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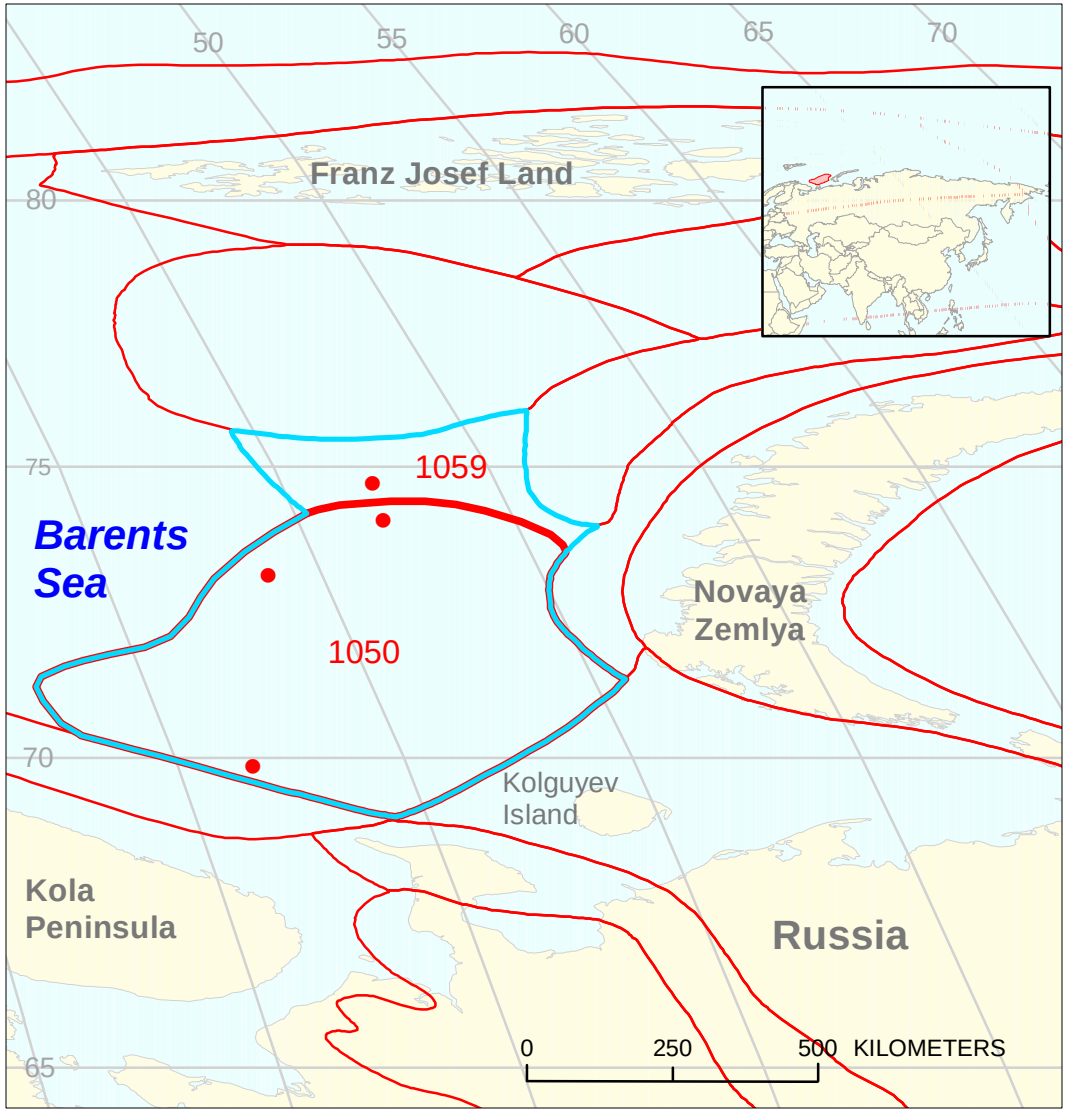
South Barents and Ludlov Saddle Assessment Unit 10500102



South Barents and Ludlov Saddle Assessment Unit 10500102
South Barents Basin Geologic Province 1050
Other geologic province boundary

Geologic Summary

Detailed map of this assessment unit

Exploration/Discovery-History Data
- Plots of Known Field Sizes
- Plots of Grown Resources
- Tables

Assessment Input Data

Assessment Results
- Assessment Unit Summary
- Detailed Assessment Results
- Undiscovered Field-Size Distributions

USGS PROVINCE: South Barents Basin (1050) **GEOLOGIST:** S.J. Lindquist
(Petroleum system also includes North Barents Basin 1060, Ludlov Saddle 1059, and part of Timan-Pechora Basin 1008)

TOTAL PETROLEUM SYSTEM: South and North Barents Triassic-Jurassic (105001)

ASSESSMENT UNIT: South Barents and Ludlov Saddle (10500102) (frontier)

DESCRIPTION: Assessment unit includes the South Barents Basin Province 1050 (170,000 sq km) and the Ludlov Saddle Province 1059 (26,000 km) adjacent to the north.

SOURCE ROCKS: Probable source rocks are deeply buried gas-prone Lower to Middle Triassic shales.

MATURATION: Assessment unit includes the deepest burial histories for the Total Petroleum System, and local maturation might have been as early as Late Triassic.

MIGRATION: To charge young (post-Cretaceous) structural traps, the migration had to be mainly vertical from pre-existed accumulations (probably, basin-centered gas).

RESERVOIR ROCKS: Most of gas reserves are in Lower to Middle Jurassic siliciclastic reservoirs of shallow marine origin. Other reservoir rocks include mainly marine Triassic and Lower Cretaceous siliciclastics.

TRAPS AND SEALS: Most of known traps are gentle anticlinal uplifts. Significant potential for stratigraphic traps exists in Triassic rocks. Excellent seals are Jurassic and Triassic shales as thick as hundreds of meters; Upper Jurassic marine shale provides the best regional seal.

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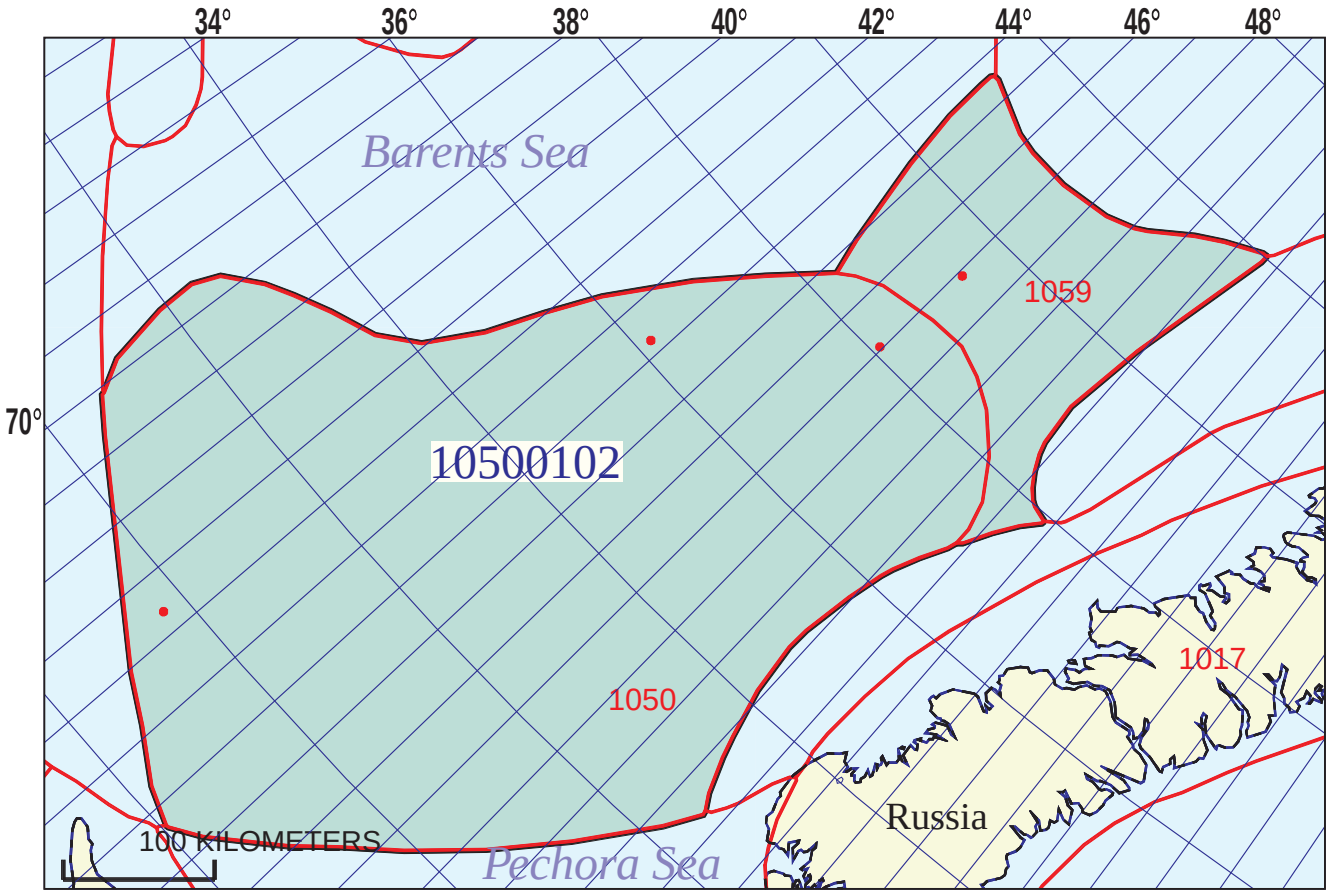
Leith, T.L., Weiss, H.M., Mork, A., Arhus, N., Elvebakk, G., Embry, A.F., Brooks, P.W., Stewart, K.R., Pchelina, T.M., Bro, E.G., Verba, M.L., Danyushevskaya, A., and Borisov, A.V., 1992, Mesozoic hydrocarbon source-rocks of the Arctic region, *in* Vorren, T.O., Bergsager, E., Dahl-Stamnes, O.A., Holter, E., Johansen, B., Lie, E., and Lund, T.B., Arctic geology and petroleum potential: Norsk Petroleumsforening (Norwegian Petroleum Society) Special Publication 2, p. 1-25.

Lindquist, S.J., 1999, South and North Barents Triassic-Jurassic Total Petroleum System of the Russian Offshore Arctic: U.S. Geological Survey Open-File Report 99-50-N, 16 p., 4 figs., 1 table.



South Barents and Ludlov Saddle Assessment Unit - 10500102

EXPLANATION

- Hydrography
- Shoreline
- 1050 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 10500102 Assessment unit code and boundary

Projection: Equidistant Conic. Central meridian: 100. Standard Parallel: 58 30

SEVENTH APPROXIMATION
NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS

Date:……..	10/14/99		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	South Barents Basin	Number:	1050
Priority or Boutique……	Priority		
Total Petroleum System:……	South and North Barents Triassic-Jurassic	Number:	105001
Assessment Unit:……..	South Barents and Ludlov Saddle	Number:	10500102
* Notes from Assessor	No growth function. Major continuous gas accumulation may also exist.		

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):… Gas

What is the minimum field size?……. 20 mmboe grown (≥1mmboe)
(the smallest field that has potential to be added to reserves in the next 30 years)

Number of discovered fields exceeding minimum size:…… Oil: 0 Gas: 4

Established (>13 fields) _____ Frontier (1-13 fields) X Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 31010 2nd 3rd 8060 3rd 3rd _____

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	1.0
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	1.0
3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered field ≥ minimum size	1.0

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):…….. 1.0

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field ≥ minimum size…… 1.0

UNDISCOVERED FIELDS

Number of Undiscovered Fields: How many undiscovered fields exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

Oil fields:……min. no. (>0)	1	median no.	4	max no.	10
Gas fields:……min. no. (>0)	20	median no.	120	max no.	300

Size of Undiscovered Fields: What are the anticipated sizes (**grown**) of the above fields?:
(variations in the sizes of undiscovered fields)

Oil in oil fields (mmbo)……min. size	20	median size	40	max. size	800
Gas in gas fields (bcfg):……min. size	120	median size	400	max. size	80000

Assessment Unit (name, no.)
South Barents and Ludlov Saddle, 10500102

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	1500	2500	3500
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	10	20	35
Oil/gas ratio (bo/mmcfg)……			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

Oil Fields:	minimum	median	maximum
API gravity (degrees)……	35	42	52
Sulfur content of oil (%)……	0	0.02	0.05
Drilling Depth (m) ……	1800	3000	5000
Depth (m) of water (if applicable)……	10	150	350

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……		0	
Drilling Depth (m)……	1800	3000	6500
Depth (m) of water (if applicable)……	10	150	350

Assessment Unit (name, no.)
South Barents and Ludlov Saddle, 10500102

ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

1. Russia represents 100 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		100	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		100	

2. Province 1050 represents 85 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		85	
Portion of volume % that is offshore (0-100%)……		100	

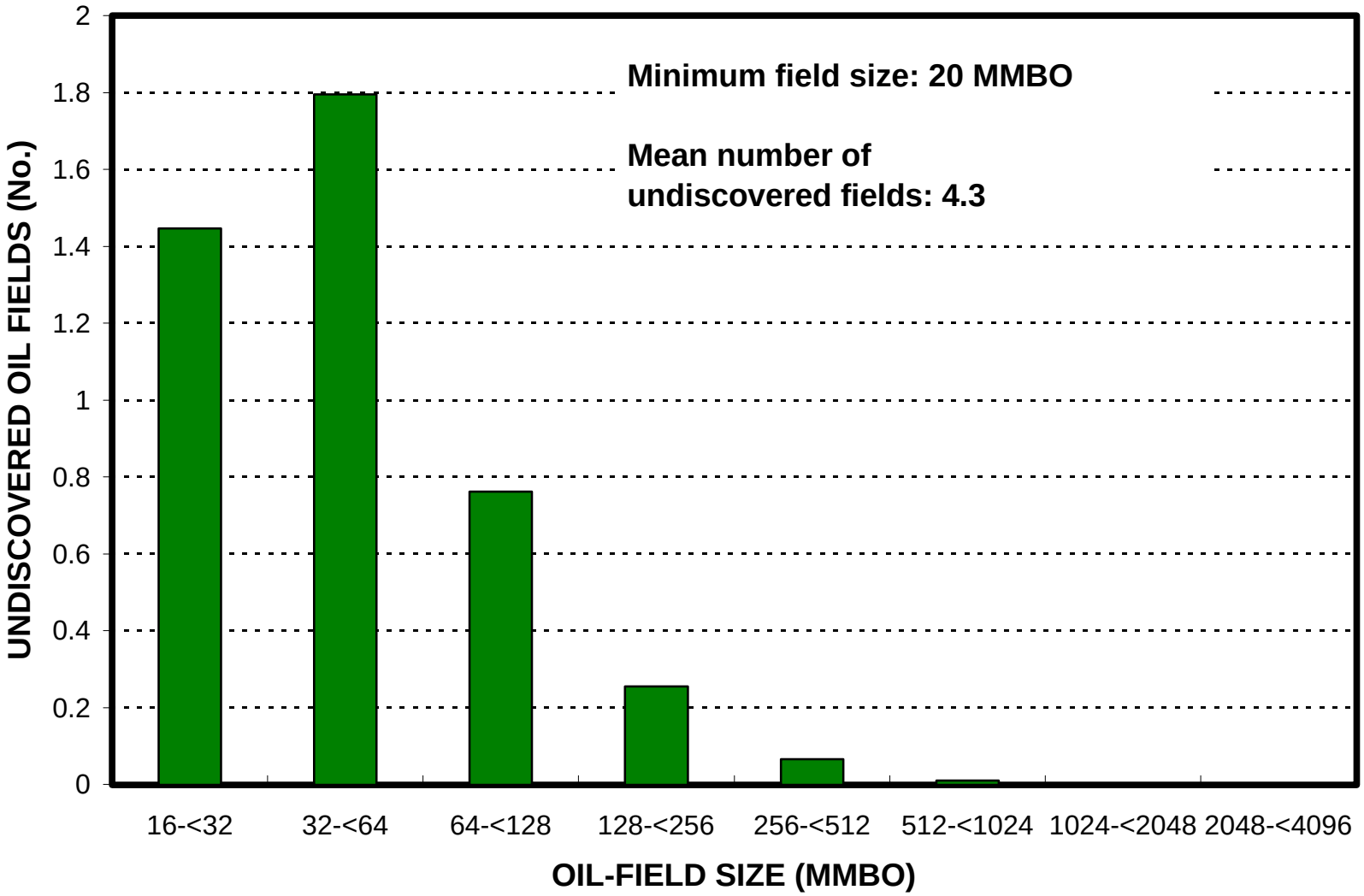
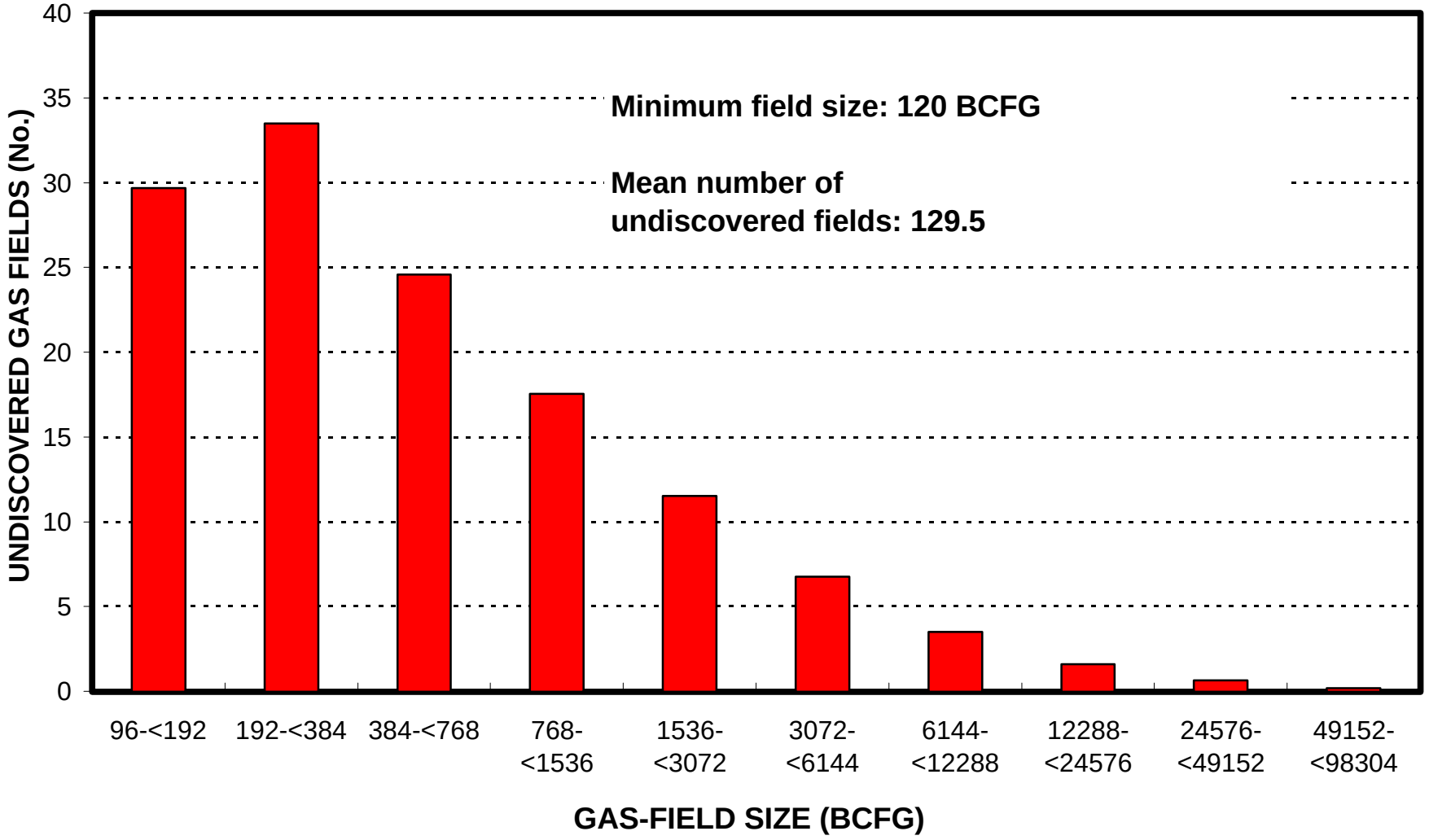
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		85	
Portion of volume % that is offshore (0-100%)……		100	

3. Province 1059 represents 15 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		15	
Portion of volume % that is offshore (0-100%)……		100	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		15	
Portion of volume % that is offshore (0-100%)……		100	

South Barents and Ludlov Saddle, AU 10500102
Undiscovered Field-Size Distribution



South Barents and Ludlov Saddle, AU 10500102
Undiscovered Field-Size Distribution