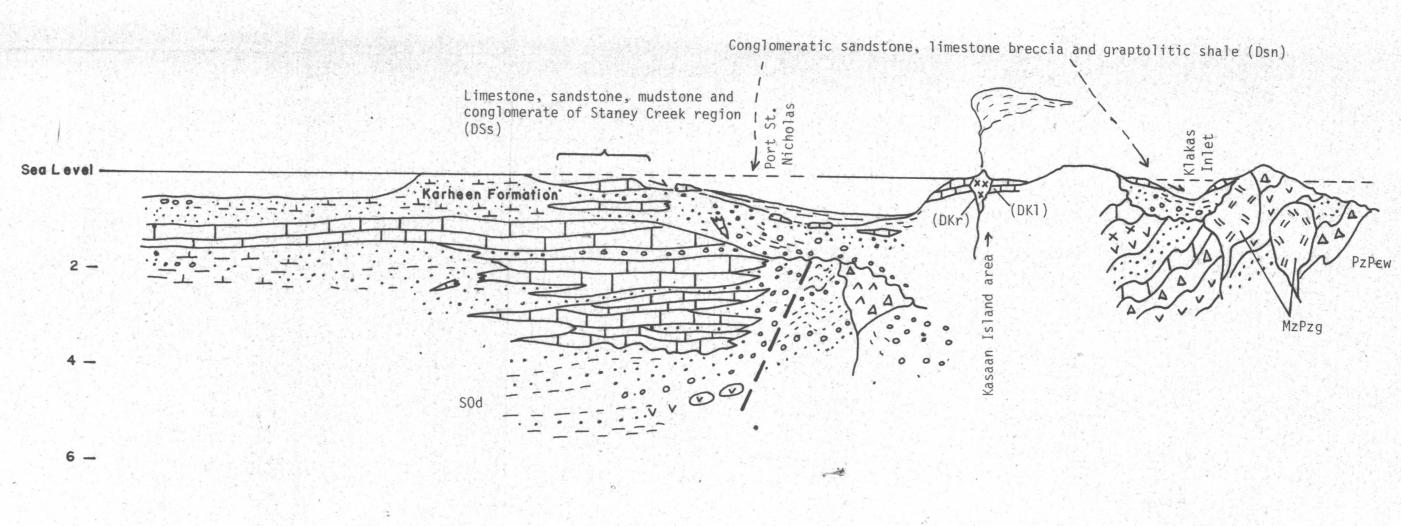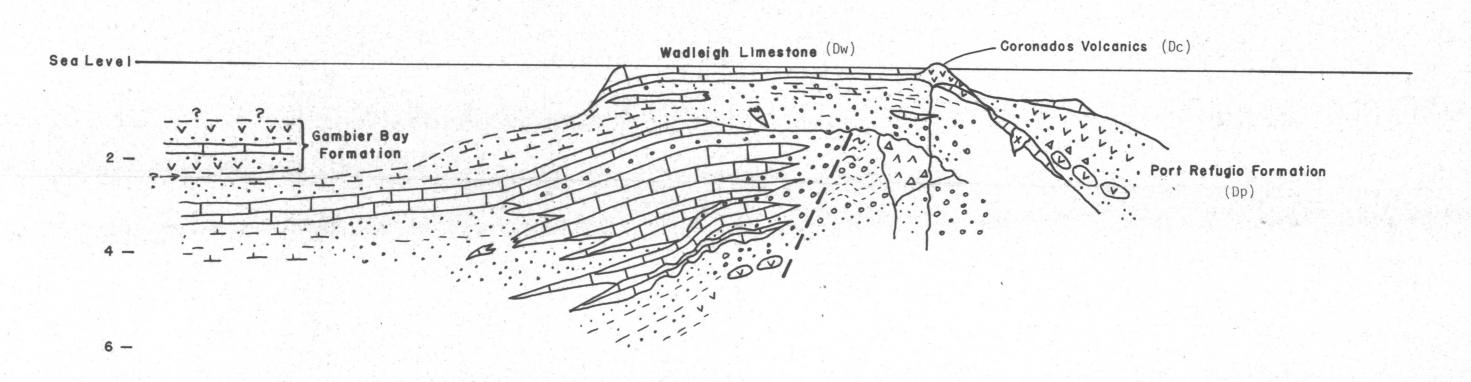Bay of Pillars Formation
Descon   Formation (SOd)
hypothetical fault

From Early Silurian through Late Silurian time, continued shoaling resulted in volcanic islands mantled by thick
wedges of volcanic red-bed-conglomerate and sandstone (DSs) that intertongued with fringing carbonate bank and reef deposits
Heceta Limestone (Sh). Farther offshore, deeper water, volcanic-rich turbidites (SOd) were succeeded by limestone by the end
of the Silurian. The hypothetical fault shows uplift of a Descon Formation's volcanic center, producing wedges of volcanic
detritus in Heceta Limestone and the absence of Heceta at Craig and farther south.

C—EARLY DEVONIAN

Conglomeratic sandstone, limestone breccia and graptolitic shale (Dsn).
Limestone, sandstone, mudstone and
conglomerate of Staney Creek region
(DSs)   Port St. Nicholas   Klakas Inlet
Sea Level
Karheen Formation   (DKr)   (DKl)
(DKr)   PzPew
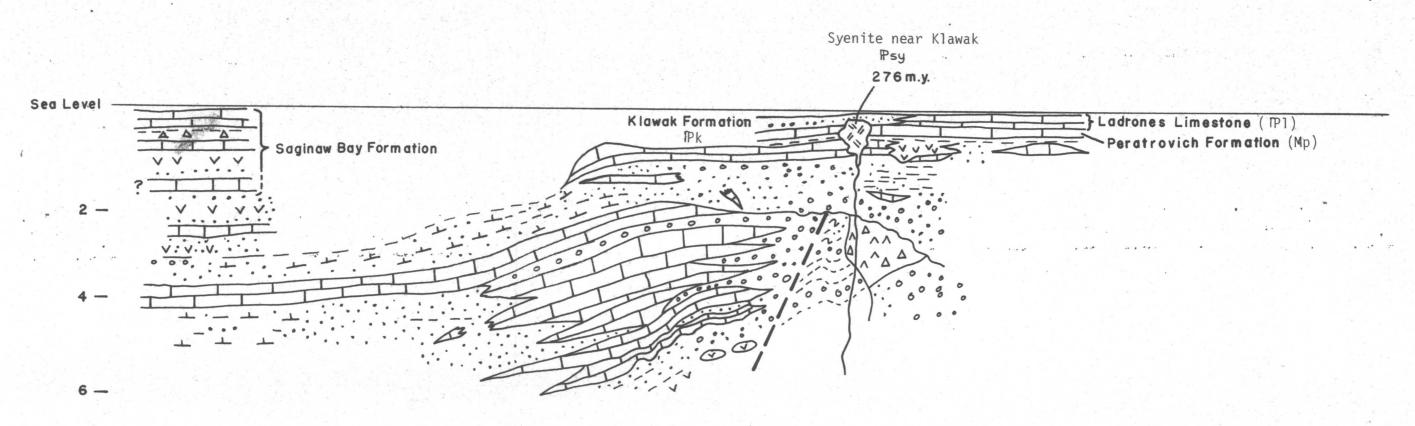SOd   MzPzg

Uplift and deep erosion of earlier volcanic-arc assemblages in the south were followed by deeper water deposition
of graptolitic shale, turbidite, and conglomerate-breccia (Dsn) rich in reworked shelly fossils (olistostromes). In northern
area, intertidal and beach deposits of red-bed mudstone and sandstone Karheen Formation (Dk) were deposited conformably on
Silurian Heceta Limestone (Sh). Rhyolite tuff (DKr) was interlayered with biogenic limestone (DKl) on Kasaan Island.

D—MIDDLE AND LATE DEVONIAN

Wadleigh Limestone (Dw)   Coronados Volcanics (Dc)
Sea Level
?   ?   ?
Gambier Bay
Formation
?   Port Refugio Formation
(Dp)

Basalt islands and submarine highs(Coronados Volcanics (Dc)) were fringed by shallow-water coral reefs and carbonate
banks(Wadleigh Limestone (Dw)). Volcanic- detritus-rich turbidites(Port Refugio Formation (Dp)) were deposited in
deeper summit or forearc basins.

E—LATE CARBONIFEROUS

Syenite near Klawak
Psy
276 m.y.
Sea Level
Klawak Formation   Ladrones Limestone (Pl)
Saginaw Bay Formation   Pk   Peratrovich Formation (Mp)
?

Shallow-water biogenic reef and carbonate-bank deposits--Peratrovich Fm (Mp) and
Ladrones Limestone (Pl)--covered earlier volcaniclastic beds of Porto Refugio
Formation (Dp) and Wadleigh Limestone (Dw). Sandstone, mudstone, conglomerate
and minor limestone of Klawak Formation (Pk) developed north of purer limestone
bank deposits of Ladrones (Pl).