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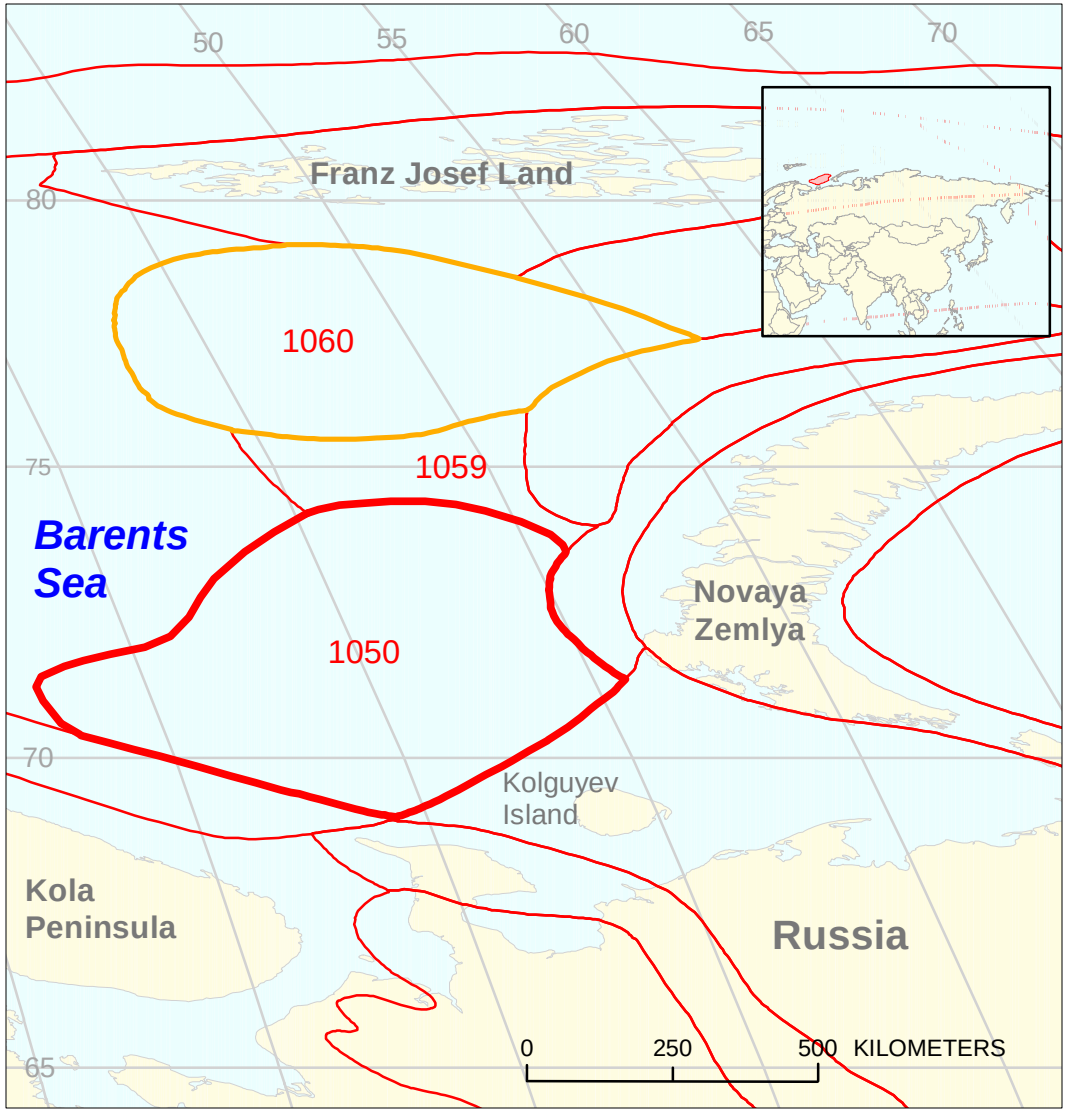
North Barents
Assessment Unit 10500103



North Barents Assessment Unit 10500103

South Barents Basin Geologic Province 1050

Other geologic province boundary

Geologic Summary

Detailed map of this assessment unit

Assessment Input Data

Assessment Results

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

USGS PROVINCE: North Barents Basin (1060) **GEOLOGIST:** S.J. Lindquist
(Petroleum system also includes South 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: North Barents (10500103) (hypothetical)

DESCRIPTION: Assessment unit includes the entire North Barents Basin Province 1060, with an area of approximately 100,000 sq km.

SOURCE ROCKS: Probable source rocks are Lower to Middle Triassic shales, similar to the South Barents Basin.

MATURATION: Assessment unit is characterized by burial histories nearly as deep as those for the Greater South Barents assessment unit, and local maturation might have been as early as Late Triassic.

MIGRATION: Dominant vertical migration with lesser lateral component is assumed.

RESERVOIR ROCKS: Predicted reservoirs are Lower to Middle Jurassic, Upper Triassic, and possibly Neocomian siliciclastics of mostly shallow marine origin.

TRAPS AND SEALS: Gentle anticlinal uplifts and stratigraphic traps are the main expected trap types. Excellent seals are Jurassic and Triassic shales as thick as hundreds of meters; Upper Jurassic marine shale provides the best regional seal.

REFERENCES:

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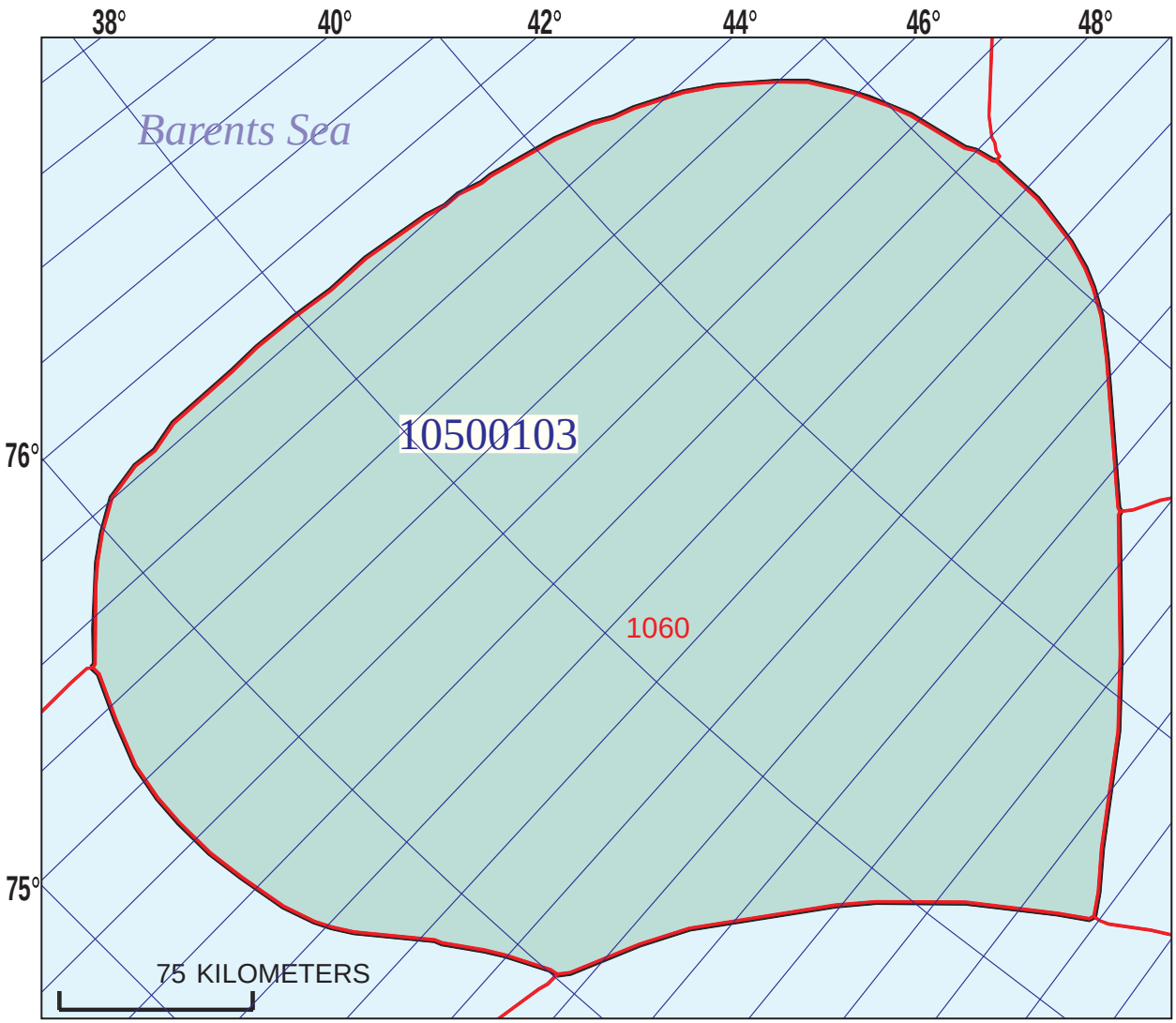
Johansen, S.E., Ostisty, B.K., Birkeland, O., Fedorovsky, Y.F., Marirosjan, V.N., Bruun Christensen, O., Cheredeev, S.I., Ignatenko, E.A., and Magulis, L.S., 1992, Hydrocarbon potential in the Barents Sea region—play distribution and potential, *in* Vorren, T.O., Bergsager, E., Dahl-Stamnes, O.A., Holter, E., Johansen, B., Lie, E., and Lund, T.B., Arctic geology and petroleum potential: Norsk Petroleumsforening (Norwegian Petroleum Society) Special Publication 2, p. 273-320.

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.



North Barents
Assessment Unit - 10500103

EXPLANATION

- Hydrography
- Shoreline
- 1050 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 10500103 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:……..	North Barents Basin	Number:	1060
Priority or Boutique……	Boutique		
Total Petroleum System:……	South and North Barents Triassic-Jurassic	Number:	105001
Assessment Unit:……	North Barents	Number:	10500103
* Notes from Assessor	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: 0
Established (>13 fields) _____ Frontier (1-13 fields) _____ Hypothetical (no fields) X

Median size (grown) of discovered oil fields (mmboe):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd _____ 2nd 3rd _____ 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……	0.95
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):…….. 0.95

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.	3	max no.	5
Gas fields:……min. no. (>0)	5	median no.	60	max no.	150

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	35	max. size	500
Gas in gas fields (bcfg):……min. size	120	median size	350	max. size	40000

Assessment Unit (name, no.)
North Barents, 10500103

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)……	70	200	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)……	70	200	350

Assessment Unit (name, no.)
North Barents, 10500103

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 1060 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	

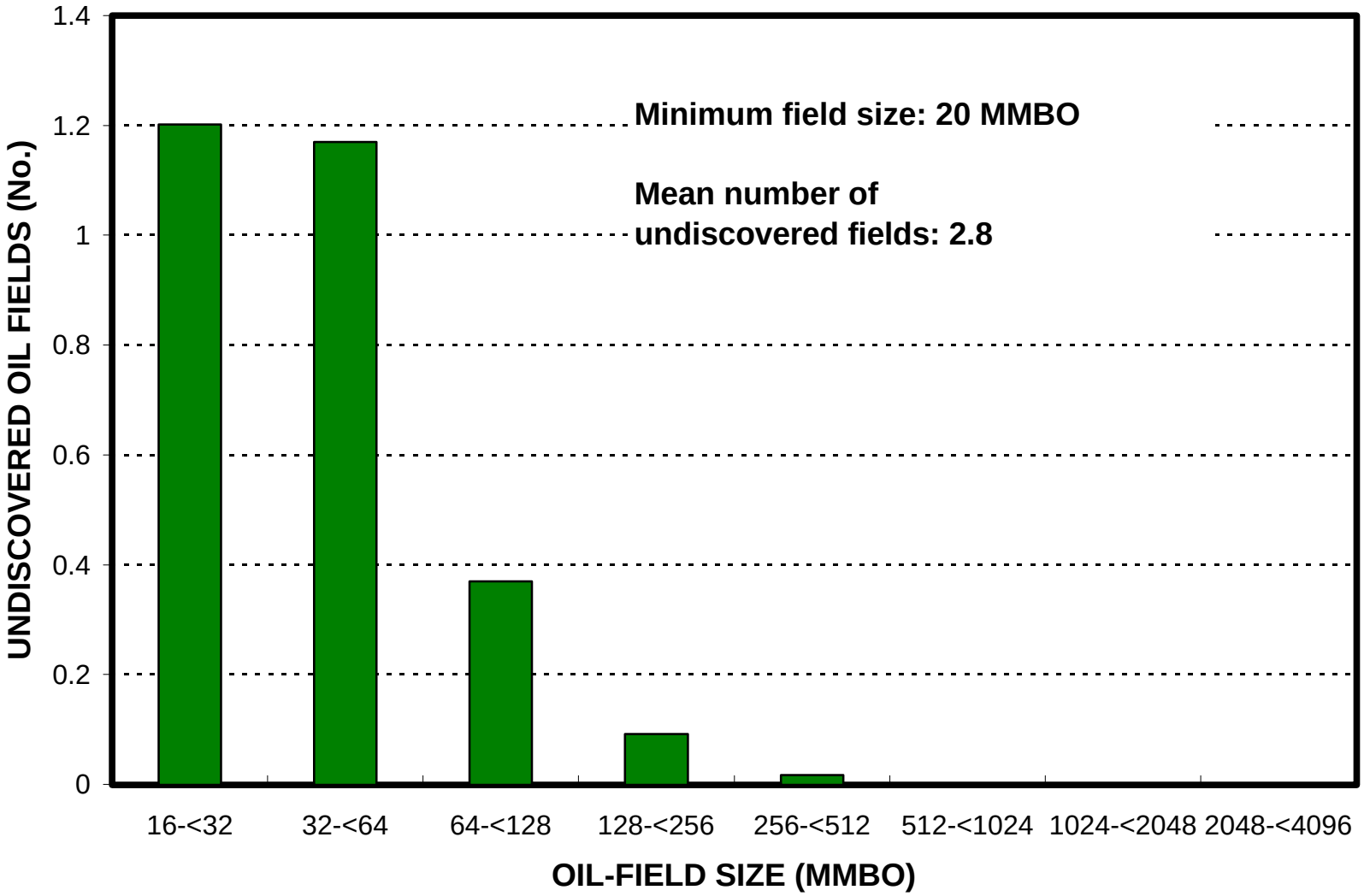
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		100	

3. Province 1050 represents 0 areal % of the total assessment unit

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

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

North Barents, AU 10500103
Undiscovered Field-Size Distribution



North Barents, AU 10500103
Undiscovered Field-Size Distribution