



PE990525

APPENDIX 2

FORAMINIFERAL BIOSTRATIGRAPHY

MORWONG - 1,  
GIPPSLAND BASIN.

By

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FORAMINIFERAL BIOSTRATIGRAPHY MORWONG-1 GIPPSLAND BASIN

Seventeen side wall cores were examined between 5876 and 2809 feet. No fauna was found in side wall cores at 5460, 5603, 5746 and 5876 feet. Some rotary cutting samples were examined but, as the designated depths were found to be unreliable, these samples are not included on the distribution sheets.

BIOSTRATIGRAPHY

Age	Zones	Depths in Feet	
		Top	Base
Upper Miocene	Zone D	2809	4690
" "	Zone E	5305	5370
Lower Miocene	Zone F	5386	5418

The base of the foraminiferal sequence is at 5418 feet while the highest sample examined is from 2809 feet.

The biostratigraphic zonation is that proposed by Taylor (1966) for off-shore Gippsland. Certain refinements to the scheme are in accordance with the New Zealand planktonic foraminiferal zonation outlined by Jenkins (1971).

The earliest fauna found is that at 5418 feet. Although preservation is poor, due to compaction and recrystallization, the association of Globigerinoides trilobus and G. bisphericus can be recognised. This association is diagnostic of Zone F which is at the top of the lower Miocene. The presence of Zone F at the base of the marine sequence, implies that the Oligocene and most of the lower Miocene is missing. More typical and diverse Zone F assemblages are present at 5410 and 5386 feet.

At 5370 feet, which is 16 feet above definite Zone F, Orbulina suturalis appears indicating the top of Zone E (= the O. suturalis Zone of Jenkins, 1971). It is probable that the basal part of Zone E (= the P. glomerosa curva Zone of Jenkins, 1971) is missing from the sequence. It is also

noted that specimens at and above 5370 feet are not recrystallized. Zone E fauna is also present at 5305 feet.

The first appearance of Orbulina universa and Globorotalia mayeri barisaensis is at 4690 feet and this association persists to the highest sample at 2809 feet. Therefore the interval between 4690 and 2809 feet represents Zone D.

#### ENVIRONMENT

The basal marine sample at 5418 feet is composed entirely of planktonic foraminifera. The dominance of planktonic forms (over 90% of the total fauna) persists to 3520 feet. Obviously the sediment was a globigerinid ooze of deep water origin. This conclusion is confirmed by the fact that the benthonic fauna includes such deep water species as Osangularia bengalensis, Discammina compressa, Siphouvigerina proboscidea and Sigmillopsis schlumbergi.

There is a marked decline in the percentage of planktonic fauna at and above 3026 feet. This decline is accompanied by a predominance of shallow water Cibicides spp. in the benthonic fauna. Thus depth of deposition became progressively shallower.

#### REFERENCES

- JENKINS, D.G., 1971 - N.Z. Geol. Surv. Paleont. Bull. 42.  
TAYLOR, D.J., 1966 - Appendix in Comm. Aust. Petrol. Search Subsidy Acts Publ. 76.
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#### DISTRIBUTION SHEETS

Sheets 1 & 2 Distribution of planktonic and benthonic foraminifera and biostratigraphy.

Key to Sheets

T = side wall cores at 2809; 3026; 3526; 4067; 4690; 5305; 5370; 5386  
5410; 5418; 5460; (N.F.F.); 5603 (N.F.F.);  
5746 (N.F.F.) and 5876 (N.F.F.)

N.F.F. = No foraminifera found.

Rotary cutting samples were examined but depths were regarded as unreliable, so they are not included on distribution sheets.

No conventional cores were examined.

• = 1 to 20 specimens.

| = over 20 specimens.

	2800	3100	3400	3700	4000	4300	4600	4900	5200	5500	5800	6100
<b>PLANKTONICS</b>												
1. <i>Globigerina woodi</i>										•		
2. <i>Globigerina apertura</i>												
3. <i>Orbulina universa</i>												
4. <i>Globorotalia mayeri barsanensis</i>												
5. <i>Globorotalia miozea conoidea</i>												
6. <i>Globorotalia miozea</i>										•		
7. <i>Globigerinoides trilobus</i>										•		
8. <i>Globorotalia peripheroronda</i>												
9. <i>Globorotalia praemenardii</i>												
10. <i>Globigerinoides glomeratus circularis</i>												
11. <i>Globorotalia dehiscens</i>												
12. <i>Globigerinoides bisphericus</i>										•		
13. <i>Globigerina bulloides</i>												
14. <i>Globorotalia menardii</i>												
15. <i>Orbulina suturalis</i>										••		
16. <i>Globigerinoides trilobus (elongate)</i>										•		
<b>CALC. BENTHONICS-I</b>												
17. <i>Cibicides lobatulus (convex)</i>												
18. <i>Cibicides cygnorum</i>												
19. <i>Cibicides refulgens</i>												
20. <i>Gyrogoninoides zelandica</i>												
21. <i>Cibicides pseudoungarianus</i>										••		
22. <i>Cibicides perforatus</i>												
23. <i>Melonis sp. ?</i>												
24. <i>Cibicides thira</i>												
25. <i>Discopulvina berthelotti</i>												
26. <i>Aramalinoides procolligera</i>												
27. <i>Cibicides brevaralis</i>												
28. <i>Siphonina australis</i>												
29. <i>Osangularia bergalensis</i>												
	2800									E5370		
					D					5305	F	540

	2800	3100	3400	3700	4000	4300	4600	4900	5200	5500	5800	6100
CALC. BENTHONICS - IV												
30. <i>Cassidulina subglobosa</i>		.		.								
31. <i>Cassidulina carinata</i>				.								
32. <i>Sphaeroidina bulloides</i>										.		
33. <i>Pullenia</i> sp.							.			.		
CALC. BENTHONICS - V												
34. <i>Euvingerina miozea</i>												
35. <i>Virgulina</i> sp.		.										
36. <i>Globobulimina pacifica</i>							.			.		
37. <i>Bolivina robusta</i>					.							
38. <i>Euvingerina mayrei</i>										.		
39. <i>Siphonovigenera proboscidae</i>												
CALC. BENTHONICS - VI												
40. <i>Lenticulina</i> sp.				.						.		
41. <i>Lenticulina mamilligera</i>	.											
42. <i>Nodosaria</i> sp.					.		.					
43. <i>Lagena</i> sp.												
44. <i>Lingulina</i> sp.												
CALC. BENTHONICS - VII												
45. <i>Sigmoidopsis schlumbergi</i>				.						.		
ARENACEOUS BENTHONICS - SIMPLE												
46. <i>Bathysiphon</i> sp. B.				.						.		
47. <i>Discammira compressa</i>				.						..		
48. <i>Bathysiphon</i> sp. A.							.					
ARENACEOUS BENTHONICS - COMPLEX												
49. <i>Siphodextularia</i> sp.					.							
ECHINOID SPINES	.											
FINE QUARTZ												.
MICA												.
	2800									5305	5370	578
						D					F	