

FORAMINIFERAL SEQUENCE
IN SPERM WHALE # 1

For:- HUBBAY OIL (AUSTRALIA) LTD.
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PALTECH PTY
LTD

MARINE MICROPALAEONTOLOGISTS
SYDNEY NEW SOUTH WALES
MIDLAND WESTERN AUSTRALIA

THE FORAMINIFERAL SEQUENCE
in SPERM WHALE # 1

Forty three sidewall cores from SPERM WHALE # 1 were examined for foraminiferal content. On the basis of that examination, the following breakdown of the sequence was noted.

Sidewall Cores Depth (m)	Approx E-log Unit Boundary	Age	Zone*	Paleoenvironment [¶]
217.0 to 384.0	----- ? -----	Pliocene	A-3 to A-4	Inner shelf (~40m) Mid shelf canyon (40-100m)
405.0 to 638.0	----- ? -----	Early Pliocene to Late Miocene	B-1	Inner shelf (~40m) Outer shelf canyon (100-200m)
662.0 to 712.0	----- 713 -----	Mid Miocene	C	Shelf/slope break (~200m)
727.0 to 799.0	----- 801 -----	Mid to Early Miocene	D-2 to G	Mid shelf canyon (40-100m) to inner shelf (10-40m)
803.9		Late Eocene	K	Estuarine (<10m)
806.0		?	N.F.F.	Deltaic

* Planktonic foraminiferal zonation after Taylor (in prep.).

¶ Paleobathymetric range in parentheses.

A list of sidewall cores studied is shown on Tables 1 & 2. The deepest sidewall core from 806.0m contained no foraminifera; otherwise all samples contained both planktonic and benthonic foraminifera, although poor preservation, due to carbonate diagenesis, made identification difficult in some samples.

Tables 1 & 2 (herein) detail the record summarised on page 1. These tables are compilations of both planktonic and benthonic foraminiferal distribution, as well as the lithological characteristics of the residue grains. The micro-paleontological data sheet shows the interpreted reliability of the planktonic zone determinations.

COMMENT ON CANYON-FILL SEQUENCE IN SPERM WHALE # 1.

The sequence demonstrates fluctuations in both canyon cutting and filling from early Miocene to Pliocene. Two disconformities are recognised; one in the mid Miocene between Zones D-2 and C (at ~713m) and the other in late Miocene between Zones C and B-1. The first event at 713m is evidenced by a disjunct environmental sequence from mid canyon fill at top of D-2 and shelf/slope deposition of the Zone C sample immediately above the biostratigraphic break.

A report correlating the foraminiferal sequences in wells drilled in the eastern portion of Vic/P11 is being prepared. However, a brief comment is warranted here, in that the SPERM WHALE canyon fill sequence appears to represent part of a major anastomosing sequence intersected in sections further seaward, rather than being related to the BALEEN, WHALE and FLATHEAD Miocene canyon system.

M I C R O P A L E O N T O L O G I C A L D A T A S H E E T

B A S I N : GIPPSLAND

ELEVATION: KB: 9.6m GL: -54.6m

WELL NAME: SPERM WHALE # 1

TOTAL DEPTH: _____

A G E	FORAM. ZONULES	H I G H E S T D A T A					L O W E S T D A T A				
		Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time	Preferred Depth	Rtg	Alternate Depth	Rtg	Two Way Time
PLEIS-TOCENE	A ₁										
	A ₂										
PLIO-CENE	A ₃						217	1			
	A ₄	237	2				384	1			
M I O C E N E	L A T E	B ₁	405	2			638	1			
		B ₂									
		C	662	1			712	1			
	M I D D L E	D ₁									
		D ₂	727	2				750	0		
		E ₁	768	0				768	0		
		E ₂	773	2				773	2		
	E A R L Y	F	782	2				787	1		
		G	799	1				799	1		
		H ₁									
O L I G O C E N E	L A T E	H ₂									
		I ₁									
	E A R L Y	I ₂									
		J ₁									
E O C - E N E	Pre-K	J ₂									
		K	803.9	1			803.9	1			

COMMENTS: Disconformity between D-2 and C at ≈713m marked by frequent reworked D-2 planktonic faunas in basal C assemblage; as well as displaced benthonic elements. Probable disconformity between C and B-1 on biostratigraphic disjunction.

- CONFIDENCE RATING:
- 0: SWC or Core - Complete assemblage (very high confidence).
 - 1: SWC or Core - Almost complete assemblage (high confidence).
 - 2: SWC or Core - Close to zonule change but able to interpret (low confidence).
 - 3: Cuttings - Complete assemblage (low confidence).
 - 4: Cuttings - Incomplete assemblage, next to uninterpretable or SWC with depth suspicion (very low confidence).

NOTE: If an entry is given a 3 or 4 confidence rating, an alternative depth with a better confidence rating should be entered, if possible. If a sample cannot be assigned to one particular zone, then no entry should be made, unless a range of zones is given where the highest possible limit will appear in one zone and the lowest possible limit in another.

DATA RECORDED BY: PALTECH PTY. LTD.

DATE: March 1st, 1982.

DATA REVISED BY: _____

DATE: _____

SIDEWALL CORE Depth in metres	PLANKTONIC FORAMINIFERA												PLANKTONIC FORAMINIFERAL ASSEMBLAGE	AGE			
	PLANKTONIC FORAMINIFERA														SWC Depth at Base		
217.0	Gina angulirodes														A-3	217.0	PLIOCENE
237.0	Gina linaperta																
251.0	Gina linder																
276.0	Gina praescitula S.S.																
301.0	Gina zealandica S.S.																
328.0	Gina woodi woodi																
346.0	Gina woodi woodi																
366.0	Gina woodi woodi																
384.0	Gina woodi woodi																
405.0	Gina woodi woodi																
425.0	Gina woodi woodi																
436.0	Gina woodi woodi																
467.0	Gina woodi woodi																
500.0	Gina woodi woodi																
518.0	Gina woodi woodi																
534.0	Gina woodi woodi																
554.0	Gina woodi woodi																
570.0	Gina woodi woodi																
587.0	Gina woodi woodi																
604.0	Gina woodi woodi																
621.0	Gina woodi woodi																
638.0	Gina woodi woodi																
662.0	Gina woodi woodi																
672.0	Gina woodi woodi																
682.0	Gina woodi woodi																
692.0	Gina woodi woodi																
702.0	Gina woodi woodi																
712.0	Gina woodi woodi																
723.0	Gina woodi woodi																
727.0	Gina woodi woodi																
734.0	Gina woodi woodi																
741.0	Gina woodi woodi																
750.0	Gina woodi woodi																
756.0	Gina woodi woodi																
762.0	Gina woodi woodi																
768.0	Gina woodi woodi																
773.0	Gina woodi woodi																
782.0	Gina woodi woodi																
787.0	Gina woodi woodi																
792.0	Gina woodi woodi																
799.0	Gina woodi woodi																
803.9	Gina woodi woodi																
906.0	Gina woodi woodi																

KEY: ° <20 specimens R recycled early/mid Miocene specimens
x >20 specimens ? identification doubtful due to preservation.
D Dominant >60% of assemblage

TABLE 1:- PLANKTONIC FORAMINIFERAL DISTRIBUTION - SPERM WHALE # 1
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Depth in meters. Sidewall Core	BENTHIC FORAMS. in ENVIRONMENTAL GROUPS				RESIDUE LITHOLOGY			ENVIRONMENT	PLANKTONIC FORAMINIFERAL ASSEMBLAGE	AGE
	INNER SHELF SEAWEED ZONE	MID SHELF	OUTER SHELF & CANYON SHELF/SLOPE BREAK	MAJOR COMPONENTS	MINOR COMPONENTS	Foram Frequency	CHARACTER CHANGE			
217.0	x x x x	x			rock frags.	pyrite-cryx f aggs.	DELTAIC-ESTUARINE 10m	A-3	217.0	PLIOCENE
237.0	R R R						INNER SHELF 40m	A-4		
251.0	R R R						CANYON HEAD 40m			
276.0	R						INNER SHELF 40m			
301.0	D						CANYON-MID SHELF 40-100m			
328.0	D						OUTER SHELF with CANYON 1-200m			
346.0	D									
366.0	D									
384.0	D									
405.0	D									
425.0	D									
436.0	D									
467.0	D									
500.0	R									
518.0	R									
534.0	R									
554.0	R									
570.0	indet									
587.0	R									
604.0	R									
621.0	R									
638.0	R									
652.0	R									
662.0	R									
672.0	R									
682.0	R									
692.0	R									
702.0	R									
712.0	R									
723.0	R									
727.0	D									
736.0	D									
741.0	D									
750.0	R									
756.0	R									
762.0	indet									
768.0	indet									
773.0	R									
782.0	R									
787.0	R									
792.0	R									
799.0	D									
803.9	x									
806.0	x									

KEY: ° <20 specimens R recycled or displaced
x >20 specimens indet indeterminate due to preservation.
D Dominant >60% of assemblage

TABLE 2:- SIGNIFICANT BENTHIC FORAMINIFERAL DISTRIBUTION, RESIDUE LITHOLOGY & PALEOENVIRONMENTAL ASSESSMENT - SPERM WHALE # 1
PALTECH REPORT 1992/07