FORAMINIFERAL ANALYSIS,

GRUNTER-1,

GIPPSLAND BASIN

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INTRODUCTION

Twenty three sidewall core samples from Grunter-1 between 1750.0m and 1895.0m (KB depth) were processed for foraminiferal analysis. All samples were scrutinised for planktonic foraminifera while only Latrobe Group samples were checked for benthonic foraminifera. An additional sample from deep within the Latrobe Group (sidewall core at 3770.0m) was checked for calcareous microfossils (foraminifera and calcareous nannoplankton) but it proved to be barren.

Table 1 provides a summary of the biostratigraphic breakdown in Grunter-1. Tables 2 and 3 summarise the palaeontological analysis of Grunter-1 (basic and interpretative). A range chart for foraminifera is included as basic data.

TABLE 1: BIOSTRATIGRAPHIC SUMMARY, GRUNTER-1

AGE	UNIT	ZONE	DEPTH (mKB)
			* above 1750.0
Early Miocene	Lakes Entrance Formation	F	1750.0
---------- log break at 1763m (Mid Miocene Marker) ----------			
Early Miocene	Lakes Entrance Formation	G	1783.9-1818.9
Early Miocene		H1	1833.1-1851.9
---------- log break at 1853m (basal Early Miocene disconformity) ----------			
# Middle Eocene	intra-Latrobe greensand	Indeterm.	1854.0-1858.0
---------- log break at 1858.5m (basal Middle Eocene disconformity) ----------			
# Early Eocene	Flounder Formation	Indeterm.	1860.0-1887.0
---------- log break at 1888m (basal Early Eocene disconformity) ----------			
# Late Paleocene	Latrobe Group ("Coarse Clastics")	Indeterm.	1889.6-1895.0
			* below 1895.0
			TD 3809 mKB

* not studied

\# age based on palynological analysis of Macphail (1985)

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GEOLOGICAL COMMENTS

The Latrobe Group "Coarse Clastics" is disconformably overlain by the Flounder Formation. The log break at 1888m equates with the basal Early Eocene sequence boundary event (Tuna/Flounder Channel cutting event) of Vail *et al.* (1977). The Flounder Formation channel fill in Grunter-1 is *P. asperopolus* (and possibly Upper *M. diversus*) in age (Macphail, 1985). A typical Flounder Formation agglutinated foraminiferal fauna was found near the base of the unit in the sidewall core sample at 1870.0m. The fauna is of no value in estimating the palaeobathymetric setting of the Flounder Formation.

The Flounder Formation is disconformably overlain by an intra-Latrobe greensand of Lower *N. asperus* (Middle Eocene) age. The boundary between the units (log break at 1858.5m) equates with the basal Middle Eocene disconformity (Marlin Channel cutting event) of Vail *et al.* (1977). The intra-Latrobe greensand consists of glauconitic siltstone and fine grained sandstone. The unit also contains fish teeth remains. The intra-Latrobe greensand represents a condensed sequence deposited during a transgressive phase.

The intra-Latrobe greensand is disconformably overlain by Lakes Entrance Formation of Early Miocene (Zone Hl) age. The log break at 1853m probably equates with the basal Early Miocene sequence event of Vail *et al.* (1977). The hiatus between the intra-Latrobe greensand and the Lakes Entrance Formation spans at least 14my.

The log break at 1763m probably represents the Mid Miocene Seismic Marker. This event equates with a widespread latest Early Miocene disconformity which was initiated during Zone F time in the Gippsland Basin (Rexilius, 1983).

BIOSTRATIGRAPHIC ANALYSIS

Indeterminate Interval: 1854.0-1895.0m

The interval is barren of *in situ* planktonic foraminifera and cannot be age-dated. Miocene planktonic foraminifera were recorded throughout the interval but these are downhole contaminants from the Lakes Entrance Formation. Palynological evidence indicates that the interval is assignable to the Upper *L. balmei* (SWC at 1895.0m), Upper *M. diversus* (1860.0-1887.0m) and Lower *N. asperus* (1854.0-1858.0m) Zones (Macphail, 1985). An agglutinated foraminiferal fauna comprising species of the genera *Bathysiphon*, *Ammobaculites*, *Halpophragmoides* and *Textularia* was recorded near the base of the Flounder Formation (SWC at 1887.0m) but this assemblage is not age-diagnostic.

Zone Hl: 1833.1-1851.9m

The uphole entry of *Globigerina woodi connecta* at 1851.9m defines the base of Zone Hl in the well.

Zone G: 1783.9-1818.9m

The first uphole appearance of *Globigerinoides trilobus* at 1813.9m defines the base of Zone G.

Zone F: 1750.0m

The occurrence of *Globigerinoides sicanus* without its descendant *Praeorbulina glomerosa* indicates that the sidewall core sample at 1750.0m is assignable to Zone F.

REFERENCES

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VAIL, P. R., MITCHUM, R. M., & THOMPSON, S., 1977. Global cycles of relative changes of sea level. In: PAYTON, C.E. (Editor), Seismic Stratigraphy - Applications to Hydrocarbon Exploration. Am. Assoc. Pet. Geol., Mem., 26:83-97.

TABLE 2

SUMMARY OF PALAEONTOLOGICAL ANALYSIS, GRUNTER-1, GIPPSLAND BASIN

INTERPRETATIVE DATA

NATURE OF SAMPLE	DEPTH (mKB)	PLANKTONIC FORAMINIFERAL YIELD	PRESERVATION	PLANKTONIC FORAMINIFERAL DIVERSITY	ZONE	AGE	COMMENTS
SWC189	3770.0	Barren	-	-	-	-	
SWC129	1895.0	Barren	-	-	-	-	Contains downhole contaminants
SWC130	1889.6	Barren	-	-	-	-	from Miocene section.
SWC131	1887.0	Barren	-	-	-	-	Contains agglutinated forams.
SWC134	1875.0	Barren	-	-	-	-	
SWC135	1870.0	Barren	-	-	-	-	
SWC136	1865.1	Barren	-	-	-	-	Contains Miocene downhole contaminants.
SWC137	1860.0	Barren	-	-	-	-	
SWC138	1858.0	Barren	-	-	-	-	Contains Miocene downhole contaminants.
SWC139	1856.0	Barren	-	-	-	-	
SWC140	1854.0	Barren	-	-	-	-	
SWC141	1851.9	High	Moderate	Moderate	Hl	Early Miocene	
SWC142	1850.0	High	Good	Moderate	Hl	Early Miocene	Fish teeth, echinoid spines.
SWC143	1848.1	High	Moderate/good	Moderate/low	Hl	Early Miocene	Fish teeth.
SWC144	1846.1	High	Good	Moderate/high	Hl	Early Miocene	Echinoid spines.
SWC145	1844.0	High	Good	Moderate/high	Hl	Early Miocene	
SWC146	1842.0	High	Good	Moderate	Hl	Early Miocene	
SWC147	1840.0	High	Good	Moderate	Hl	Early Miocene	
SWC148	1837.0	High	Moderate	Moderate	Hl	Early Miocene	Echinoid spines.
SWC149	1833.1	High	Good	Moderate/high	Hl	Early Miocene	
SWC150	1818.9	High	Good	Moderate	G	Early Miocene	Echinoid spines.
SWC151	1800.0	High	Good	Moderate	G	Early Miocene	
SWC152	1783.1	High	Moderate/good	Moderate/high	G	Early Miocene	
SWC153	1750.0	High	Good	Moderate	F	Early Miocene	

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BASIC DATA

TABLE 3: BASIC DATA, GRUNTER-1

RANGE CHART: FORAMINIFERA

TABLE 3

SUMMARY OF PALAEONTOLOGICAL ANALYSIS, GRUNTER-1, GIPPSLAND BASIN

BASIC DATA

NATURE OF	DEPTH	PLANKTONIC FORAMINIFERAL	PRESERVATION	PLANKTONIC FORAMINIFERAL DIVERSITY
SWC189	3770.0	Barren	-	-
SWC129	1895.0	Barren	-	-
SWC130	1889.6	Barren	-	-
SWC131	1887.0	Barren	-	-
SWC134	1875.0	Barren	-	-
SWC135	1870.0	Barren	-	-
SWC136	1865.1	Barren	-	-
SWC137	1860.0	Barren	-	-
SWC138	1858.0	Barren	-	-
SWC139	1856.0	Barren	-	-
SWC140	1854.0	Barren	-	-
SWC141	1851.9	High	Moderate	Moderate
SWC142	1850.0	High	Good	Moderate
SWC143	1848.1	High	Moderate/good	Moderate/low
SWC144	1846.1	High	Good	Moderate/high
SWC145	1844.0	High	Good	Moderate/high
SWC146	1842.0	High	Good	Moderate
SWC147	1840.0	High	Good	Moderate
SWC148	1837.0	High	Moderate	Moderate
SWC149	1833.1	High	Good	Moderate/high
SWC150	1818.9	High	Good	Moderate
SWC151	1800.0	High	Good	Moderate
SWC152	1783.1	High	Moderate/good	Moderate/high
SWC153	1750.0	High	Good	Moderate

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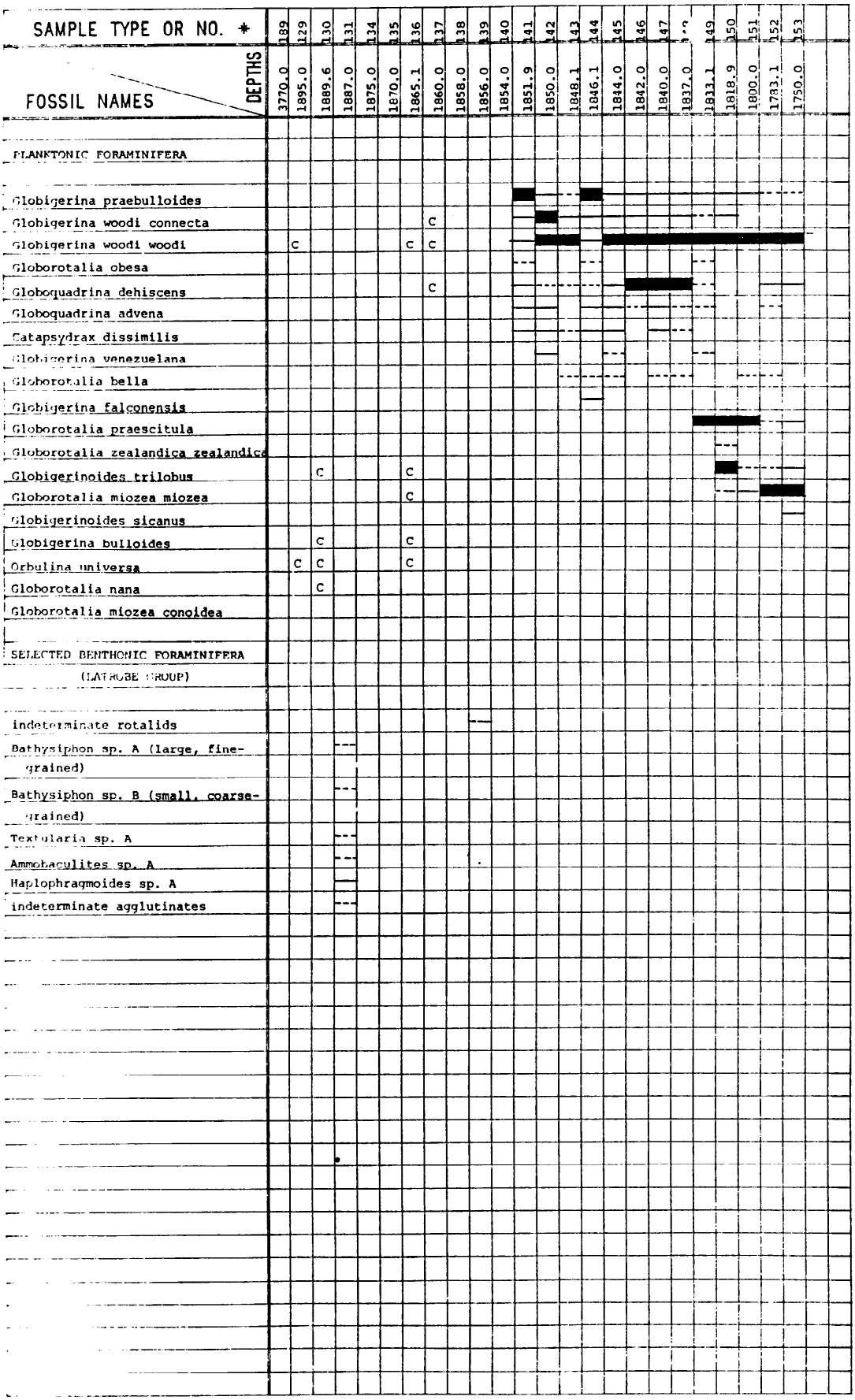
Well Name Grunter-1 Basin Gippsland Sheet No. 1 of 1



* C=CORE S=SIDEWALL CORE T=CUTTINGS J=JUNK BASKET

--- Rare — Few ■ Common C Downhole contamination

PALAEO.CHART-2
DWG.1107/OP/287