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GEOLOGICAL SURVEY

ESTIMATES OF UNDISCOVERED RECOVERABLE RESOURCES
OF CONVENTIONALLY PRODUCIBLE OIL AND GAS
IN THE UNITED STATES,
A SUMMARY

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

INTRODUCTION

In 1975 the U.S. Geological Survey (USGS) published estimates of the undiscovered recoverable oil and gas resources of the United States (Miller and others, 1975). These estimates were a product of the geologic knowledge of U.S. petroleum provinces and of methods of resource appraisal at that time. A new appraisal was made in 1980 to incorporate new geologic information, new technology, economic changes, and new or refined methods of resource appraisal. This brief open-file report represents the final resource estimates but does not include detailed discussions of geology and methodology.

COMMODITIES ASSESSED

In the present study we appraised undiscovered recoverable resources of conventionally producible crude oil and natural gas. Undiscovered recoverable resources are those resources which can be extracted economically under existing technology and price/cost relationships assuming normal short-term technologic growth. However, in offshore Alaska, these quantities include some resources which are recoverable only if technology permits their exploitation beneath Arctic pack ice - a condition not yet met. The assessed resources occupy the shaded area on the resource classification chart (figure 1) as defined in 1980 by the USGS and U.S. Bureau of Mines. Undiscovered recoverable resources do not include quantities which may yet be found in new pays or extensions of existing fields. Crude oil is a natural mixture of hydrocarbons occurring underground in a liquid state in reservoir rock and remaining in a liquid state as it is produced from wells. Natural gas is a mixture of gaseous hydrocarbons occurring underground in reservoir rock, in association with crude oil as free gas, dissolved in crude oil, or in a free state not associated with crude oil. We have excluded from this assessment resources from heavy oil deposits, tar deposits, oil shales, gas in impermeable "tight" reservoirs, gas occluded in coal, gas in geopressed shales and brines, and natural gas hydrates.

	IDENTIFIED RESOURCES		UNDISCOVERED RESOURCES
	Demonstrated		Inferred
	Measured	Indicated	
ECONOMIC	Reserves		UNDISCOVERED RECOVERABLE RESOURCES
MARGINALLY ECONOMIC			
SUB-ECONOMIC			

← INCREASING GEOLOGIC ASSURANCE →

↑ INCREASING ECONOMIC FEASIBILITY

Figure 1.--Petroleum resource classification (modified from U.S. Bureau of Mines and U.S. Geological Survey, 1980). The shaded area indicates the undiscovered recoverable resources discussed in this report.

AREAS OF STUDY

For this study, the United States was divided into 15 petroleum regions, 11 onshore and 4 offshore (figure 2). These regions correspond in general to those appraised in 1975; however, the Continental Slopes are included in the present report, thereby increasing the offshore area assessed. The 15 regions were further subdivided into 137 provinces which were the actual assessment units. Hawaii was not included because its volcanic terrane is not considered prospective for hydrocarbons.

METHODS OF ASSESSMENT

The assessments of the undiscovered recoverable oil and gas in each province were based fundamentally upon careful analysis and review of the province petroleum geology, exploration history, volumetric-yield procedures, finding-rate studies, and structural analyses. Because of the uncertainty involved in estimating undiscovered resources, estimates of their quantities include a range of values corresponding to different probability levels. Subjective probability procedures were used in their derivation.

Initial assessments, conditional upon recoverable resource being present, were made for each of the assessed provinces as follows:

- 1) a low resource estimate corresponding to a 95 percent probability of more than that amount; this estimate is the 95th fractile (F_{95});
- 2) a high resource estimate corresponding to a 5 percent probability of more than that amount; this estimate is the 5th fractile (F_5);
- 3) a modal ("most likely") estimate of the quantity of resource associated with the greatest likelihood of occurrence.

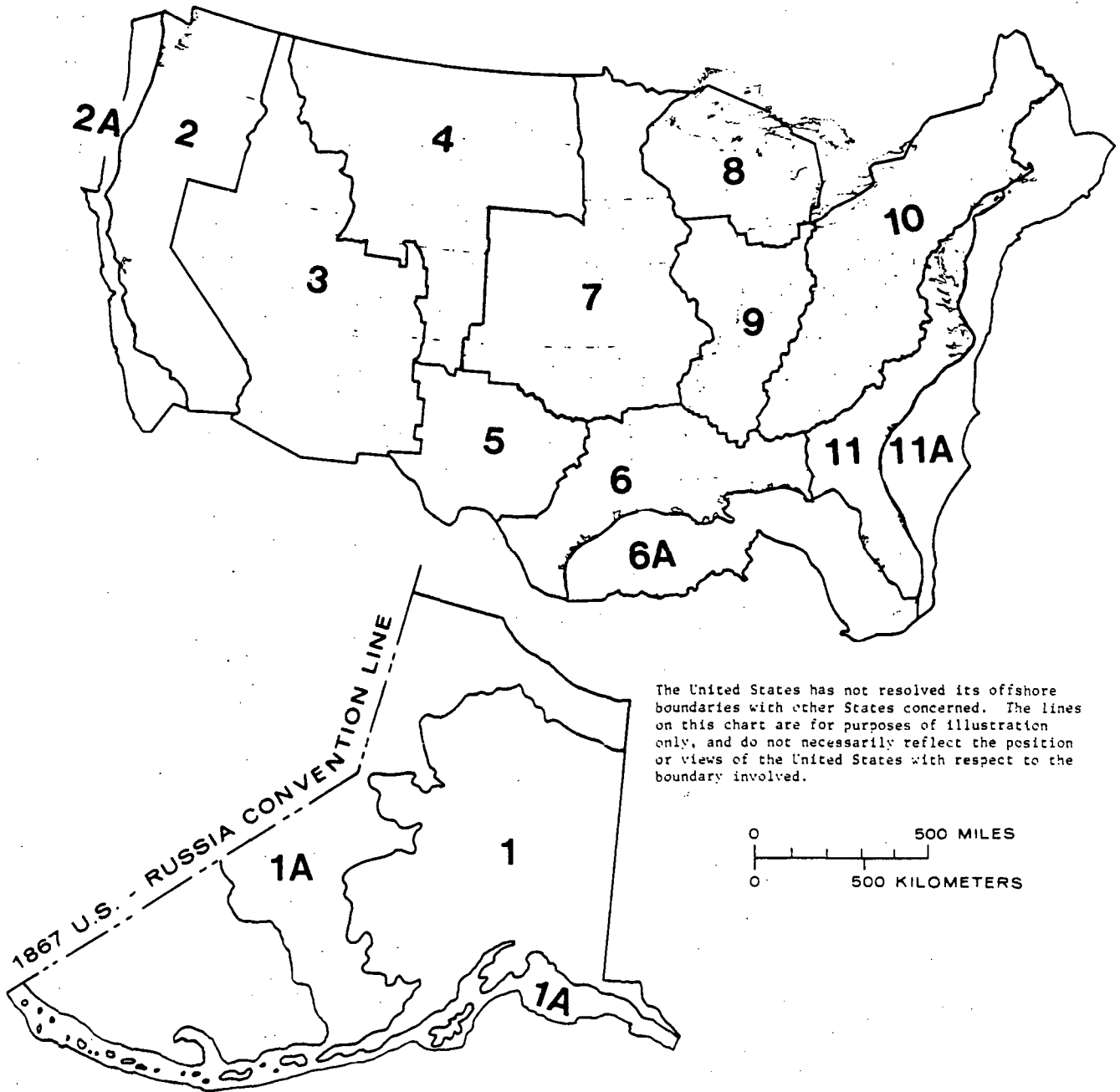


FIGURE 2.--Index maps showing the regional boundaries used:

- | | |
|--|--------------------------------------|
| Region 1, Alaska; | Region 6A, Gulf of Mexico; |
| Region 1A, Alaska Offshore; | Region 7, Mid-continent; |
| Region 2, Pacific Coast; | Region 8, Michigan Basin; |
| Region 2A, Pacific Coast Offshore; | Region 9, Eastern Interior; |
| Region 3, Colorado Plateau and Basin and Range; | Region 10, Appalachians; |
| Region 4, Rocky Mountains and Northern Great Plains; | Region 11, Atlantic Coast; |
| Region 5, West Texas and Eastern New Mexico; | Region 11A, Atlantic Coast Offshore. |
| Region 6, Gulf Coast; | |

These initial estimates determined for each province a conditional probability distribution of the quantity of undiscovered recoverable resource. However, in frontier areas where there has been little or no drilling, there is a risk that no recoverable petroleum exists. Therefore, the likelihood of any recoverable resource being present was estimated and called the marginal probability.

The marginal probability for each province was applied to its corresponding conditional probability distribution to produce the probability distribution of the quantity of undiscovered recoverable resource. From this distribution the final low (F_{95}), high (F_5), and mean estimates were obtained for each province.

To arrive at total resource estimates for a region, the probability distributions of the provinces composing the region were aggregated by a Monte Carlo technique. The resulting aggregate probability distribution represents the probability distribution of the total quantity of undiscovered recoverable resource for the region. From this distribution the low (F_{95}), high (F_5), and mean estimates were obtained for each of the 15 regions (table 1).

RESULTS

The assessed conventionally producible undiscovered recoverable oil and gas resources for the United States are estimated to range from 64.3 billion barrels of oil and 474.6 trillion cubic feet of gas to 105.1 billion barrels of oil and 739.3 trillion cubic feet of gas, corresponding to 95 percent and 5 percent probabilities of more than these amounts, respectively.

The results presented in table 1 show that the mean total amount of oil appraised for the entire United States and its offshore areas has changed very little from our 1975 appraisal, whereas the estimated total for natural gas has increased. One should recognize, however, that resources of the Continental Slope are included in the current assessment, but were not included in the 1975 report.

Petroleum Regions	Crude Oil (billion barrels)			Total Natural Gas (trillion cubic feet)		
	Low F ₉₅ ^{1/}	High F ₅	Mean 2/	Low F ₉₅ ^{1/}	High F ₅	Mean 2/
Onshore Regions						
1 - Alaska	2.5	14.6	6.9	19.8	62.3	36.6
2 - Pacific Coast	2.1	7.9	4.4	8.2	24.9	14.7
3 - Colorado Plateau & Basin and Range	6.9	25.9	14.2	53.5	142.4	90.1
4 - Rocky Mountains and northern Great Plains	6.0	14.0	9.4	29.6	69.0	45.8
5 - West Texas and eastern New Mexico	2.7	9.4	5.4	22.4	75.2	42.8
6 - Gulf Coast	3.6	12.6	7.1	56.5	249.1	124.4
7 - Mid-continent	2.3	7.7	4.4	22.9	80.8	44.5
8 - Michigan Basin	0.3	2.7	1.1	1.8	10.9	5.1
9 - Eastern Interior	0.3	1.9	0.9	1.2	5.0	2.7
10 - Appalachians	0.1	1.6	0.6	6.4	45.8	20.1
11 - Atlantic Coast	0.1	0.8	0.3	<0.1	0.4	0.1
TOTAL ONSHORE	41.7	71.0	54.6	322.5	567.9	426.9
Offshore Regions (Shelf and Slope)						
1A - Alaska ^{3/}	4.6	24.2	12.3	33.3	109.6	64.6
2A - Pacific Coast	1.7	7.9	3.8	3.7	13.6	6.9
6A - Gulf of Mexico	3.1	11.1	6.5	41.7	114.2	71.9
11A - Atlantic Coast	1.1	12.9	5.4	9.2	42.8	23.6
TOTAL OFFSHORE	16.9	43.5	28.0	117.4	230.6	167.0
TOTAL UNITED STATES	64.3	105.1	82.6	474.6	739.3	593.9
LOWER 48 ONSHORE	36.1	62.0	47.7	288.6	525.9	390.3
LOWER 48 OFFSHORE	8.7	25.1	15.8	66.1	148.2	102.4

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

2/ Mean values may not be precisely additive owing to rounding.

3/ Includes quantities considered recoverable only if technology permits their exploitation beneath Arctic pack ice - a condition not yet met.

Table 1.-- Estimates of undiscovered recoverable oil and gas resources by petroleum region.

Some significant differences exist between these new regional estimates and those published in 1975 by Miller and others. These differences essentially reflect the results of new data, providing a better understanding and evaluation of petroleum potential. Results of exploratory drilling in some frontier areas, particularly the Gulf of Alaska, southern California borderland, south Atlantic shelf, and eastern Gulf of Mexico have been disappointing and geologic information obtained from those provinces indicates reduced hydrocarbon potential. Drilling in the Cordilleran overthrust belt of the Western United States (Regions 3 and 4), on the other hand, has uncovered a large potential for both oil and gas, which is reflected in the estimates.

The individual province estimates that make up the regional totals given in table 1 are shown in tables 2 and 3, and province locations are indicated in figures 3 and 4.

TABLE 2. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN OFFSHORE PROVINCES OF THE UNITED STATES

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low	High	Mean	Low	High	Mean	Low	High	Mean
	F ₉₅ 1/	F ₅ 1/		F ₉₅ 1/	F ₅ 1/		F ₉₅ 1/	F ₅ 1/	
SHELF (0-200 meters water)									
Region 1A. Alaska									
1. Beaufort *	1.9	16.7	7.0	3.0	26.8	11.1	6.4	58.5	23.9
3. North Chukchi *	0	4.2	.8	0	6.3	1.2	0	11.4	2.2
5. Central Chukchi *	0	3.3	.6	0	4.9	.9	0	10.4	2.1
6. Hope *	0	.1	Negl.	0	.2	Negl.	0	1.6	.3
8. Norton	0	.9	.2	0	1.4	.2	0	4.1	1.0
9. Bristol	0	1.2	.2	0	1.9	.3	0	3.7	.7
10. Navarin Basin	0	3.7	.8	0	5.5	1.2	0	16.6	4.0
12. St. George Basin	0	2.2	.4	0	3.3	.6	0	7.4	1.7
13. Zhemchug	0	.2	Negl.	0	.3	Negl.	0	.7	.1
15. St. Matthew-Hall	0	0	0	0	0	0	0	0	0
16. Aleutian	0	0	0	0	0	0	0	0	0
18. Kodiak	0	1.0	.2	0	1.7	.3	0	5.2	1.0
20. Shumagin	0	.2	Negl.	0	.3	.1	0	1.6	.2
22. Gulf of Alaska	0	1.5	.3	0	2.2	.4	0	5.9	1.3
24. Cook Inlet	.1	1.0	.4	Negl.	.6	.2	.7	4.6	2.0
25. Shelikof Strait Shallow	0	.2	Negl.	0	.1	Negl.	0	.7	.1
Region 2A. Pacific Coast									
27. Inner Basins	.1	.9	.4	.1	.8	.3	0	0	0
29. Outer Basins and Ridges Shallow	0	.1	Negl.	0	.1	Negl.	0	0	0
31. Santa Barbara Channel	.1	1.6	.6	.1	1.4	.5	.1	1.7	.5
33. Santa Maria	0	.8	.2	0	.7	.2	0	0	0
35. Santa Cruz	0	.6	.1	0	.4	.1	0	0	0
37. Bodega	0	.2	Negl.	0	.2	Negl.	0	0	0

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

* These quantities can be considered recoverable only if technology permits their exploitation beneath Arctic pack ice - a condition not yet met.

TABLE 2. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN OFFSHORE PROVINCES OF THE UNITED STATES--Continued

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low	High	Mean	Low	High	Mean	Low	High	Mean
	F ₉₅ 1/	F ₅ 1/		F ₉₅ 1/	F ₅ 1/		F ₉₅ 1/	F ₅ 1/	
SHELF (0-200 meters water)									
Region 2A. Pacific Coast (con't)									
39. Point Arena	0	.2	Negl.	0	.2	Negl.	0	0	0
41. Eel River	0	.2	Negl.	0	.2	Negl.	0	.9	.2
43. Oregon-Washington	0	.6	.1	0	.7	.1	0	2.1	.5
Region 6A. Gulf of Mexico									
45. Eastern Gulf	0	3.8	1.2	0	3.1	.9	0	5.9	1.5
47. Western Gulf	1.1	5.7	2.8	1.8	9.6	4.8	16.3	72.6	38.1
Region 11A. Atlantic Coast									
49. North Atlantic	0	2.1	.4	0	2.5	.6	0	7.2	1.9
51. Mid-Atlantic	0	2.6	.8	0	3.2	.9	0	11.6	4.7
53. South Atlantic	0	.3	Negl.	0	.3	Negl.	0	.7	.1
56. Southeast Florida	0	0	0	0	0	0	0	0	0
SLOPE (>200 meters water)									
Region 1A. Alaska									
2. Beaufort *	0	3.6	.8	0	5.7	1.2	0	12.1	3.1
4. North Chukchi *	0	1.1	.2	0	1.7	.3	0	3.2	.8
7. Umnak Plateau *	0	0	0	0	0	0	0	0	0
11. Navarin Basin	0	.6	.1	0	1.0	.1	0	1.8	.3
14. Zhemchug	0	0	0	0	0	0	0	0	0
17. Aleutian	0	0	0	0	0	0	0	0	0
19. Kodiak	0	1.0	.2	0	1.8	.3	0	2.1	.5

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

* These quantities can be considered recoverable only if technology permits their exploitation beneath Arctic pack ice - a condition not yet met.

TABLE 2. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN OFFSHORE PROVINCES OF THE UNITED STATES--Continued

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low F ₉₅ 1/	High F ₅ 1/	Mean	Low F ₉₅ 1/	High F ₅ 1/	Mean	Low F ₉₅ 1/	High F ₅ 1/	Mean
SLOPE (>200 meters water)									
Region 1A. Alaska (con't)									
21. Shumagin	0	.2	Negl.	0	.3	.1	0	1.6	.2
23. Gulf of Alaska	0	.6	.1	0	1.0	.2	0	1.7	.3
26. Shelikof Strait Deep	0	0	0	0	0	0	0	0	0
Region 2A. Pacific Coast									
28. Inner Basins Deep	0	1.0	.2	0	.9	.2	0	0	0
30. Outer Basins and Ridges Deep	0	2.5	.5	0	3.7	.8	0	.7	.1
32. Santa Barbara Channel Deep	.1	2.1	.7	.1	2.5	.8	0	1.9	.7
34. Santa Maria	0	2.2	.5	0	2.0	.4	0	0	0
36. Santa Cruz	0	.5	.1	0	.4	.1	0	0	0
38. Bodega	0	.2	Negl.	0	.1	Negl.	0	0	0
40. Point Arena	0	.4	.1	0	.3	Negl.	0	0	0
42. Eel River	0	.2	Negl.	0	.3	Negl.	0	1.2	.3
44. Oregon-Washington	0	1.3	.2	0	1.6	.3	0	3.0	.6
Region 6A. Gulf of Mexico									
46. Eastern Gulf	0	1.0	.2	0	.8	.2	0	1.8	.3
48. Western Gulf	.9	4.8	2.4	1.6	8.7	4.2	7.2	47.6	21.9
Region 11A. Atlantic Coast									
50. North Atlantic	0	3.8	1.0	0	4.6	1.1	0	7.9	2.1
52. Mid-Atlantic	0	7.6	2.3	0	9.1	2.7	0	17.8	5.9
54. Carolina Trough	0	3.0	.6	0	3.3	.7	0	9.6	2.1
55. Blake Plateau	0	1.7	.3	0	1.7	.3	0	2.4	.4
57. Florida Straits	0	0	0	0	0	0	0	0	0

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

TABLE 3. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN ONSHORE PROVINCES OF THE UNITED STATES

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low F ₉₅ 1/	High F ₅ 1/	Mean	Low F ₉₅ 1/	High F ₅ 1/	Mean	Low F ₉₅ 1/	High F ₅ 1/	Mean
Region 1. Alaska									
58. Arctic Coastal Plain	.9	11.6	4.4	2.4	30.1	11.4	1.4	17.6	6.7
59. Northern Foothills	.3	3.9	1.4	.6	9.3	3.4	2.6	18.5	8.3
60. Southern Foothills and Brooks Range	0	.9	.2	0	2.4	.4	0	6.9	1.6
61. Yukon-Porcupine Basins	0	0	0	0	0	0	0	0	0
62. Yukon-Koyukuk Basins	0	0	0	0	0	0	0	.6	.1
63. Interior Lowlands	0	0	0	0	0	0	0	0	0
64. Bristol Basin Onshore	0	.6	.1	0	.6	.1	0	1.7	.4
65. Hope Basin Onshore	0	0	0	0	0	0	0	0	0
66. Copper River Basin	0	.1	Negl.	0	.1	Negl.	0	.5	.1
67. Cook Inlet Onshore	.1	1.5	.6	Negl.	.6	.2	1.1	7.2	3.3
68. Alaska Peninsula	0	.2	Negl.	0	.2	Negl.	0	.7	.1
69. Gulf of Alaska Onshore	0	.8	.2	0	.9	.2	0	.8	.1
70. Kodiak Island	0	0	0	0	0	0	0	0	0
71. Southeastern Alaska	0	0	0	0	0	0	0	0	0
Region 2. Pacific Coast									
72. Western Oregon-Washington	0	.5	.1	0	.4	.1	.5	4.8	1.9
73. Sacramento Basin	0	Negl.	0	Negl.	.1	Negl.	.5	3.2	1.5
74. San Joaquin Basin	.5	4.4	1.8	.5	4.4	1.8	.1	.8	.3
75. Los Angeles Basin	.2	1.5	.7	.2	1.4	.6	0	.1	Negl.
76. Ventura Basin	.2	1.2	.5	.3	2.1	1.0	Negl.	.3	.1
77. Santa Maria Basin	Negl.	.5	.2	Negl.	.4	.2	0	0	0
78. Central Coastal Basins	Negl.	.4	.2	Negl.	.2	.1	0	Negl.	Negl.
79. Sonoma-Livermore Basins	0	Negl.	Negl.	0	Negl.	Negl.	0	Negl.	Negl.
80. Humboldt Basin	0	0	0	0	0	0	Negl.	.2	.1
81. Eastern Oregon-Washington	0	3.0	.8	0	4.5	1.2	1.4	14.4	5.8
81A. Eastern California	0	0	0	0	0	0	0	0	0

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

TABLE 3. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN ONSHORE PROVINCES OF THE UNITED STATES--Continued

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low	High	Mean	Low	High	Mean	Low	High	Mean
	F ₉₅	F ₅		F ₉₅	F ₅		F ₉₅	F ₅	
Region 3. Colorado Plateau & Basin and Range									
82. Eastern Basin and Range	.2	11.9	3.3	.3	17.9	5.0	0	21.4	5.6
83. Western Basin and Range	0	1.9	.4	0	2.8	.6	0	2.6	.6
84. Idaho-Snake River Downwarp	0	0	0	0	0	0	0	0	0
85. Paradox Basin	.2	3.2	1.2	.4	5.5	2.0	.3	5.1	1.8
86. Uinta-Piceance-Eagle Basins	.4	3.8	1.6	.8	6.5	2.7	1.4	15.9	6.2
87. Park Basins	Negl.	.2	.1	Negl.	.6	.2	0	Negl.	Negl.
88. San Juan Basin	Negl.	.4	.1	.1	.8	.3	.8	7.1	3.0
89. Albuquerque-Santa Fe-San Luis Rift Basins	0	.2	Negl.	0	.3	.1	0	1.2	.3
90. Wyoming-Utah-Idaho Overthrust Belt	2.7	13.3	6.7	6.7	33.3	16.8	15.6	85.2	41.6
91. Northern Arizona	Negl.	1.0	.3	Negl.	1.2	.3	0	1.0	.2
92. South-central New Mexico	0	.2	Negl.	0	.4	.1	0	1.1	.3
93. Southern Arizona-Southwestern New Mexico	0	1.3	.3	0	1.5	.3	0	8.2	2.1
Region 4. Rocky Mountains and Northern Great Plains									
94. Williston Basin	.4	3.2	1.4	.8	5.8	2.6	.2	1.7	.8
95. Sioux Arch	0	0	0	0	0	0	0	0	0
96. Sweetgrass Arch	.1	1.2	.4	Negl.	.4	.2	.6	6.5	2.6
97. Central Montana	Negl.	.4	.2	Negl.	.2	.1	.1	1.6	.5
98. Montana Overthrust Belt	0	2.0	.6	0	4.4	1.3	1.8	20.6	8.0
99. Southwestern Montana	0	.6	.2	0	.9	.2	0	.7	.2
100. Wind River Basin	.2	1.4	.6	.1	.7	.3	.7	4.2	2.0
101. Powder River Basin	.5	2.8	1.4	.8	4.2	2.1	.1	1.2	.4
102. Southwestern Wyoming Basins	.8	6.0	2.6	.9	6.5	2.9	5.3	33.7	15.7
103. Big Horn Basin	.3	2.3	1.0	.2	1.6	.7	.6	3.7	1.7
104. Denver Basin	.2	1.8	.8	.2	1.8	.8	.5	3.1	1.4
105. Las Animas Arch	Negl.	.3	.1	0	Negl.	Negl.	.3	2.3	1.0
106. Raton Basin-Sierra Grande Uplift	0	.6	.2	0	.6	.2	Negl.	1.1	.4

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

TABLE 3. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN ONSHORE PROVINCES OF THE UNITED STATES--Continued

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low F ₉₅ 1/	High F ₅ 1/	Mean	Low F ₉₅ 1/	High F ₅ 1/	Mean	Low F ₉₅ 1/	High F ₅ 1/	Mean
Region 5. West Texas and Eastern New Mexico									
107. Permian Basin	1.0	6.2	2.9	2.1	12.9	6.0	9.0	59.7	27.3
108. Palo Duro Basin	Negl.	.1	Negl.	0	Negl.	Negl.	Negl.	.4	.1
109. Pedernal Uplift	0	0	0	0	0	0	0	0	0
110. Bend Arch-Fort Worth Basin	.7	4.2	2.0	1.3	7.5	3.6	1.9	9.0	4.6
111. Marathon Fold Belt	Negl.	1.7	.5	Negl.	1.3	.4	0	2.9	.7
Region 6. Gulf Coast									
112. Western Gulf Basin	1.2	8.0	3.6	3.0	20.0	9.1	27.8	209.3	92.1
113. East Texas Basin	.3	2.7	1.2	.2	1.9	.8	2.2	13.7	6.4
114. Louisiana-Mississippi Salt Basins	.8	5.0	2.3	.6	4.0	1.9	3.5	34.9	14.1
Region 7. Mid-continent									
115. Anadarko Basin	.7	5.1	2.2	1.6	11.9	5.2	10.2	63.1	29.5
116. Arkoma Basin	Negl.	1.0	.3	.1	2.3	.7	.5	8.1	2.8
117. Cambridge Arch-Central Kansas Uplift	.1	1.0	.4	.1	.7	.3	.2	.9	.4
118. Cherokee Platform	Negl.	1.0	.3	.1	2.2	.8	Negl.	1.2	.3
119. Forest City Basin	Negl.	.1	Negl.	Negl.	.1	Negl.	0	0	0
120. Nemaha Ridge	Negl.	.2	.1	Negl.	.1	.1	Negl.	.6	.2
121. Salina Basin	0	Negl.	Negl.	0	Negl.	Negl.	0	0	0
122. Sedgwick Basin	.1	.6	.2	Negl.	.4	.2	.2	1.3	.6
123. Southern Oklahoma	.2	1.8	.7	.4	4.2	1.6	.4	4.6	1.3
124. Sioux Uplift	0	0	0	0	0	0	0	0	0
125. Iowa Shelf	0	0	0	0	0	0	0	0	0
126. Ozark Uplift	0	0	0	0	0	0	0	0	0
Region 8. Michigan Basin									
127. Michigan Basin	.3	2.7	1.1	.4	3.2	1.4	.9	9.3	3.3

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

TABLE 3. - ESTIMATES OF UNDISCOVERED RECOVERABLE OIL AND GAS IN ONSHORE PROVINCES OF THE UNITED STATES--Continued

	Crude Oil (Billion Barrels)			Associated/Dissolved Gas (Trillion Cubic Feet)			Non-Associated Gas (Trillion Cubic Feet)		
	Low F ₉₅ <u>1/</u>	High F ₅ <u>1/</u>	Mean	Low F ₉₅ <u>1/</u>	High F ₅ <u>1/</u>	Mean	Low F ₉₅ <u>1/</u>	High F ₅ <u>1/</u>	Mean
Region 9. Eastern Interior									
128. Illinois Basin	.1	1.4	.6	.1	.6	.2	Negl.	1.5	.4
129. Cincinnati Arch	Negl.	.5	.2	Negl.	.2	.1	.1	1.7	.6
130. Black Warrior Basin	Negl.	.5	.2	Negl.	.8	.2	.4	2.6	1.2
Region 10. Appalachians									
131. Appalachian Basin	.1	1.5	.6	.1	1.2	.5	5.4	43.2	18.6
132. Blue Ridge Overthrust Belt	0	0	0	0	0	0	0	5.0	1.1
133. Piedmont	0	0	0	0	0	0	0	0	0
134. New England-Adirondack	0	0	0	0	0	0	0	0	0
Region 11. Atlantic Coast									
135. Atlantic Coastal Plain	0	0	0	0	0	0	0	.3	.1
136. Florida Peninsula	.1	.8	.3	Negl.	.1	Negl.	0	0	0

1/ F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95%. F₅ is defined similarly.

The United States has not resolved its offshore boundaries with other States concerned. The lines on this chart are for purposes of illustration only, and do not necessarily reflect the position or views of the United States with respect to the boundary involved.

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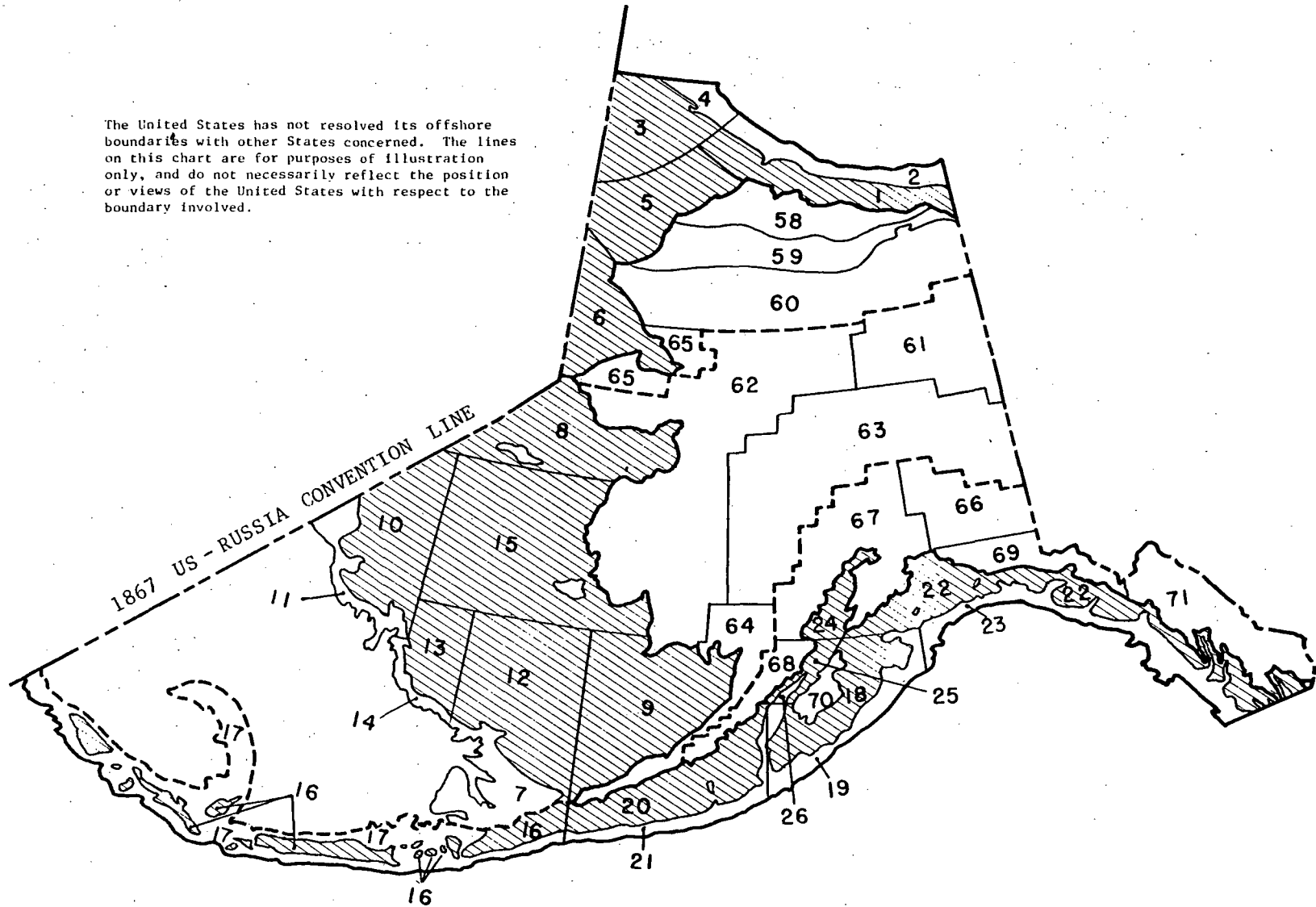


Figure 3. Index map of Alaska showing provinces assessed. Shading denotes offshore shelf areas; names of provinces are listed in tables 2 and 3.



Figure 4. Index map of lower 48 States showing provinces assessed. Shading denotes offshore shelf areas; names of provinces are listed on tables 2 and 3.

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