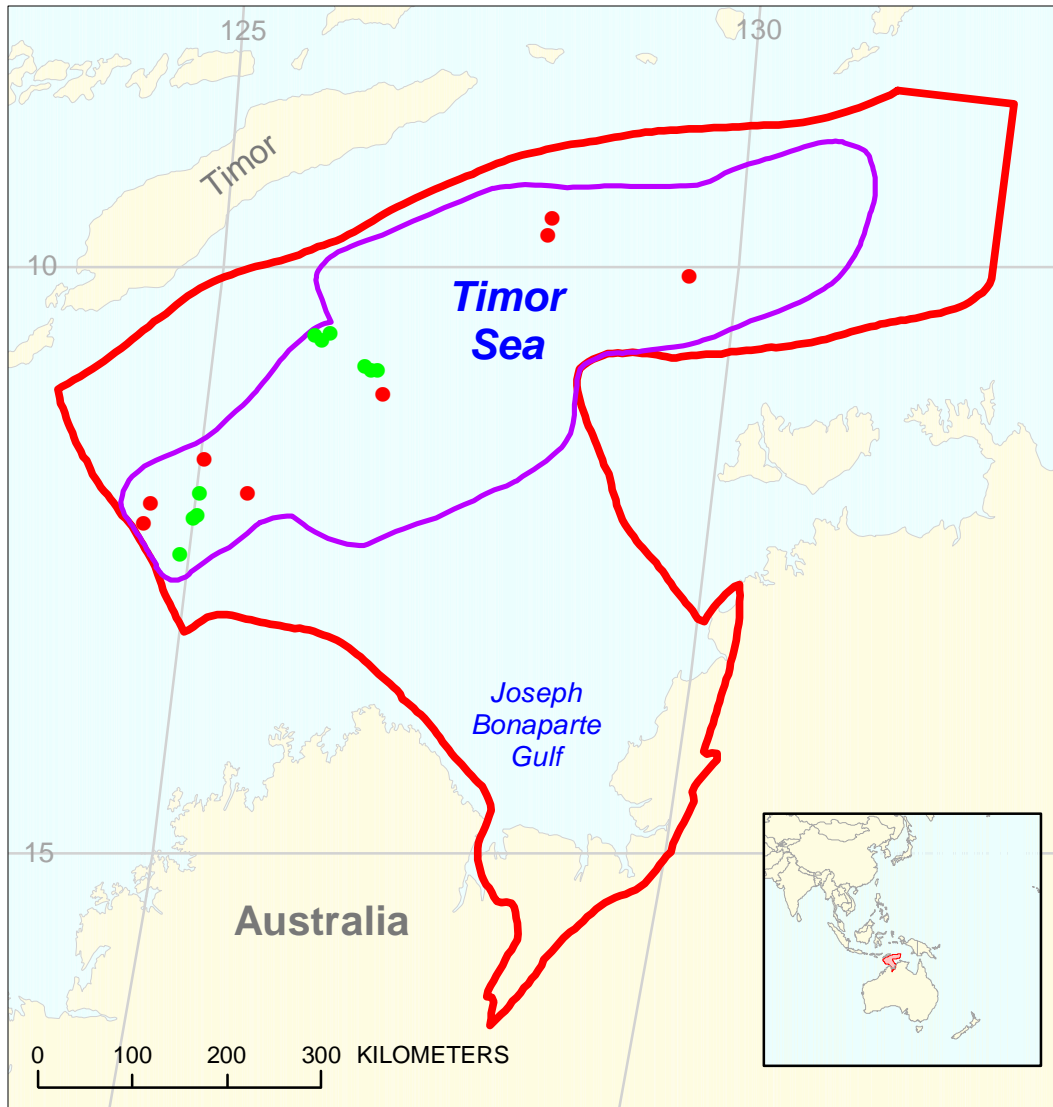




Malita Assessment Unit 39100301



-  Malita Assessment Unit 39100301
-  Bonaparte Gulf Basin Geologic Province 3910

USGS PROVINCE: Bonaparte Gulf Basin (3910)

GEOLOGIST: M.G. Bishop

TOTAL PETROLEUM SYSTEM: Jurassic/Early Cretaceous-Mesozoic (391003)

ASSESSMENT UNIT: Malita (39100301)

DESCRIPTION: Staggered Mesozoic age grabens formed in a continental shelf setting and associated oil and gas accumulations sourced by high-quality Jurassic to Cretaceous source rocks trapped in Mesozoic reservoirs located offshore in Australian and joint Australian-Indonesian waters.

SOURCE ROCKS: Early to Middle Jurassic Plover Formation and Late Jurassic to Early Cretaceous Flamingo Group. Source rocks consist of oil and gas-prone shales and coals deposited marginal to the grabens and oil-prone, restricted-marine shales deposited in the subsiding grabens; TOC 1 to 4 wt. %, HI to 300.

MATURATION: Maturation from Late Cretaceous to Early Oligocene varying with the subsidence of grabens.

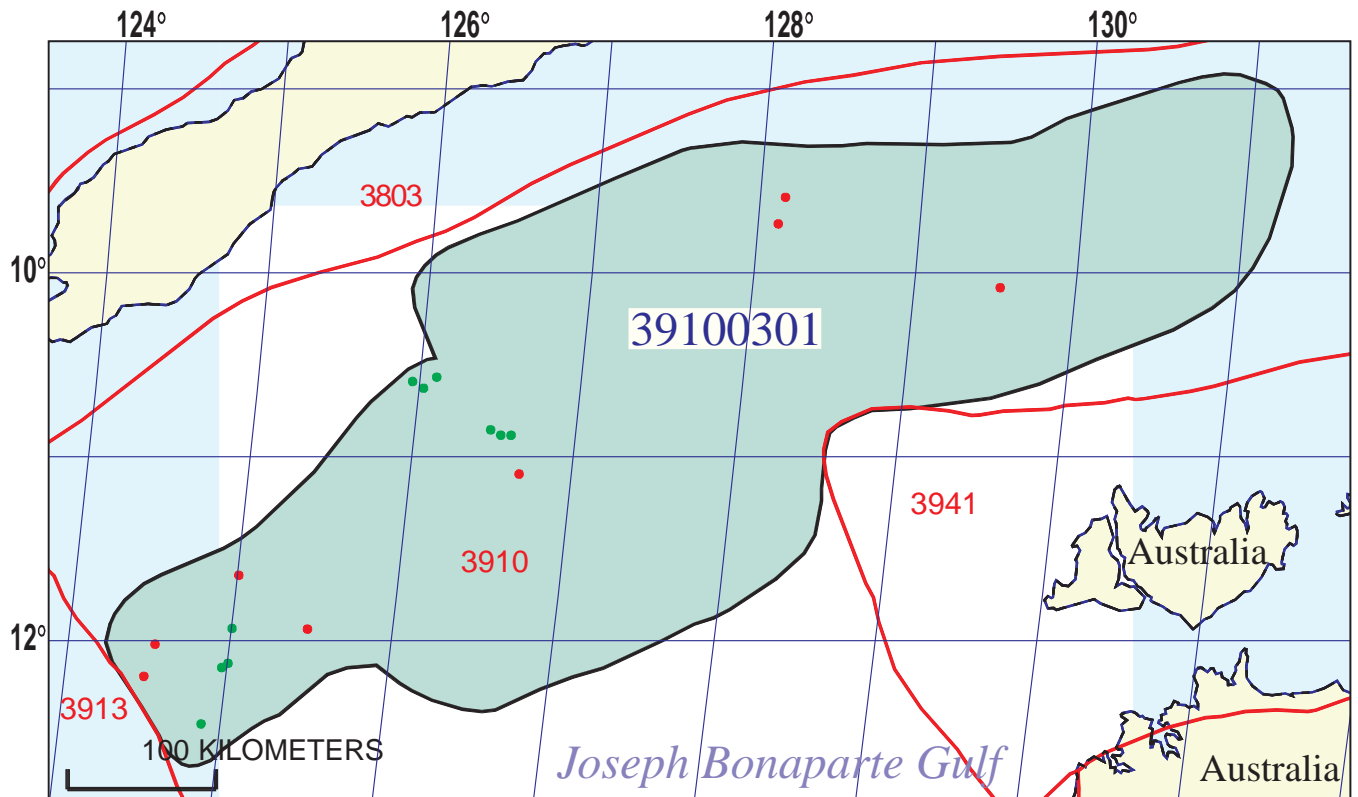
MIGRATION: Migration along and across faults, and laterally from source areas in the grabens to fault blocks and structures adjacent to the grabens.

RESERVOIR ROCKS: Good quality continental, shoreline, shallow marine to deep marine sandstone reservoirs.

TRAPS AND SEALS: Traps are dominantly fault blocks and tilted fault blocks formed by Jurassic and Cretaceous graben formation. Risk of the Timor Orogeny in the Tertiary reactivating faults and releasing trapped hydrocarbons is high. Timor Orogeny related compression fault and inversion structures present. The regional Bathurst Island Group is a seal and local shales such as the Jurassic Flamingo Shale can be both seal and source.

REFERENCES:

- DPIE, 1998, Release of offshore petroleum areas Australia 1998—Geology and Data Availability: Canberra, Australia, Department of Primary Industries and Energy, 194 p.; also available on CD-ROM.
- Mildren, S.D., Hillis, R.R., Fett, T., and Robinson, P.H., 1994, Contemporary stresses in the Timor Sea: implications for fault-trap integrity, *in* Purcell, P.G. and Purcell, R.R., eds., The sedimentary basins of Western Australia: Proceedings West Australian Basins Symposium, Perth, p. 291-300.
- Mory, A.J., 1988, Regional geology of the offshore Bonaparte Basin, *in* Purcell, P.G., and Purcell, R.R., eds., The North West Shelf Australia: Proceedings of Petroleum Exploration Society Australia Symposium, Perth, 1988, p. 287-309.
- Pattillo, J. and Nicholls, P. J., 1990, Tectonostratigraphic framework for the Vulcan Graben, Timor Sea region: APEA Journal, v. 30, pt. 1, p. 27-51.



Malita
Assessment Unit - 39100301

EXPLANATION

- Hydrography
- Shoreline
- 3910 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 39100301 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:..... 3/25/99
 Assessment Geologist:..... T.S. Ahlbrandt
 Region:..... Asia Pacific Number: 3
 Province:..... Bonaparte Gulf Basin Number: 3910
 Priority or Boutique..... Priority
 Total Petroleum System:..... Jurassic/Early Cretaceous-Mesozoic Number: 391003
 Assessment Unit:..... Malita Number: 39100301
 * Notes from Assessor MMS growth factor. Pipeline planned. Recent border dispute resolution.

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?..... 10 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: 8 Gas: 8
 Established (>13 fields) X Frontier (1-13 fields) Hypothetical (no fields)

Median size (grown) of discovered oil fields (mmboe):
 1st 3rd 47 2nd 3rd 77 3rd 3rd
 Median size (grown) of discovered gas fields (bcfg):
 1st 3rd 257 2nd 3rd 418 3rd 3rd

Assessment-Unit Probabilities:

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

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) 5 median no. 20 max no. 50
 Gas fields:.....min. no. (>0) 5 median no. 20 max no. 50

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 10 median size 30 max. size 1000
 Gas in gas fields (bcfg):..... min. size 60 median size 200 max. size 10000

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).....	1100	2200	3300
NGL/gas ratio (bnl/mmcf).....	30	60	90
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	22	44	66
Oil/gas ratio (bo/mmcf).....			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	40	48	55
Sulfur content of oil (%).....	0.01	0.04	0.21
Drilling Depth (m)	1200	3000	3600
Depth (m) of water (if applicable).....	80	265	450
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....			
CO ₂ content (%).....			
Hydrogen-sulfide content (%).....			
Drilling Depth (m).....	1200	3000	4000
Depth (m) of water (if applicable).....	80	265	450

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

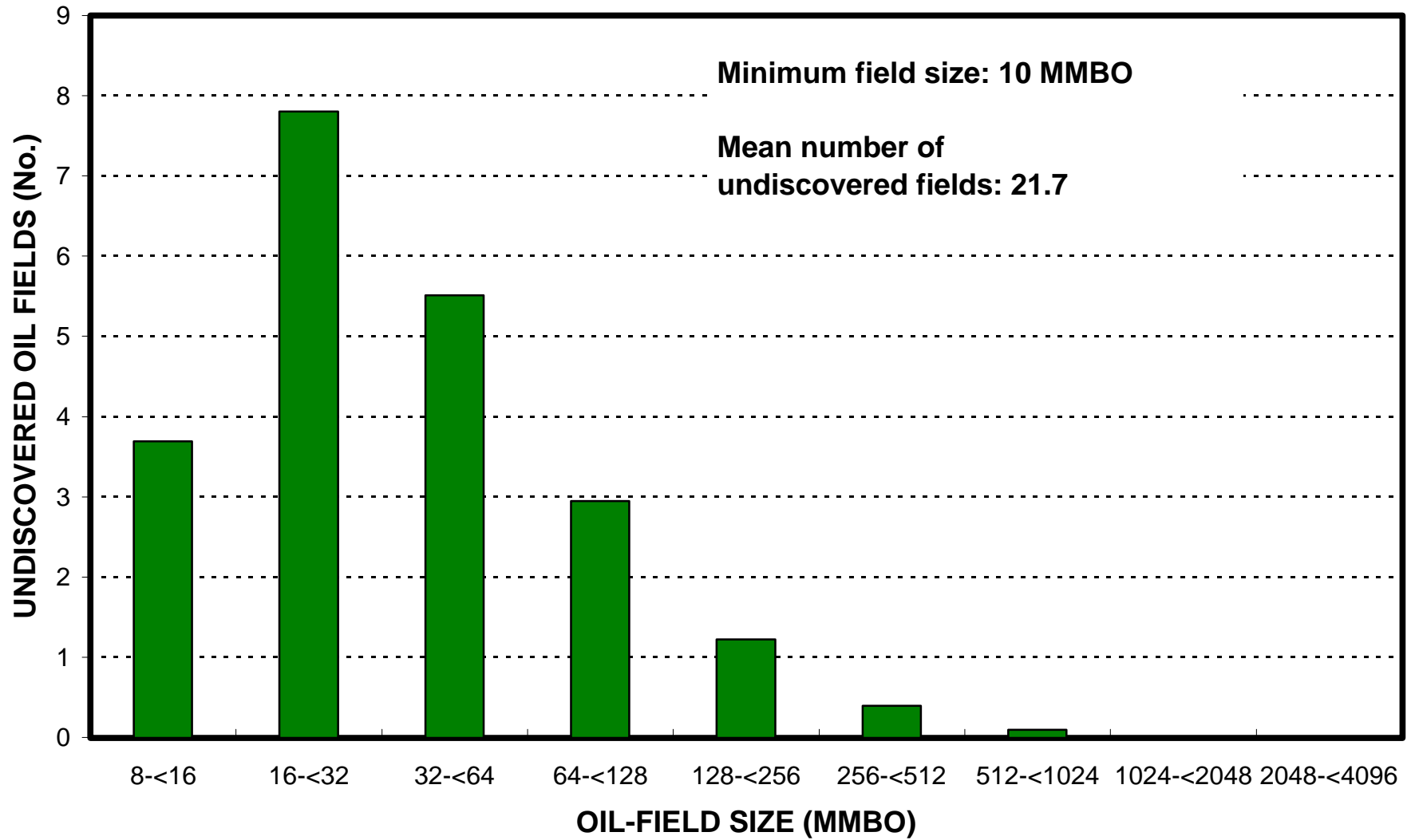
1. Australia represents 88 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	95	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	50	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____

2. Australia/Indonesia Zone of Cooperati represents 12 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):...	_____	5	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	50	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____

Malita, AU 39100301
Undiscovered Field-Size Distribution



Malita, AU 39100301

Undiscovered Field-Size Distribution

