



**BRIEF DESCRIPTION OF MAP UNITS**  
(Page numbers are those of the complete unit descriptions in pamphlet)

**UNITS EXPOSED WEST OF CLARENCE STRAIT**

**Qs** Surficial deposits (Holocene and/or Pleistocene)—Alluvium, colluvium, sand dunes, and some possible glacialifluvial deposits (p. 10)

**Qta** Extensive volcanic rocks (Quaternary and Tertiary)—As mapped, divided into:  
**Qta1** Basaltic to rhyolitic breccia and tuff (p. 11)  
**Qta2** Rhyolite and dacite (p. 11)  
**Qta3** Olivine basalt and andesite (p. 11)  
**Qta4** Kootenai Formation (Paleogene)—Sandstone, conglomeratic sandstone, and conglomerate (p. 11)

**Qta5** Intrusive rocks of Chikatan-Prince of Wales plutonic province (Early Cretaceous)—As mapped, divided into:  
**Qta5a** Hornblende quartz monzonite with minor tonalite, granodiorite, quartz diorite, diorite, quartz monzonite, and monzonite (p. 12)  
**Qta5b** Hornblende granodiorite, hornblende diorite, and biotite-hornblende monzonite (p. 12)  
**Qta5c** Gabbro (p. 12)

**Qta6** Intrusive rocks of Kasaan Bay plutonic province (Middle Jurassic)—As mapped, divided into:  
**Qta6a** Peralkaline granite of Broken Mountain (p. 12)  
**Qta6b** System of Dava Bay (p. 12)  
**Qta6c** Hyalite Group (Late Triassic)—Consists of:  
**Qta6c1** Oligomictic breccia (p. 13)  
**Qta6c2** Leucogranite of Kasaan and Kasaan Island (Early Permian and Late Pennsylvanian)—Biotite- and hornblende-bearing granite (p. 13)  
**Qta6c3** Klawak Formation (Middle and Early Pennsylvanian)—Sandstone, siltstone, and minor limestone and thin pebble conglomerate (p. 13)  
**Qta6c4** Ladron Limestone (Middle and Early Pennsylvanian)—Massive and subbedded limestone and minor dolomite (p. 13)  
**Qta6c5** Peratrovich Formation (Late and Early Mississippian)—Limestone with dark gray chert nodules and beds that grade downward to bedded chert (p. 13)  
**Qta6c6** St. Joseph Island Volcanic (Devonian)—Massive, locally amygdaloidal and pillow-basalt flows (p. 13)  
**Qta6c7** Port Refuge Formation (Late Devonian, Famennian)—Massive to blocky and thin-bedded, volcanic-dioritic rich graywacke, mudstone, siltstone, and minor polyimic conglomerate, black pyritic siltstone, calcareous siltstone, yellow basalt, tuff, fossiliferous limestone, and quartzofeldspathic gneiss (p. 14) Locally includes:  
**Qta6c7a** Volcanic rocks—Agglomerate, pillow basalt, and agglomerate tuff (p. 14)  
**Qta6c7b** Wadleigh Limestone (Late to Early Devonian, Famennian to Emilian)—Massive and thick to medium-bedded limestone, minor argillaceous limestone and calcareous shale (p. 14)  
**Qta6c8** Corvax Limestone (Middle Devonian)—Fragmental basalt interbedded with fossiliferous limestone and amygdaloidal pillow (p. 14)  
**Qta6c9** Karbonat Formation and associated rocks (Middle and Early Devonian)—As mapped, divided into:  
**Qta6c9a** Rhyolite of Kasaan Island (Middle and Early Devonian) (p. 14)  
**Qta6c9b** Limestone of Kasaan Island (Middle and Early Devonian) (p. 14)  
**Qta6c9c** Turbidite-facies rocks (Middle and Early Devonian)—Mudstone, siltstone, shale, sandstone, conglomerate, and minor limestone (p. 15)  
**Qta6c9d** Reef-facies rocks (Early Devonian)—Sandstone, shale, conglomerate, and minor well-bedded play limestone (p. 15)  
**Qta6c9e** Breccia of northeastern Neveo Island (Early Devonian)—Quartzomylonite blocks and breccia beds of limestone rich in shaly fossils and corals in matrix of gneissiferous and plane-bearing shale (p. 15)  
**Qta6c9f** Sedimentary rocks of Port Nicholas area (Early Devonian)—Sandstone overlain by limestone and gypsiferous shale (p. 16)  
**Qta6c9g** Early Devonian—Small plugs and associated flows, breccias, and dikes (p. 16)  
**Qta6c9h** Conglomerate-facies rocks (Early Devonian)—Polyimic conglomerate, conglomeratic sandstone, sandstone, siltstone, and volcanic rocks (p. 16)  
**Qta6c9i** Siltstone, sandstone, polyimic conglomerate, and limestone of Chover Bay (Early Devonian)—Calcareous well-bedded sandstone, siltstone with subordinate gray argillaceous limestone and mudstone (p. 16)  
**Qta6c9j** Metamorphic rocks at Kasaan Island (Early Devonian and Silurian)—Sandstone, mudstone, and polyimic conglomerate (p. 17)  
**Qta6c9k** Sedimentary rocks of Stoney Creek and Tuxuan Passage area (Early Devonian and Late and Early Silurian)—Limestone, sandstone, mudstone, and polyimic conglomerate (p. 17)  
**Qta6c9l** Leucodiorite at Kasaan Island (Late Silurian)—Medium to coarse-grained melange?—Foliated and/or unfoliated leucodiorite (p. 17)  
**Qta6c9m** Hercia Limestone (Late and Early Silurian)—As mapped, divided into:  
**Qta6c9m1** Limestone, minor limestone breccia, sandstone, mudstone, and polyimic conglomerate (p. 17)  
**Qta6c9m2** Hercia Limestone (Late and Early Silurian)—As mapped, divided into:  
**Qta6c9m2a** Limestone, minor limestone breccia, sandstone, siltstone, and polyimic conglomerate (p. 17)

**UNITS EXPOSED EAST OF CLARENCE STRAIT**

**Qs** Surficial deposits (Holocene and/or Pleistocene)—Alluvium, colluvium, sand dunes, and some glacialifluvial deposits (p. 10)

**Qta** Extensive volcanic rocks (Quaternary and Tertiary)—Basalt and andesite (p. 11)

**Qta1** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta1a** Basaltic to rhyolitic volcanic rocks (p. 20)  
**Qta1b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta1b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta1b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta1b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta1b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta1b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta1b3c** Marble and minor calcareous rocks (p. 23)  
**Qta1b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta2** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
**Qta2a** Basaltic to andesitic volcanic rocks (p. 20)  
**Qta2b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta2b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta2b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta2b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta2b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta2b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta2b3c** Marble and minor calcareous rocks (p. 23)  
**Qta2b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta3** Intrusive and related rocks of Admiralty-Revillagigedo plutonic province (Late Cretaceous)—As mapped, divided into:  
**Qta3a** Nonfoliated plagioclase-porphyrphyrite (hornblende-epidote)-granodiorite, quartz monzonite, and quartz diorite (p. 24)  
**Qta3b** Foliated biotite tonalite, quartz diorite, and granodiorite (p. 25)  
**Qta3c** Foliated to massive hornblende-biotite tonalite and granodiorite, quartz monzonite, and quartz diorite (p. 25)  
**Qta3d** Quartz diorite (p. 25)  
**Qta3e** Intrusive rocks of Klaskan-Duke plutonic province (Early Cretaceous)—As mapped, divided into:  
**Qta3e1** Ultramafic rocks, mainly diorite, peridotite, clinopyroxenite, and hornblende (p. 25)  
**Qta3e2** Diorite, pyroxenite, and gabbro at Union Bay (p. 25)  
**Qta3e3** Gabbro and diorite at Union Bay (p. 26)  
**Qta3e4** Sedimentary, volcanic, and related rocks of Gravina belt—As mapped, divided into:  
**Qta3e4a** Gravina Island Formation (Early Cretaceous and Late Jurassic)—Sedimentary and minor volcanic rocks (p. 26)  
**Qta3e4b** Sedimentary and minor volcanic rocks (Late and Middle Jurassic) (p. 26)  
**Qta3e4c** Andesitic to basaltic volcanic and volcanoclastic rocks and minor sedimentary rocks (Late and Middle Jurassic) (p. 26)  
**Qta3e4d** Altered diorite and quartz diorite (Late and Middle Jurassic) (p. 26)  
**Qta3e5** Hyd Group (Late Triassic)—As mapped, divided into:  
**Qta3e5a** Chapin Peak Formation—Basaltic volcanic and minor sedimentary rocks (p. 26)  
**Qta3e5b** Sedimentary and mafic volcanic rocks (p. 27)  
**Qta3e5c** Limestone and dolomite (p. 27)  
**Qta3e5d** Felsic volcanic rocks (p. 27)  
**Qta3e5e** Metamorphosed sedimentary, volcanic, and intrusive rocks (Monocline and/or Palaeozoic)—As mapped, divided into:  
**Qta3e5e1** Metasedimentary rocks—Metamorphosed pelitic and semipelite flysch with minor interbedded basaltic and/or andesitic volcanic or volcanoclastic rocks (p. 27)  
**Qta3e5e2** Metavolcanic rocks—Metamorphosed mafic andesitic and basaltic lava flows, agglomerate, and tuff, together with minor pelitic and semipelite flysch (p. 28)  
**Qta3e5e3** Metapelite conglomerate (p. 28)  
**Qta3e5e4** Metaintrusive rocks (p. 28)  
**Qta3e5e5** Pyhuat Formation (Early Permian)—Light-brown weathering, massive to laminated, light gray, dark gray, and black-gray marble, together with minor phyllite, semipelite, meta-polyimic conglomerate, or sedimentary breccia, and quartzite or felsic-volcanic rock fragments (p. 28)  
**Qta3e5e6** Karbonat Formation and associated rocks (Middle and Early Devonian)—As mapped, divided into:  
**Qta3e5e6a** Andesitic flows and breccia (Middle and Early Devonian) (p. 28)  
**Qta3e5e6b** Mudstone and siltstone-facies rocks (Middle and Early Devonian) (p. 29)  
**Qta3e5e6c** Trondhjemite, diorite, and granite of Annette Island (Late Silurian)—Medium to coarse-grained, light gray, generally leucocratic (chlorite-biotite-hornblende) monzonitic quartz diorite, diorite, granite, quartz monzonite, and granodiorite (p. 29)  
**Qta3e5e6d** Intrusive rocks of younger part of Cape Chacon plutonic province (Early Silurian and Late Ordovician)—Consists of:  
**Qta3e5e6d1** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 29)  
**Qta3e5e6d2** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta3e5e6d2a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta3e5e6d2b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta3e5e6d2c** Marble and minor calcareous rocks (p. 23)  
**Qta3e5e6d2d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta4** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
**Qta4a** Basaltic to andesitic volcanic rocks (p. 20)  
**Qta4b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta4b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta4b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta4b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta4b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta4b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta4b3c** Marble and minor calcareous rocks (p. 23)  
**Qta4b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta5** Surficial deposits (Holocene and/or Pleistocene)—Alluvium, colluvium, sand dunes, and some glacialifluvial deposits (p. 10)

**Qta6** Extensive volcanic rocks (Quaternary and Tertiary)—Basalt and andesite (p. 11)

**Qta7** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta7a** Basaltic to rhyolitic volcanic rocks (p. 20)  
**Qta7b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta7b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta7b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta7b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta7b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta7b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta7b3c** Marble and minor calcareous rocks (p. 23)  
**Qta7b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta8** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
**Qta8a** Basaltic to andesitic volcanic rocks (p. 20)  
**Qta8b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta8b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta8b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta8b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta8b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta8b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta8b3c** Marble and minor calcareous rocks (p. 23)  
**Qta8b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta9** Intrusive and related rocks of Admiralty-Revillagigedo plutonic province (Late Cretaceous)—As mapped, divided into:  
**Qta9a** Nonfoliated plagioclase-porphyrphyrite (hornblende-epidote)-granodiorite, quartz monzonite, and quartz diorite (p. 24)  
**Qta9b** Foliated biotite tonalite, quartz diorite, and granodiorite (p. 25)  
**Qta9c** Foliated to massive hornblende-biotite tonalite and granodiorite, quartz monzonite, and quartz diorite (p. 25)  
**Qta9d** Quartz diorite (p. 25)  
**Qta9e** Intrusive rocks of Klaskan-Duke plutonic province (Early Cretaceous)—As mapped, divided into:  
**Qta9e1** Ultramafic rocks, mainly diorite, peridotite, clinopyroxenite, and hornblende (p. 25)  
**Qta9e2** Diorite, pyroxenite, and gabbro at Union Bay (p. 25)  
**Qta9e3** Gabbro and diorite at Union Bay (p. 26)  
**Qta9e4** Sedimentary, volcanic, and related rocks of Gravina belt—As mapped, divided into:  
**Qta9e4a** Gravina Island Formation (Early Cretaceous and Late Jurassic)—Sedimentary and minor volcanic rocks (p. 26)  
**Qta9e4b** Sedimentary and minor volcanic rocks (Late and Middle Jurassic) (p. 26)  
**Qta9e4c** Andesitic to basaltic volcanic and volcanoclastic rocks and minor sedimentary rocks (Late and Middle Jurassic) (p. 26)  
**Qta9e4d** Altered diorite and quartz diorite (Late and Middle Jurassic) (p. 26)  
**Qta9e5** Hyd Group (Late Triassic)—As mapped, divided into:  
**Qta9e5a** Chapin Peak Formation—Basaltic volcanic and minor sedimentary rocks (p. 26)  
**Qta9e5b** Sedimentary and mafic volcanic rocks (p. 27)  
**Qta9e5c** Limestone and dolomite (p. 27)  
**Qta9e5d** Felsic volcanic rocks (p. 27)  
**Qta9e5e** Metamorphosed sedimentary, volcanic, and intrusive rocks (Monocline and/or Palaeozoic)—As mapped, divided into:  
**Qta9e5e1** Metasedimentary rocks—Metamorphosed pelitic and semipelite flysch with minor interbedded basaltic and/or andesitic volcanic or volcanoclastic rocks (p. 27)  
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**Qta9e5e3** Metapelite conglomerate (p. 28)  
**Qta9e5e4** Metaintrusive rocks (p. 28)  
**Qta9e5e5** Pyhuat Formation (Early Permian)—Light-brown weathering, massive to laminated, light gray, dark gray, and black-gray marble, together with minor phyllite, semipelite, meta-polyimic conglomerate, or sedimentary breccia, and quartzite or felsic-volcanic rock fragments (p. 28)  
**Qta9e5e6** Karbonat Formation and associated rocks (Middle and Early Devonian)—As mapped, divided into:  
**Qta9e5e6a** Andesitic flows and breccia (Middle and Early Devonian) (p. 28)  
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**Qta9e5e6d** Intrusive rocks of younger part of Cape Chacon plutonic province (Early Silurian and Late Ordovician)—Consists of:  
**Qta9e5e6d1** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 29)  
**Qta9e5e6d2** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta9e5e6d2a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta9e5e6d2b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta9e5e6d2c** Marble and minor calcareous rocks (p. 23)  
**Qta9e5e6d2d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta10** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
**Qta10a** Basaltic to andesitic volcanic rocks (p. 20)  
**Qta10b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta10b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta10b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta10b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta10b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta10b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta10b3c** Marble and minor calcareous rocks (p. 23)  
**Qta10b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta11** Surficial deposits (Holocene and/or Pleistocene)—Alluvium, colluvium, sand dunes, and some glacialifluvial deposits (p. 10)

**Qta12** Extensive volcanic rocks (Quaternary and Tertiary)—Basalt and andesite (p. 11)

**Qta13** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
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**Qta13b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta13b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta13b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta13b3c** Marble and minor calcareous rocks (p. 23)  
**Qta13b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta14** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
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**Qta14b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
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**Qta14b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta14b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta14b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta14b3c** Marble and minor calcareous rocks (p. 23)  
**Qta14b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta15** Intrusive and related rocks of Admiralty-Revillagigedo plutonic province (Late Cretaceous)—As mapped, divided into:  
**Qta15a** Nonfoliated plagioclase-porphyrphyrite (hornblende-epidote)-granodiorite, quartz monzonite, and quartz diorite (p. 24)  
**Qta15b** Foliated biotite tonalite, quartz diorite, and granodiorite (p. 25)  
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**Qta15e2** Diorite, pyroxenite, and gabbro at Union Bay (p. 25)  
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**Qta15e5e** Metamorphosed sedimentary, volcanic, and intrusive rocks (Monocline and/or Palaeozoic)—As mapped, divided into:  
**Qta15e5e1** Metasedimentary rocks—Metamorphosed pelitic and semipelite flysch with minor interbedded basaltic and/or andesitic volcanic or volcanoclastic rocks (p. 27)  
**Qta15e5e2** Metavolcanic rocks—Metamorphosed mafic andesitic and basaltic lava flows, agglomerate, and tuff, together with minor pelitic and semipelite flysch (p. 28)  
**Qta15e5e3** Metapelite conglomerate (p. 28)  
**Qta15e5e4** Metaintrusive rocks (p. 28)  
**Qta15e5e5** Pyhuat Formation (Early Permian)—Light-brown weathering, massive to laminated, light gray, dark gray, and black-gray marble, together with minor phyllite, semipelite, meta-polyimic conglomerate, or sedimentary breccia, and quartzite or felsic-volcanic rock fragments (p. 28)  
**Qta15e5e6** Karbonat Formation and associated rocks (Middle and Early Devonian)—As mapped, divided into:  
**Qta15e5e6a** Andesitic flows and breccia (Middle and Early Devonian) (p. 28)  
**Qta15e5e6b** Mudstone and siltstone-facies rocks (Middle and Early Devonian) (p. 29)  
**Qta15e5e6c** Trondhjemite, diorite, and granite of Annette Island (Late Silurian)—Medium to coarse-grained, light gray, generally leucocratic (chlorite-biotite-hornblende) monzonitic quartz diorite, diorite, granite, quartz monzonite, and granodiorite (p. 29)  
**Qta15e5e6d** Intrusive rocks of younger part of Cape Chacon plutonic province (Early Silurian and Late Ordovician)—Consists of:  
**Qta15e5e6d1** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 29)  
**Qta15e5e6d2** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta15e5e6d2a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta15e5e6d2b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta15e5e6d2c** Marble and minor calcareous rocks (p. 23)  
**Qta15e5e6d2d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta16** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
**Qta16a** Basaltic to andesitic volcanic rocks (p. 20)  
**Qta16b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta16b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta16b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta16b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta16b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta16b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta16b3c** Marble and minor calcareous rocks (p. 23)  
**Qta16b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta17** Surficial deposits (Holocene and/or Pleistocene)—Alluvium, colluvium, sand dunes, and some glacialifluvial deposits (p. 10)

**Qta18** Extensive volcanic rocks (Quaternary and Tertiary)—Basalt and andesite (p. 11)

**Qta19** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta19a** Basaltic to rhyolitic volcanic rocks (p. 20)  
**Qta19b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta19b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta19b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta19b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta19b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta19b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta19b3c** Marble and minor calcareous rocks (p. 23)  
**Qta19b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta20** Descon Formation (Early Silurian to Early Ordovician)—As mapped, divided into:  
**Qta20a** Basaltic to andesitic volcanic rocks (p. 20)  
**Qta20b** Intrusive and related rocks of Kuiu-Edlin volcanic-plutonic province (Miocene and/or Oligocene)—As mapped, divided into:  
**Qta20b1** Hornblende granodiorite, hornblende diorite, and quartz diorite (p. 22)  
**Qta20b2** Diorite, quartz diorite, gabbro, hornblende, leucogabbro, trondhjemite, pyroxenite, and migmatite (p. 22)  
**Qta20b3** Wages Group (Early Cambrian and Late Proterozoic)—As mapped, divided into:  
**Qta20b3a** Metagabbro south of Kasaan Inlet (p. 22)  
**Qta20b3b** Gneiss, quartzite, black phyllite, quartz-sericite schist, metakalstophyre, and minor marble (p. 22)  
**Qta20b3c** Marble and minor calcareous rocks (p. 23)  
**Qta20b3d** Metacarbonate rocks—Metamorphosed limestone, now fine-grained quartz marble (p. 23)

**Qta21** Intrusive and related rocks of Admiralty-Revillagigedo plutonic province (Late Cretaceous)—As mapped, divided into:  
**Qta21a** Nonfoliated plagioclase-porphyrphyrite (hornblende-epidote)-granodiorite, quartz monzonite, and quartz diorite (p. 24)  
**Qta21b** Foliated biotite tonalite, quartz diorite, and granodiorite (p. 25)  
**Qta21c** Foliated to massive hornblende-biotite tonalite and granodiorite, quartz monzonite, and quartz diorite (p. 25)  
**Qta21d** Quartz diorite (p. 25)  
**Qta21e** Intrusive rocks of Klaskan-Duke plutonic province (Early Cretaceous)—As mapped, divided into:  
**Qta21e1** Ultramafic rocks, mainly diorite, peridotite, clinopyroxenite, and hornblende (p. 25)  
**Qta21e2** Diorite, pyroxenite, and gabbro at Union Bay (p. 25)  
**Qta21e3** Gabbro and diorite at Union Bay (p. 26)  
**Qta21e4** Sedimentary, volcanic, and related rocks of Gravina belt—As mapped, divided into:  
**Qta21e4a** Gravina Island Formation (Early Cretaceous and Late Jurassic)—Sedimentary and minor volcanic rocks (p. 26)  
**Qta21e4b** Sedimentary and minor volcanic rocks (Late and Middle Jurassic) (p. 26)  
**Qta21e4c** Andesitic to basaltic volcanic and volcanoclastic rocks and minor sedimentary rocks (Late and Middle Jurassic) (p. 26)  
**Qta21e4d** Altered diorite and quartz diorite (Late and Middle Jurassic) (p. 26)  
**Qta21e5** Hyd Group (Late Triassic)—As mapped, divided into:  
**Qta21e5a** Chapin Peak Formation—Basaltic volcanic and minor sedimentary rocks (p. 26)  
**Qta21e5b** Sedimentary and mafic volcanic rocks (p. 27)  
**Qta21e5c** Limestone and dolomite (p. 27)  
**Qta21e5d** Felsic volcanic rocks (p. 27)  
**Qta21e5e** Metamorphosed sedimentary, volcanic, and intrusive rocks (Monocline and/or Palaeozoic)—As mapped, divided into:  
**Qta21e5e1** Metasedimentary rocks—Metamorphosed pelitic and semipelite flysch with minor interbedded basaltic and/or andesitic volcanic or volcanoclastic rocks (p. 27)  
**Qta21e5e2** Metavolcanic rocks—Metamorphosed mafic andesitic and basaltic lava flows, agglomerate, and tuff, together with minor pelitic and semipelite flysch (p. 28)  
**Qta21e5e3** Metapelite conglomerate (p. 28)  
**Qta21e5e4** Metaintrusive rocks (p. 28)  
**Qta21e5e5** Pyhuat Formation (Early Permian)—Light-brown weathering, massive to laminated, light gray, dark gray, and black-gray