

U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Plays for assessment in
Region I, Alaska
as of October 4, 1993
1995 National Assessment of Oil and Gas

compiled by

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This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

¹U.S. Geological Survey
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1993

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The U.S. Geological Survey periodically makes appraisals of the undiscovered oil and gas resources of the Nation. For the 1995 National Assessment the onshore areas and adjoining State waters of the Nation have been divided into eight Regions which are subdivided into 72 provinces. Alaska comprises Region I. Figure 1 is an index map showing the three provinces in Alaska. For the Lower 48 States, a map of the boundaries of Regions II through VIII at scale 1:5,000,000 has been released in open file (Dolton, G.L., Varnes, K.L., Gautier, D.L., and Baird, J.K. compilers, 1992, Oil and gas assessment areas, 1992, Lower 48 States: U.S. Geological Survey Open-File Report 92-696, scale 1:5,000,000).

The provinces and assigned Province Geologists for Region I are listed in Table 1. The basic assessment unit is the play. Table 2 lists the plays considered at this time (October 1993) in Region I, Alaska. Descriptions of the plays follow; in virtually all cases these descriptions are written by the indicated Province Geologist (Table 1).

Because this National assessment is currently in progress, these listings and descriptions are preliminary. The plays and/or their names may change as work progresses, some plays may be added and other plays may be dropped. The descriptions may also change. The plays, play names, and descriptions may or may not duplicate plays appraised in previous National assessments.

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Figure 1. Index map of Alaska showing Provinces to be assessed

Table 1. List of Provinces and Province Geologists in Region I, Alaska

Prov.	Province Name	Province Geologist(s)	Telephone No.	Telephone No.
1	Northern Alaska	Bird, K.J., and Howell, D.G.	(415) 354-3006	(415) 329-5430
2	Central Alaska	Stanley, R.G.	(415) 354-3013	
3	Southern Alaska	Magoon, L.B.	(415) 354-3010	

Table 2. List of plays for consideration, Region I, Alaska

Prov.	Play No.	Play Name
1	101	Topset
1	102	Turbidite
1	103	Barrow Arch Beaufortian
1	104	Barrow Arch Ellesmerian
1	105	Ellesmerian-Beaufortian Clastics
1	106	Lisburne
1	107	Lisburne Unconformity
1	108	Endicott
1	109	Fold Belt West
1	110	Western Thrust Belt
1	111	Eastern Thrust Belt
2	201	Cenozoic Gas
2	202	Mesozoic Gas
2	203	Paleozoic Oil
2	204	Kandik Fold and Thrust Belt
3	301	Upper Cretaceous-Tertiary Biogenic Gas
3	302	Mesozoic Oil
3	303	Beluga-Sterling Gas
3	304	Hemlock-Tyonek Oil
3	305	Late Mesozoic Oil
3	306	Mesozoic
3	307	Tertiary
3	308	Yakataga Fold and Thrust Belt
3	309	Yakutat Foreland
3	310	Lituya Bay
3	311	Middleton Island

Descriptions of Plays to be Considered
Region I, Alaska

Province 1. Northern Alaska

Play 101 Topset

Cretaceous and Tertiary deltaic sandstone reservoirs in stratigraphic or fault traps in undeformed topset strata of the North Slope coastal plain.

Play 102 Turbidite

Cretaceous and Tertiary turbidite reservoir sands in stratigraphic or fault traps in undeformed foreset and bottomset strata of the North Slope coastal plain.

Play 103 Barrow Arch Beaufortian

Jurassic and early Cretaceous sandstone reservoirs in combination structural-stratigraphic traps on the Barrow arch.

Play 104 Barrow Arch Ellesmerian

Mississippian to Triassic sandstone and Mississippian to Pennsylvanian carbonate reservoirs in combination structural-stratigraphic traps on the Barrow arch.

Play 105 Ellesmerian-Beaufortian Clastics

Triassic to Early Cretaceous sandstone reservoirs in structural or stratigraphic traps south of the Barrow arch.

Play 106 Lisburne

Mississippian to Pennsylvanian carbonate reservoirs in structural or stratigraphic traps south of the Barrow arch.

Play 107 Lisburne Unconformity

Mississippian to Pennsylvanian carbonate reservoirs in stratigraphic traps beneath the top-Lisburne regional unconformity.

Play 108 Endicott

Mississippian sandstone reservoirs in structural or stratigraphic traps south of the Barrow arch.

Play 109 Fold Belt

Cretaceous and Tertiary sandstone reservoirs in anticlinal traps in the foothills of the Brooks Range.

Play 110 Western Thrust-Belt

Mississippian carbonate reservoirs in thrust sheet traps in the western and central Brooks Range fold and thrust belt.

Play 111 Eastern Thrust-Belt

Mississippian to Triassic sandstone and Mississippian to Pennsylvanian carbonate reservoirs in thrust fault traps in the northeastern part of the Brooks Range fold and thrust belt.

Province 2. Central Alaska

Play 201 Cenozoic Gas

Includes accumulations of non-associated gas in nonmarine (fluvial and lacustrine) sandstones of Late Cretaceous and Tertiary age in the Yukon Flats, Nenana, and other interior basins. (hypothetical)

Play 202 Mesozoic Gas

Includes accumulations of non-associated gas in marine turbidites and subordinate fluvial and shallow marine strata of Jurassic and Cretaceous age. Comprises large areas of western Alaska, including the Kuskokwim, Bethel, and Yukon-Koyukuk basins. (hypothetical)

Play 203 Paleozoic Oil

Outrageously speculative. Includes accumulations of oil and gas in Paleozoic carbonate rocks in the Holitna River area, on the Seward Peninsula, and on St. Lawrence Island. (hypothetical)

Play 204 Kandik Fold and Thrust Belt

Paleozoic and Mesozoic clastic and carbonate reservoirs in anticlinal traps of the Kandik fold- and thrust-belt.

Province 3. Southern Alaska

Play 301 Upper Cretaceous-Tertiary Biogenic Gas

Upper Cretaceous-Tertiary sandstone reservoirs capable of trapping biogenic gas in the Copper River basin.

Play 302 Mesozoic Oil

Mesozoic sandstone reservoirs within the thickest part of the Copper River basin in close proximity to mature (Mesozoic) source rock.

Play 303 Beluga-Sterling Gas

Late Tertiary sandstone reservoirs found throughout most of the Cook Inlet petroleum province.

Play 304 Hemlock-Tyonek Oil

Mid-Tertiary sandstone reservoirs found throughout most of the Cook Inlet province.

Play 305 Late Mesozoic Oil

Late Mesozoic sandstone reservoirs unconformably underlying Tertiary sedimentary rocks of play 304 in the Cook Inlet basin.

Play 306 Mesozoic

Triassic limestone or Jurassic and Cretaceous sandstone reservoirs in broad anticlinal traps on the Alaska Peninsula.

Play 307 Tertiary

Shallow marine and non-marine sandstone reservoirs in broad open folds beneath the Bristol Bay lowlands and in adjacent State waters north of the Alaska Peninsula.

Play 308 Yakataga Fold and Thrust Belt

Lower and middle Tertiary sandstone reservoirs in anticlinal traps in the Gulf of Alaska province extending from the Ragged Mountain fault to Icy Bay.

Play 309 Yakutat Foreland

Tertiary sandstone reservoirs in subtle structural or stratigraphic traps in the Gulf of Alaska province from Icy Bay to Icy Point.

Play 310 Lituya Bay

Mid-Late Tertiary sandstone reservoirs in structural traps in the Gulf of Alaska province from Icy Point to Cape Fairweather.

Play 311 Middleton Island

Tertiary sandstone reservoirs in anticlinal traps in the Gulf of Alaska province including Middleton Island and contiguous state lands.