Go to Table of Contents

Go to index map

Foreland Slope
Assessment Unit 11080102

Foreland Slope Assessment Unit 11080102

Azov-Kuban Basin Geologic Province 1108

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: Azov-Kuban Basin (1108) **GEOLOGIST:** G.F. Ulmishek

TOTAL PETROLEUM SYSTEM: Azov-Kuban Mesozoic-Cenozoic (110801)

ASSESSMENT UNIT: Foreland Slope (11080102)

DESCRIPTION: Assessment unit occupies the foreland slope north of unit 11080101 (foredeep) and extends offshore covering most of the Azov Sea. The unit contains main gas reserves of the province.

SOURCE ROCKS: Accumulation of gas is apparently related to long-distance lateral migration from the foredeep and southern zone of the foreland slope. In most areas of the slope, the Jurassic section, which contains most probable source rocks for gas, is absent. Maykop series (Oligocene-lower Miocene) and Lower Cretaceous rocks north of the foredeep are largely immature.

MATURATION AND MIGRATION: Maturation of Lower-Middle Jurassic source rocks was probably achieved in Late Cretaceous-Paleogene time. However, most or all hydrocarbons that migrated before deposition of the Maykop regional seal were lost. Therefore, effective entrapment of gas is recent, largely of late Miocene-Pliocene age, and is contemporaneous with deposition of thick orogenic clastics.

RESERVOIR ROCKS: Principal reservoir rocks for gas are Lower Cretaceous (Aptian-Albian) sandstones that overlie the basement or Triassic rocks in northern areas of the assessment unit. Several gas fields are known in Neocomian and Tertiary sandstones.

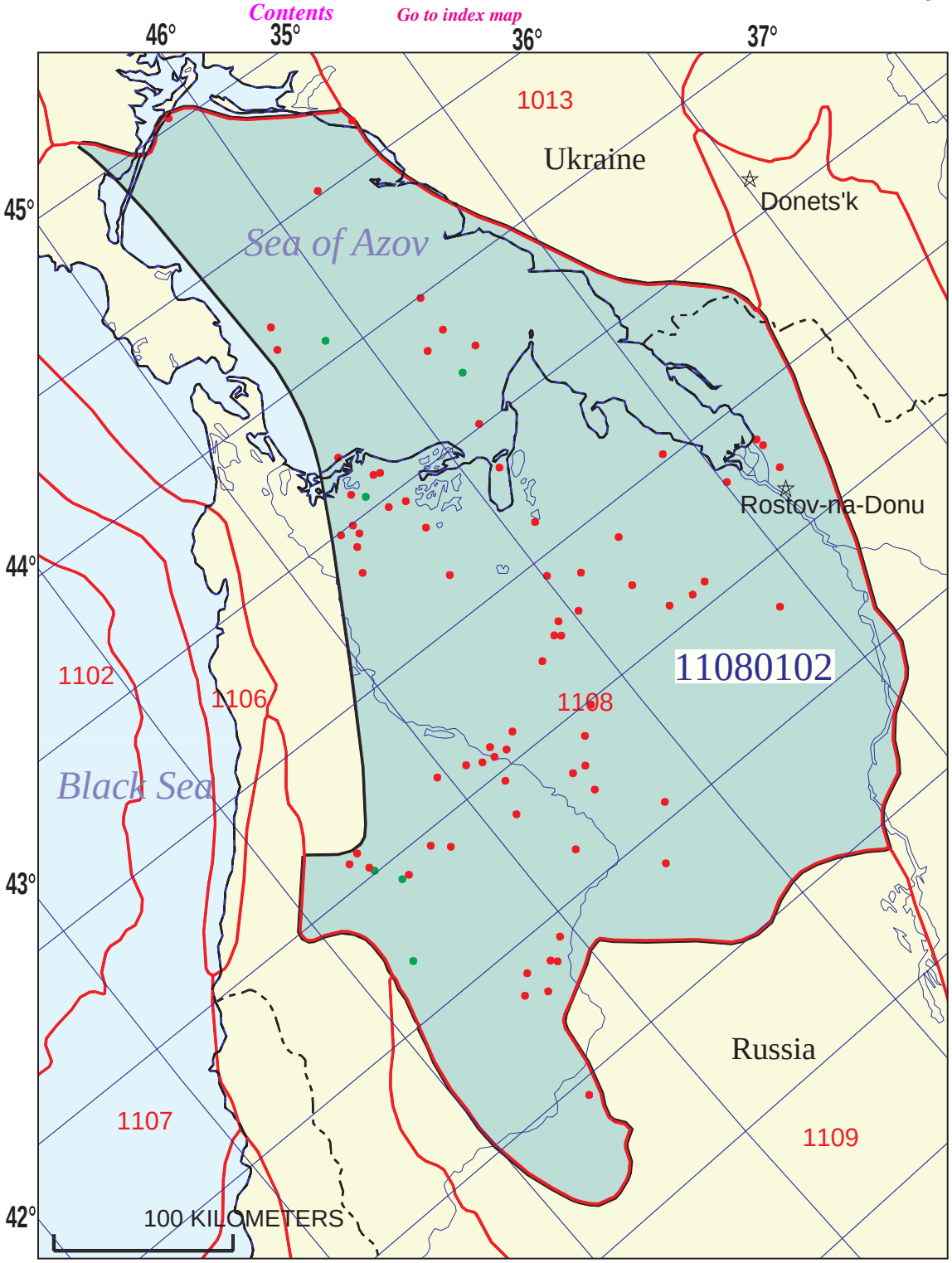
TRAPS: Structural traps are drapes over basement highs and over an inverted Triassic rift (Kanev-Berezan swell). These traps contain the entire gas reserves of the unit.

SEALS: The majority of gas reservoirs are sealed by intraformational shale beds. However, the principal regional seal that isolated the underlying hydrodynamic system and controlled lateral migration of gas is thick (as much as 3 km) shales of the Maykop series.

REFERENCES:

Krylov, N.A., ed., 1987, Tectonics and petroleum productivity of the North Caucasus (Tektonika i neftegazonosnost Severnogo Kavkaza): Moscow, Nauka, 96 p.

Letavin, A.I., ed., 1988, Mesozoic-Cenozoic sequences of the North Caucasus (Mezozoysko-kaynozoyskiye kompleksy Predkavkazya): Moscow, Nauka, 94 p.



Foreland Slope
Assessment Unit - 11080102

EXPLANATION

- Hydrography
- Shoreline
- 1108 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 11080102 — Assessment unit code and boundary

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

USGS science for a changing world

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

Date:……..	6/4/99		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	Azov-Kuban Basin	Number:	1108
Priority or Boutique……	Priority		
Total Petroleum System:……	Azov-Kuban Mesozoic-Cenozoic	Number:	110801
Assessment Unit:……..	Foreland Slope	Number:	11080102
* Notes from Assessor	Fields not grown. Reserve data are available on 30 of 72 fields listed in the Petroconsultants' file. Inert gas is nitrogen.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 2 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: 2 Gas: 28

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

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

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 80 2nd 3rd 440 3rd 3rd 70

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.	5	max no.	10
Gas fields:……min. no. (>0)	15	median no.	60	max no.	120

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	2	median size	5	max. size	200
Gas in gas fields (bcfg):……min. size	12	median size	50	max. size	3000

Assessment Unit (name, no.)
Foreland Slope, 11080102

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	700	1200	1700
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	5	10	20
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)……	30	35	40
Sulfur content of oil (%)……			
Drilling Depth (m) ……	1000	2000	3000
Depth (m) of water (if applicable)……	0	20	50

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	0	2	4
CO_2 content (%)……	0.5	3	6
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	1000	2500	6000
Depth (m) of water (if applicable)……	0	20	50

Assessment Unit (name, no.)
Foreland Slope, 11080102

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

1. Ukraine 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):…		50	
Portion of volume % that is offshore (0-100%)……		100	

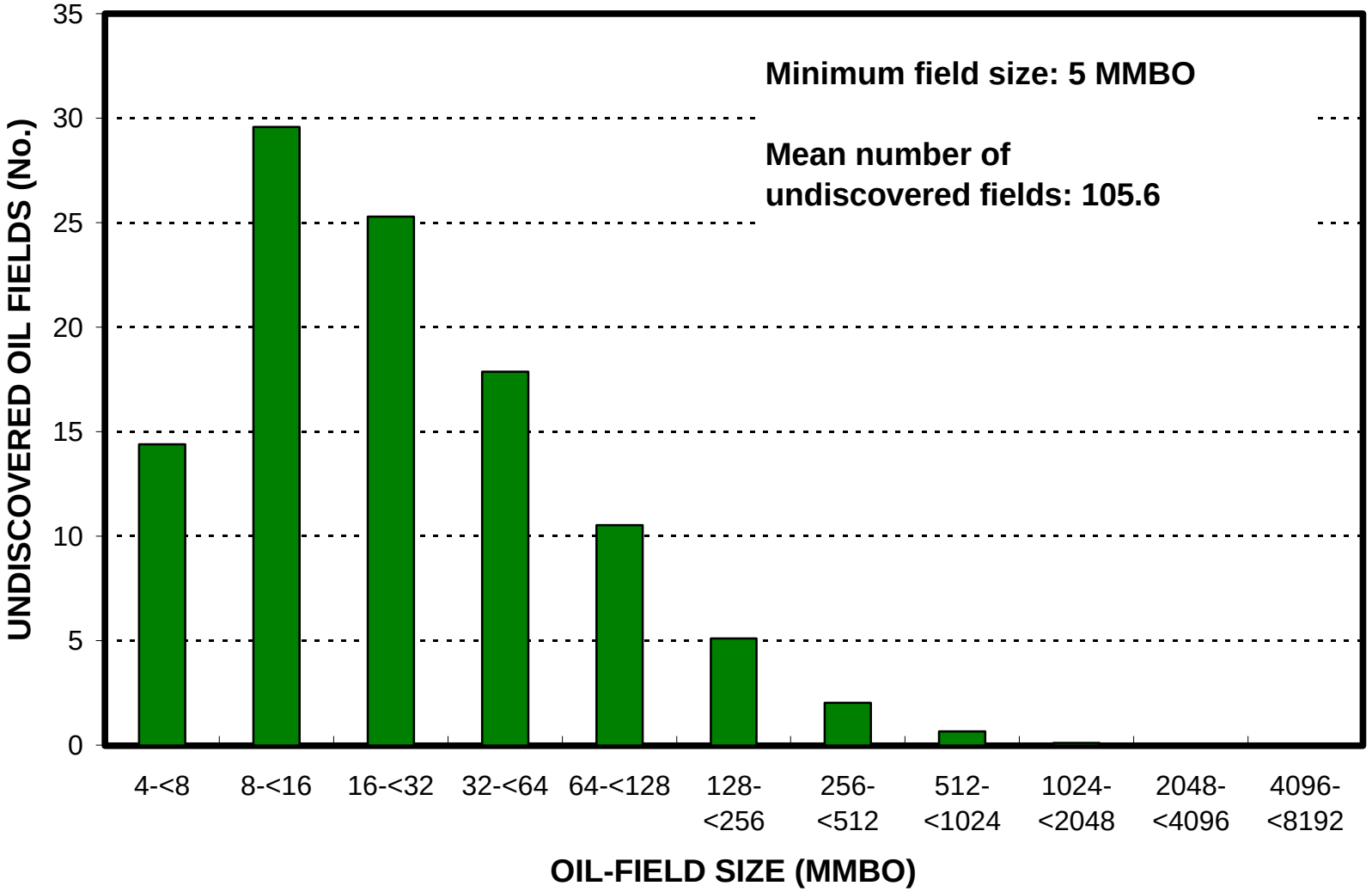
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		20	
Portion of volume % that is offshore (0-100%)……		100	

2. Russia 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):…		50	
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):…		80	
Portion of volume % that is offshore (0-100%)……		60	

Main Basin Plaform, AU 10080102
Undiscovered Field-Size Distribution



Main Basin Plaform, AU 10080102
Undiscovered Field-Size Distribution