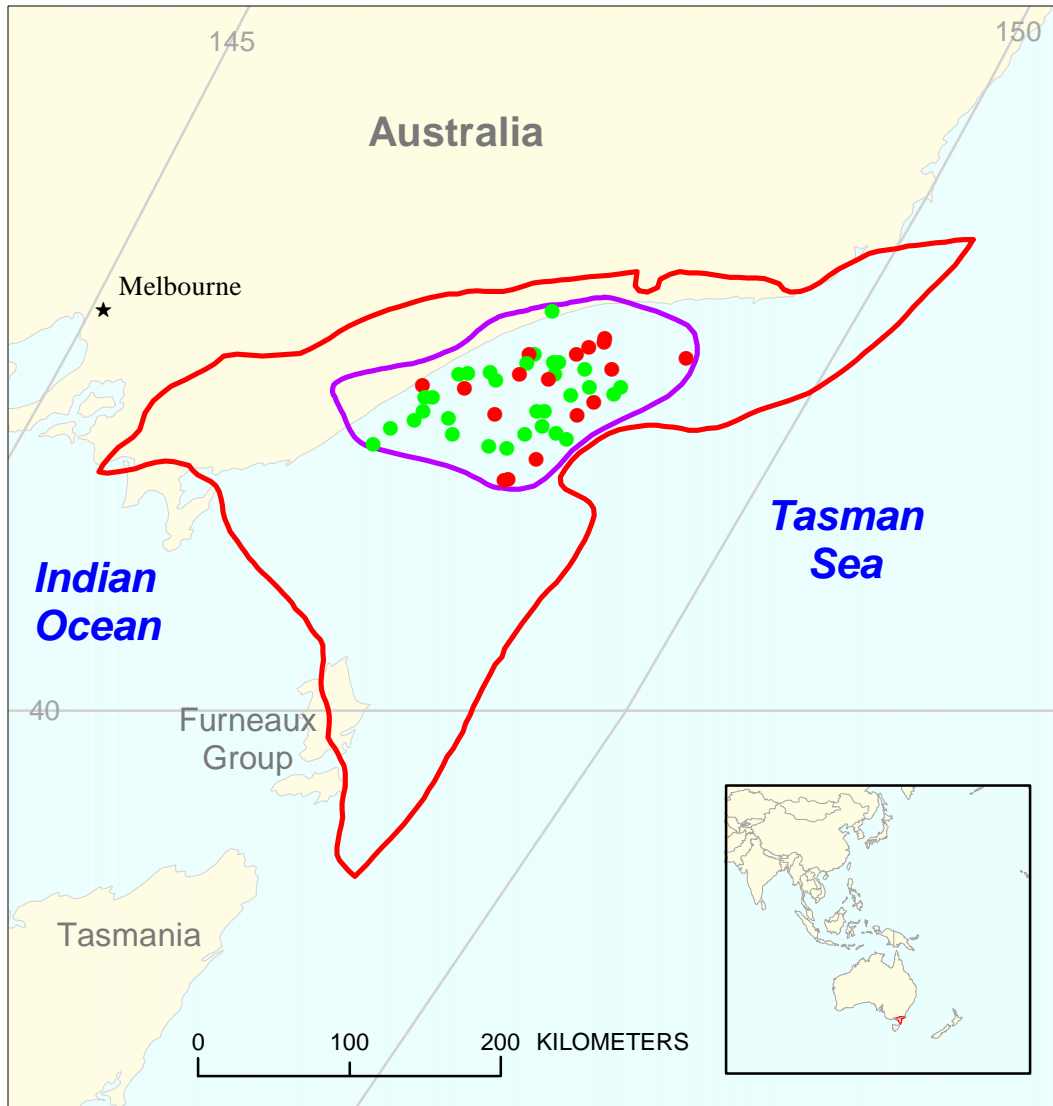




Gippsland Assessment Unit 39300101



-  Gippsland Assessment Unit 39300101
-  Gippsland Basin Geologic Province 3930

USGS PROVINCE: Gippsland Basin (3930)

GEOLOGIST: M.G. Bishop

TOTAL PETROLEUM SYSTEM: Latrobe (393001)

ASSESSMENT UNIT: Gippsland (39300101)

DESCRIPTION: Primarily offshore oil and gas basin with Miocene age anticline traps of Cretaceous through Tertiary sandstones sourced by Cretaceous coal and coaly shales.

SOURCE ROCK: Late Cretaceous through Paleocene Latrobe Group upper coastal plain coals and coaly shales, oil and gas prone, TOC to 70 wt. %, HI to 400, shale TOC 1 to 3 wt. %.

MATURATION: Oil and gas generation and expulsion from Lower Latrobe in Late Cretaceous-Early Paleocene time due to higher heat flow and subsidence prior to formation of trapping structures. Subsequent to trap formation, oil generation since Oligocene time from younger Latrobe source intervals. Discovered oils generated at maturity levels of $R_o=1.15$ to 1.30.

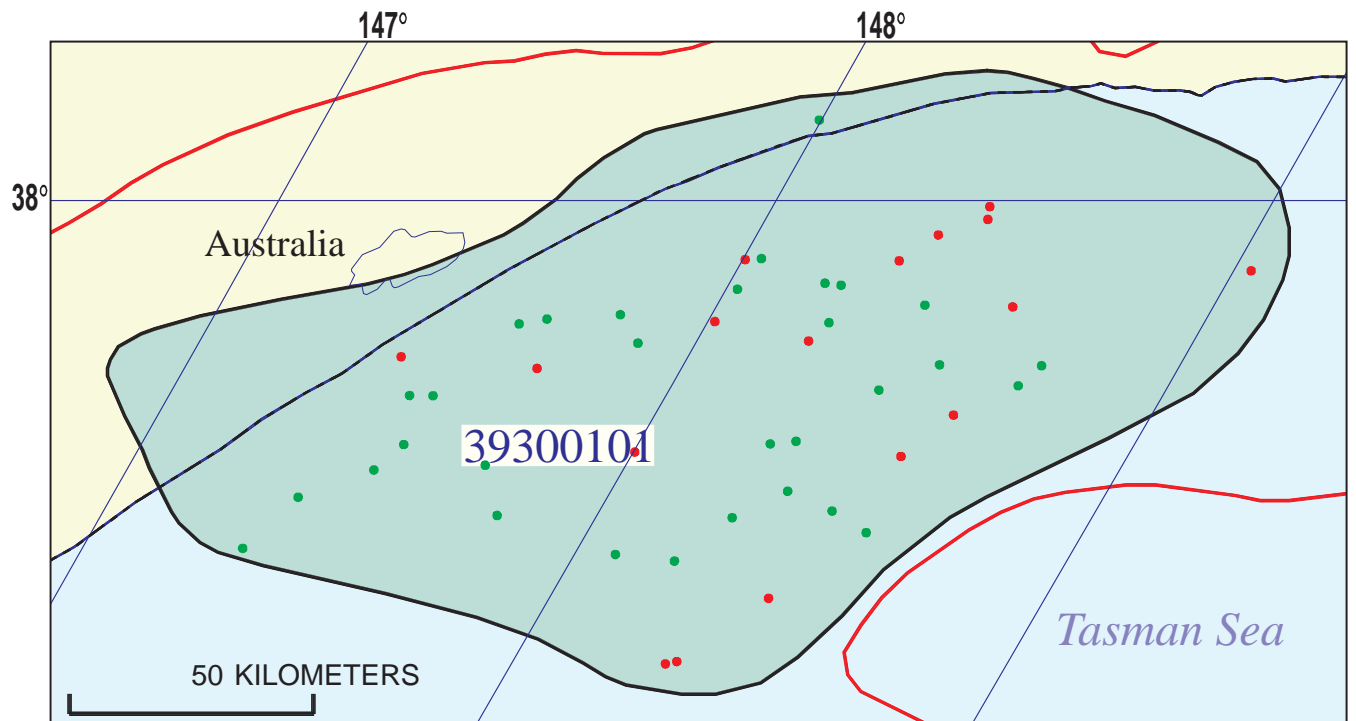
MIGRATION: Vertical migration of 2 km or more in the central portions of the basin. Significant lateral migration for accumulations on the Northern Platform.

RESERVOIR ROCKS: Cretaceous through Oligocene Latrobe Group more than 5000 m thick. Continental to marginal marine sandstones of fluvial, shoreline, barrier bar, and shallow marine origins. Lowstand canyons and canyon fill sediments. Widespread dolomite cement, illite, kaolinite and chlorite cement, quartz overgrowths, secondary porosity development. Porosity 10 to 37 percent, permeability as much as 10 D.

TRAPS AND SEALS: Most of the large accumulations occur at Top Latrobe in anticlines eroded and then sealed by marl and limestone of the regional Seaspray Group. Southwest to northeast oriented anticlines formed by Late Eocene through Early Miocene shear and compression. Additional traps within the Latrobe are inversion related fault traps.

REFERENCES:

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- Rahmanian, V.D., Moore, P.S., Mudge, W.J., and Spring, D.E., 1990, Sequence stratigraphy and the habitat of hydrocarbons, Gippsland Basin, Australia, *in* Brooks, J., ed., Classic petroleum provinces: Geological Society Special Publication 50, p. 525-541.



Gippsland Assessment Unit - 39300101

EXPLANATION

- Hydrography
- Shoreline
- 3930 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 39300101 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:.....	<u>11/9/99</u>	
Assessment Geologist:.....	<u>P.J. McCabe</u>	
Region:.....	<u>Asia Pacific</u>	Number: <u>3</u>
Province:.....	<u>Gippsland Basin</u>	Number: <u>3930</u>
Priority or Boutique:.....	<u>Priority</u>	
Total Petroleum System:.....	<u>Latrobe</u>	Number: <u>393001</u>
Assessment Unit:.....	<u>Gippsland</u>	Number: <u>39300101</u>
* Notes from Assessor	<u>MMS growth function.</u>	

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?..... 2 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: <u>28</u>	Gas: <u>16</u>
Established (>13 fields) <u>X</u>	Frontier (1-13 fields) _____	Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):

1st 3rd	<u>128</u>	2nd 3rd	<u>22</u>	3rd 3rd	<u>7</u>
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Median size (grown) of discovered gas fields (bcfg):

1st 3rd	<u>1812</u>	2nd 3rd	<u>50</u>	3rd 3rd	<u>355</u>
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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.....	<u>1.0</u>
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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>5</u>	median no.	<u>30</u>	max no.	<u>70</u>
Gas fields:.....min. no. (>0)	<u>5</u>	median no.	<u>35</u>	max no.	<u>100</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>2</u>	median size	<u>6</u>	max. size	<u>150</u>
Gas in gas fields (bcfg):.....min. size	<u>12</u>	median size	<u>60</u>	max. size	<u>3000</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).....	1400	2800	4200
NGL/gas ratio (bnl/mmcf).....	30	60	90
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	40	60	80
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).....	15	45	55
Sulfur content of oil (%).....	0.01	0.1	0.5
Drilling Depth (m)	300	2000	4000
Depth (m) of water (if applicable).....	0	170	1000
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....	0.1	2	18
CO ₂ content (%).....	0.01	2	36
Hydrogen-sulfide content (%).....	0.002	0.006	0.03
Drilling Depth (m).....	600	2000	5500
Depth (m) of water (if applicable).....	0	170	1000

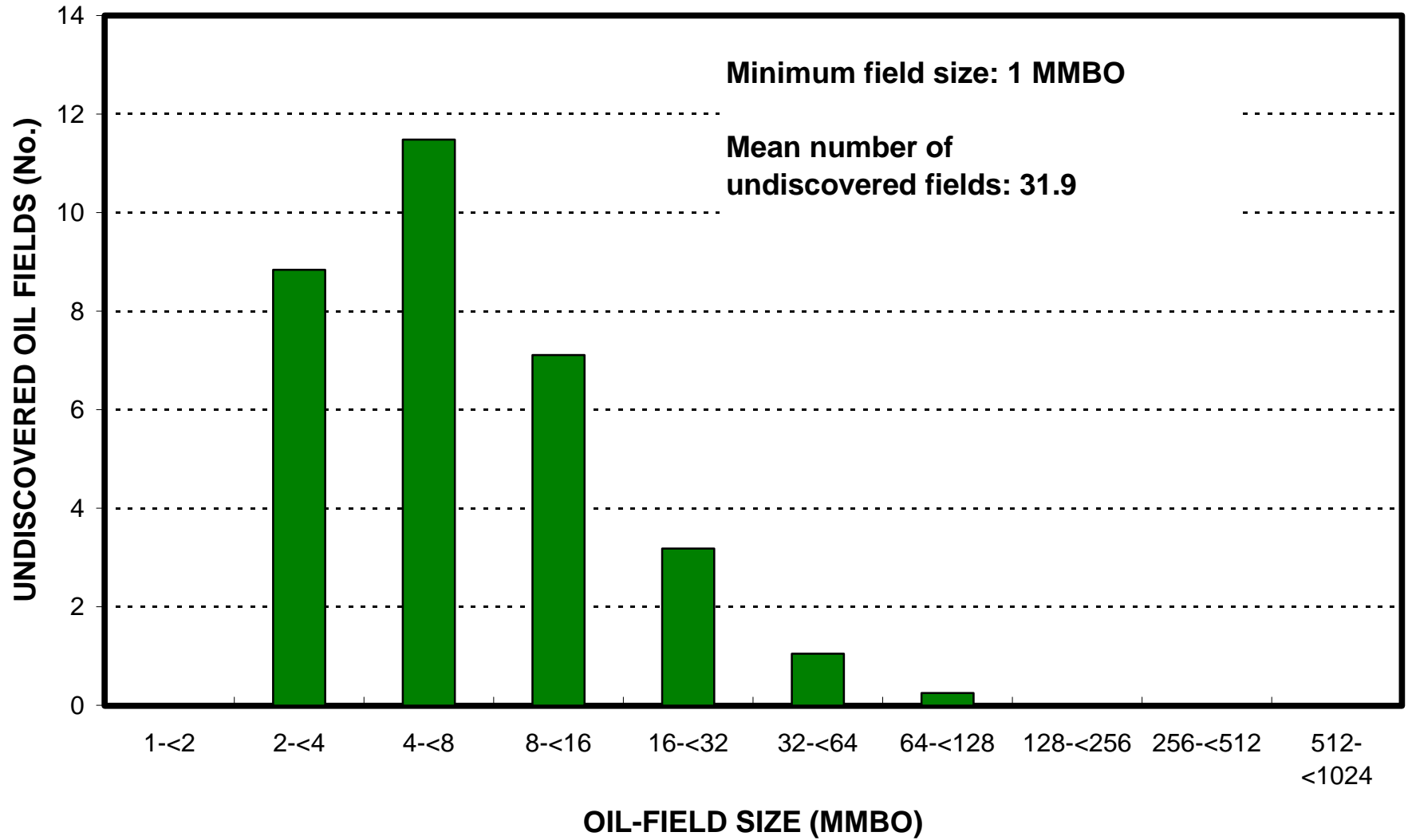
**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT
 TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

1. Australia represents 100 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>100</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>99</u>	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>100</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>99</u>	_____

Gippsland, AU 39300101

Undiscovered Field-Size Distribution



Gippsland, AU 39300101

Undiscovered Field-Size Distribution

