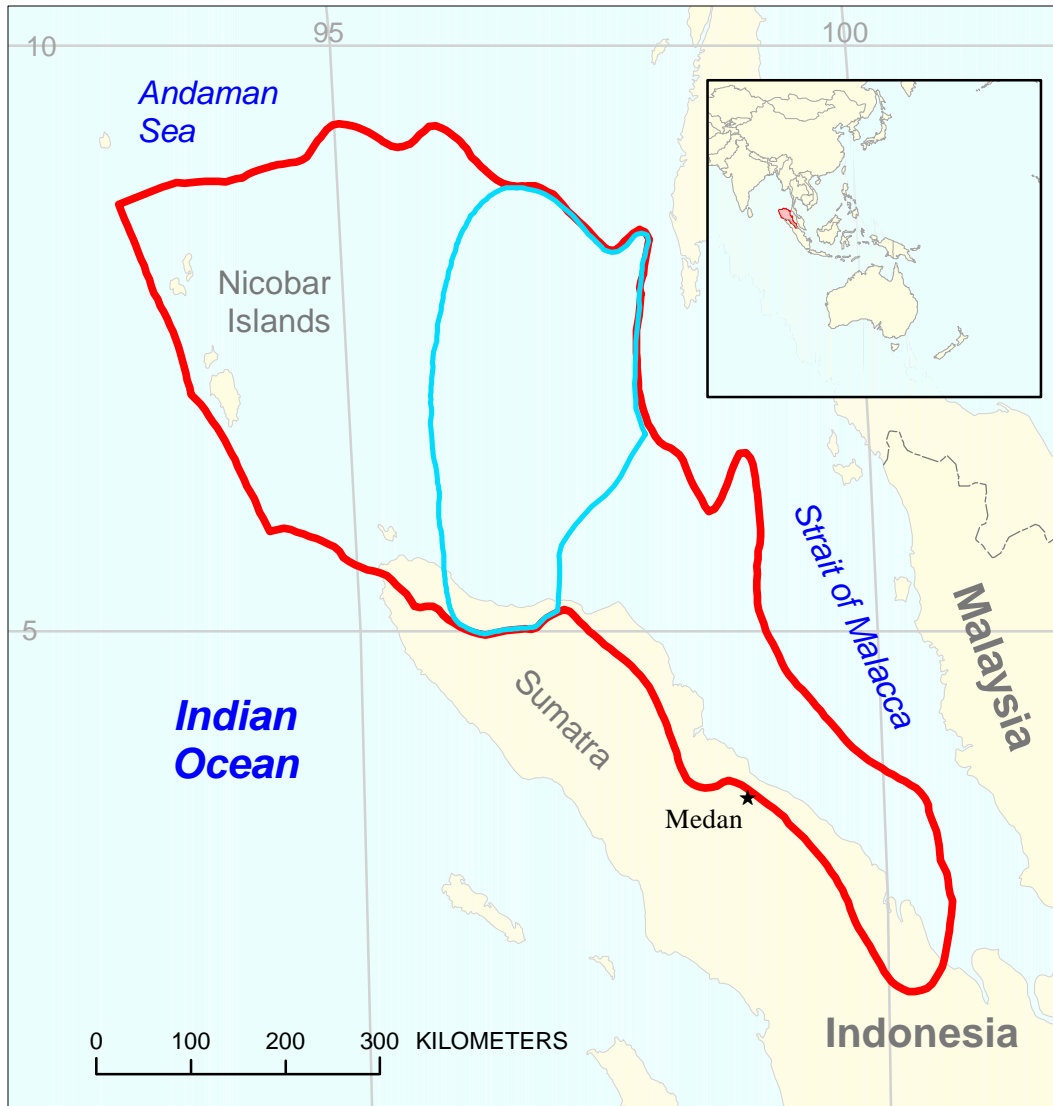




# Mergui Assessment Unit 38220102



-  Mergui Assessment Unit 38220102
-  North Sumatra Basin Geologic Province 3822

**USGS PROVINCE:** North Sumatra Basin (3822)

**GEOLOGIST:** M.G. Bishop

**TOTAL PETROLEUM SYSTEM:** Bampo-Cenozoic (382201)

**ASSESSMENT UNIT:** Mergui (38220102)

**DESCRIPTION:** Primarily offshore Tertiary basins in waters of Indonesia and Thailand. Series of north-south oriented rift basins on the southwestern edge of the Sunda Shelf (Mergui Shelf) with marine conditions restricted by emergent Mergui Ridge on the west. Deposition dominated by a clastic delta in the north from Oligocene to Late Miocene time when sediment supply was cut off by tectonics in Thailand. Extensive Early Miocene platform and paleohigh carbonate deposition. No significant discoveries. Twenty-four tests have been made in the area resulting in 4 oil shows, 2 gas discoveries, and 2 gas shows.

**SOURCE ROCKS:** Thick sections of restricted marine Bampo Formation shales and an unknown possible component of deltaic coals in the north.

**MATURATION:** The Yala (Bampo) is mature in most areas and is more than 2000 m thick.

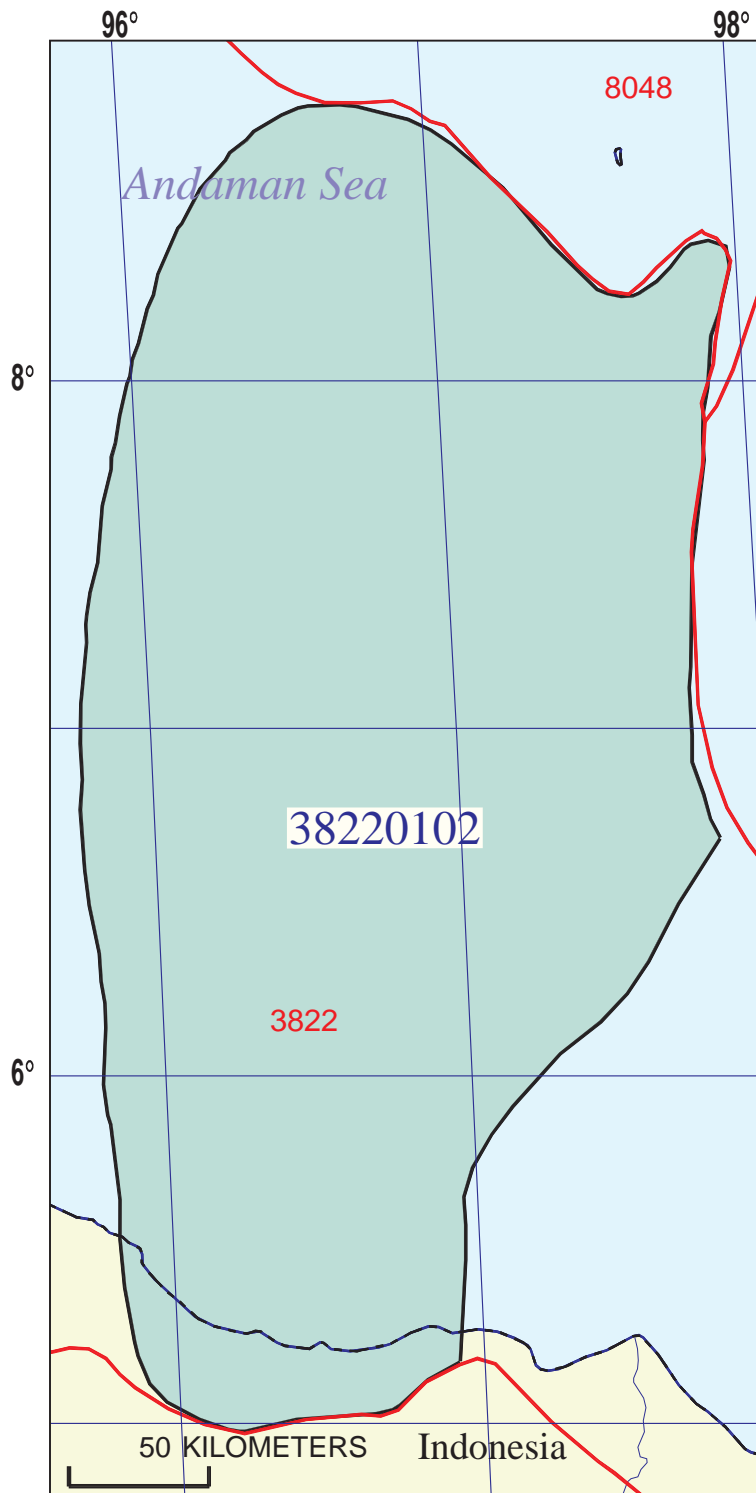
**MIGRATION:** Initiated around 13 Ma and continues. Primary migration occurs at 300°F, which is reached in various areas at from 3000 m to 5000 m depth.

**RESERVOIR ROCKS:** Early Miocene carbonate buildups in the Peutu and Belumai formations are considered the best prospective reservoirs with average porosity of 30 percent. Lowstand fans, Oligocene Bampo fluvio-deltaics, and Miocene Belumai to Keutapang formation equivalent deep-water fans are exploration targets.

**TRAPS AND SEALS:** Stratigraphic traps in clastics and carbonates and drape anticlines sealed by the regional Baong Formation shales.

**REFERENCES:**

- Andreason, M.W., Mudford, Brett, and St. Onge, J.E., 1997, Geologic evolution and petroleum system of the Thailand Andaman Sea basins, *in* Howes, J.V.C., and Noble, R.A., eds., Indonesian Petroleum Association Proceedings of the Petroleum Systems of SE Asia and Australasia Conference, May 1997: p. 337-350.
- Polachan, S., and Racey, A., 1994, Stratigraphy of the Mergui Basin, Andaman Sea—implications for petroleum exploration: *Journal of Petroleum Geology*, v. 17 no. 4, p. 373-406.



## Mergui Assessment Unit - 38220102

### EXPLANATION

- Hydrography
- Shoreline
- 3822 Geologic province code and boundary
- - - Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 38220102 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:..... 5/25/99  
 Assessment Geologist:..... R.T. Ryder  
 Region:..... Asia Pacific Number: 3  
 Province:..... North Sumatra Basin Number: 3822  
 Priority or Boutique..... Priority  
 Total Petroleum System:..... Bampo-Cenozoic Number: 382201  
 Assessment Unit:..... Mergui Number: 38220102  
 \* Notes from Assessor \_\_\_\_\_

**CHARACTERISTICS OF ASSESSMENT UNIT**

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

What is the minimum field size?..... 5 mmmboe 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:**

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. <b>CHARGE:</b> Adequate petroleum charge for an undiscovered field ≥ minimum size.....	<u>0.95</u>
2. <b>ROCKS:</b> Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size.....	<u>1.0</u>
3. <b>TIMING OF GEOLOGIC EVENTS:</b> Favorable timing for an undiscovered field ≥ minimum size	<u>1.0</u>

**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)	<u>1</u>	median no.	<u>6</u>	max no.	<u>15</u>
Gas fields:.....min. no. (>0)	<u>1</u>	median no.	<u>25</u>	max no.	<u>50</u>

**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	<u>5</u>	median size	<u>10</u>	max. size	<u>300</u>
Gas in gas fields (bcfg):.....min. size	<u>30</u>	median size	<u>100</u>	max. size	<u>8000</u>

**AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS**  
(uncertainty of fixed but unknown values)

<u>Oil Fields:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	1000	2000	3000
NGL/gas ratio (bnl/mmcf).....	30	60	90
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	5	10	20
Oil/gas ratio (bo/mmcf).....			

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**SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS**  
(variations in the properties of undiscovered fields)

<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	19	50	55
Sulfur content of oil (%).....	0.01	0.03	0.1
Drilling Depth (m) .....	1200	2000	3800
Depth (m) of water (if applicable).....	0	300	2000
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....	0.05	3.1	14
CO <sub>2</sub> content (%).....	0.1	15	90
Hydrogen-sulfide content (%).....	0	0	0
Drilling Depth (m).....	1200	2000	4300
Depth (m) of water (if applicable).....	0	300	2000

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

1. Indonesia represents 45 areal % of the total assessment unit

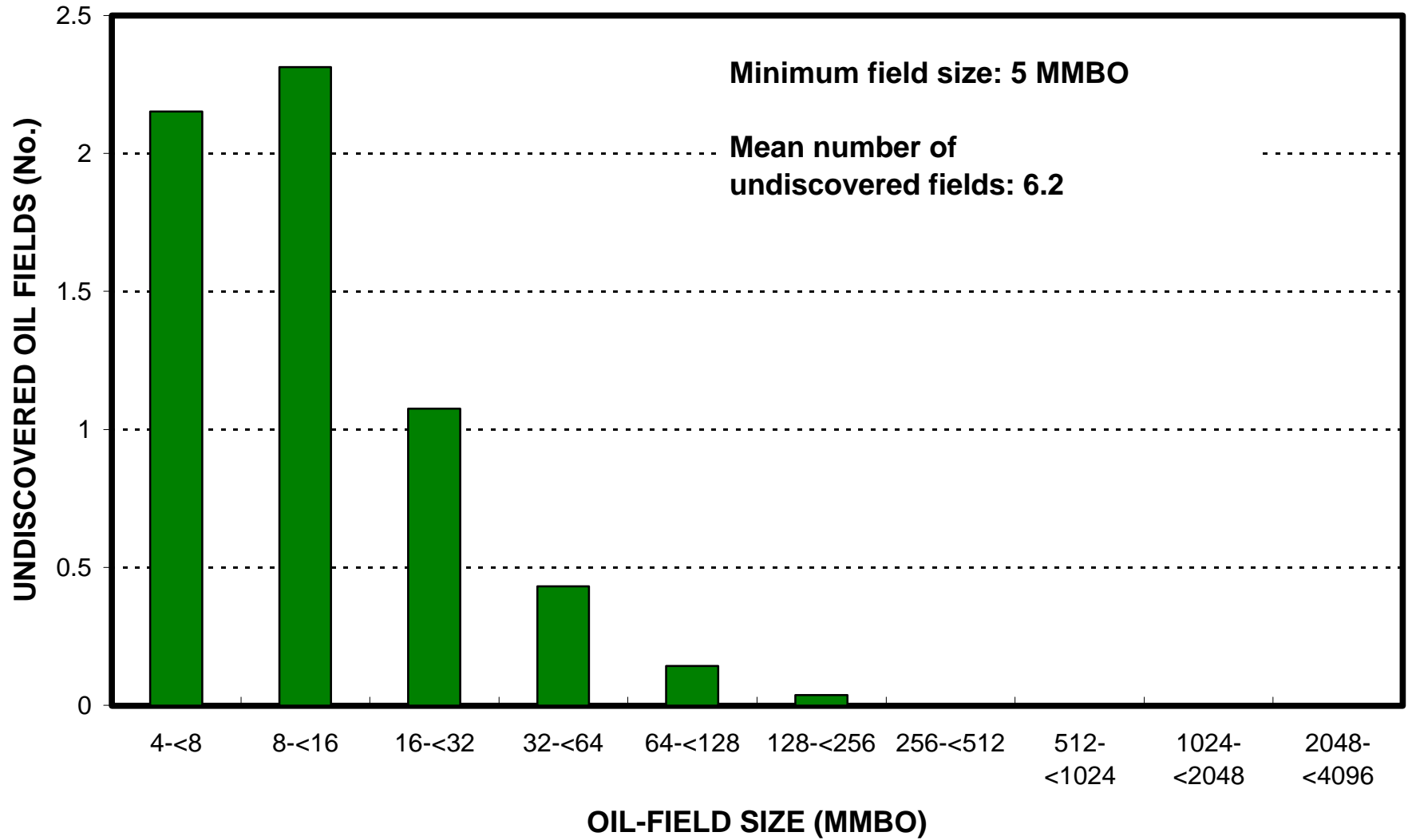
<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>45</u>	_____
Portion of volume % that is offshore (0-100%):.....	_____	<u>90</u>	_____
<u>Gas in Gas Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>45</u>	_____
Portion of volume % that is offshore (0-100%):.....	_____	<u>90</u>	_____

2. Thailand represents 55 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>55</u>	_____
Portion of volume % that is offshore (0-100%):.....	_____	<u>100</u>	_____
<u>Gas in Gas Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>55</u>	_____
Portion of volume % that is offshore (0-100%):.....	_____	<u>100</u>	_____

# Mergui, AU 38220102

## Undiscovered Field-Size Distribution



# Mergui, AU 38220102

## Undiscovered Field-Size Distribution

