DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

U. S. GEOLOGICAL SURVEY OPEN-FILE REPORT 77-747
Sheet 2 of 3

SERIES	SUBSERIES	STAGE
PLEISTOCENE		
PLIOCENE		
MIOCENE	UPPER MIOCENE and PLIOCENE UNDIFFERENTIATED	
	LOWER and MIDDLE MIOCENE UNDIFFERENTIATED	
	SAUCESIAN and RELIZIAN UNDIFFERENTIATED	ZEMORRIAN
OLIGOCENE		
EOCENE.	UPPER EOCENE	REFUGIAN
	MIDDLE EOCENE	NARIZIAN
	LOWER EOCENE	ULATISIAN
		PENUTIAN
LOWER CRETACEOUS	UPPER	
	LOWER	

(13) YAKATAGA REEF

SPECIES	LABORATORY NUMBER	Upper Miocene and Pliocene undifferentiated	Oligocene: Zemorrian
		7528 7530 7532 7533	7534 7535 7536
Cassidulina tortuosa Cushman and Hughes		C C C F R C	- - - - - -
Cyclamina spp.		R 5 - - - -	- - - - - R
Elphidium clavatum Cushman		C ? - R - R	- - - - - -
Globigerina spp.		R F - - R R	- - - - - -
Haplophragmoides spp.		F F - - - -	- - - - R -
Quinqueloculina akneriana d'Orbigny		R - F R - -	- - - - R -
Cassidulina californica Cushman and Hughes		- - - - - -	- ? ? - - -
Cibicides cf. *C. mckannai* Galloway and Wissler		- C - - - -	- ? ? - - -
Dentalina spp.		- - - - R -	- - - - - -
Florilus cf. *F. labradoricus* (Dawson)		- F - - - -	- - - - - -
Gaudryina sp.		- R - - - -	? - - - - -
Glandulina sp.		- R - - - -	? - - - - -
Globobulimina auriculata (Bailey)		- - - - - -	- - - - - -
Anomalina cf. *A. glabrata* Cushman		C - R R ?	- - - R - -
Melonis zaandamae (van Voorthuysen)		- R - - - -	- ? ? - - -
Oolina borealis Loeblich and Tappan		- R - - - -	- - - - - -
Virgulina sp.		- R - - - -	- - - - - -
Cassidulina cf. *C. islandica* Norvang		- - - - ? -	- - - - - -
Globigerina pachyderma (Ehrenberg)		- - - - - -	- - - - - -
Martinottiella nodulosa (Cushman)		- - - - - -	- - - R ? -
Melonis pompilioides (Fichtel and Moll)		- - - - - -	- - R F -
Gyroidina soldanii d'Orbigny		- - - - - -	- F F - - -
Sphaeroidina variabilis Reuss		- - - - - -	- - R - - -
Lenticulina sp. (large)		- - - - - -	- - R - - -
Pseudoglandulina cf. *P. inflata* (Borsemann)		- - - - - -	- F - - - -
Sigmomorphina pseudoschenckei Rau		- - - - - -	- F - - - -
Bulimina inflata alligata Cushman and Laming		- - - - - -	- - - - C -
Cibicides cf. *C. pseudoungerianus evolutus* Cushman and Hobson		- - - - - -	- - - - C -
Cassidulina sp.		- - - - - -	- - - - C -
Globigerina cf. *G. bulloides* d'Orbigny		- - - - - -	- - - - F -
Pullenia bulloides (d'Orbigny)		- - - - - -	- - - - R -
Eponides cf. *E. umbonatus* (Reuss)		- - - - - -	- - - - - -

(14) WHITE RIVER #3

SPECIES	INTERVAL	Upper Miocene and Pliocene undifferentiated	Lower and middle Miocene: Saucesian	?
		40–150 220–310 340–460 470–490	490–1210 1250–1360 1390–1500 1540–1650 1680–1800 1830–1960 2000–2130 2160–2280 2340–2470 2500–2630 2930–3020	3120–4790 4880–5600 5690–5980
Quinqueloculina imperialis		- ? - - -	- - - - - - - - - - - - - -	- - -
Florilus incisum		- - - - No record	- - - - - - - - - - - - - -	No record. - -
Lenticulina sp. (large)		- X - - - -	- - - - - - - - - - - - - -	No record. ? ? -
?Anomalina sp.		- - X - - -	No record. - - - - - - - - - - - -	- - -
Cassidulina sp. (subglobular; cf. *islandica*)		- - X - - -	- - - - - - - - - - - - - -	- - -
Cassidulina cf. *C. tortuosa*		- - X X X	- - - - - - - - - - - - - -	- - -
?Elphidium sp. (asymmetrical)		- - - X X	- - - - - - - - - - - - - -	- - -
Anomalina cf. *A. glabrata*		- - - X -	- - - - - - - - - - - - - -	- - -
Elphidium cf. *E. minutum*		- - - X -	- - - - - - - - - - - - - -	- - -
Epistominella pacifica		- - - X X	- - - - - - - - - - - - - -	- - -
Melonis cf. *M. zaandamae*		- - - - X	- - - - - - - - - - - - - -	- - -
Siphogenerina cf. *S. kleinpelli*		- - - - -	X X - - X - X - X	- X X
Siphogenerina cf. *S. branneri*		- - - - -	- - - - - - - - - - - - - -	- - -
Bulimina alligata		- - - - -	- X X - - - - - - - - - - -	- - -
Cassidulina crassipunctata		- - - - -	- - - - - - - - - - - - - -	- - -
Sphaeroidina variabilis		- - - - -	- X X - - - - - - - - - - -	- - -
Valvulineria mexicana		- - - - -	- - - - - - - - - - - - - -	- - -
Cibicides elmaensis var. A		- - - - -	- X - - - - - - - - - - - -	- - -
Uvigerina sp.		- - - - -	- - - - X - - - - - - - - -	- - -
Epistominella sp.		- - - - -	- - - - - X - - - - - - - -	- - -
Anomalina californiensis		- - - - -	- - - - - - X - - - - - - -	- - -
Uvigerinella obesa impolita		- - - - -	- - - - - - - X X - - - - -	- - -
Cassidulina islandica		- - - - -	- - - - - - - - - - - - - -	- - -
Melonis cf. *M. zaandamae*		- - - - -	- - - - - - - - - - - - - -	- - -
Cassidulina crassa		- - - - -	- - - - - - - - - - - - - -	- - -
Anomalina cf. *A. glabrata*		- - - - -	- - - - - - - - - - - - - -	- - -
Elphidium minutum		- - - - -	- - - - - - - - - - - - - -	- - -
Siphogenerina kleinpelli		- - - - -	- - - - - - - - - - - - - -	- - -
Bulimina inflata alligata		- - - - -	- - - - - - - - - - - - - -	- - -
Valvulineria mexicana		- - - - -	- - - - - - - - - - - - - -	- - -
Sphaeroidina sp.		- - - - -	- - - - - - - - - - - - - -	- - -
Bolivina marginata adelaidana		- - - - -	- - - - - - - - - - - - - -	- - -
Eponides umbonatus		- - - - -	- - - - - - - - - - - - - -	- - -
Tipistominella sp.		- - - - -	- - - - - - - - - - - - - -	- - -
Lenticulina cf. *L. mayi*		- - - - -	- - - - - - - - - - - - - -	- - -
Layena sp.		- - - - -	- - - - - - - - - - - - - -	- - -
Siphogenerina transversa		- - - - -	- - - - - - - - - - - - - -	- - -
Gyroidina soldanii (large)		- - - - -	- - - - - - - - - - - - - -	- - -
Karreriella sp.		- - - - -	- - - - - - - - - - - - - -	- - -
Cassidulina crassipunctata		- - - - -	- - - - - - - - - - - - - -	- - -
Cassidulina sp. (large, globular)		- - - - -	- - - - - - - - - - - - - -	- - -
Epistominella aff. E. parva		- - - - -	- - - - - - - - - - - - - -	- - -
Virgulina sp.		- - - - -	- - - - - - - - - - - - - -	- - -
Florilus cf. *F. incisum*		- - - - -	- - - - - - - - - - - - - -	- - -
Pseudoglandulina inflata		- - - - -	- - - - - - - - - - - - - -	- - -
Eponides mexicanus		- - - - -	- - - - - - - - - - - - - -	- - -
Cibicides elmaensis		- - - - -	- - - - - - - - - - - - - -	? X -
Valvulineria cf. *V. tumeyensis*		- - - - -	- - - - - - - - - - - - - -	- ? -

(15) WHITE RIVER #2

SPECIES	INTERVAL	Pliocene and Pleistocene undifferentiated	Upper Miocene and Pliocene undifferentiated	Lower and middle (?) Miocene: Saucesian (?)	Oligocene: Zemorrian	Upper Eocene: Refugian (?)	?
		10–100 100–200 200–300 300–400 400–500 500–600 600–700 700–800 800–900 900–1000 1000–1100 1100–1200 1200–1300 1300–1400 1400–1500 1500–1600 1600–1700 1700–1800 1800–1900 1900–2000 2000–2100 2100–2200 2200–2300 2300–2400 2400–2500 2500–2600 2600–2700 2700–2800 2800–2900 2900–3000 3000–3100 3100–3200 3200–3300	3300–3400 3400–3500 3500–3600 3600–3700 3700–3800 3800–3900 3900–4000 4000–4100	4100–4300 4300–4500 4500–4700 4700–4900	5000–5200 5200–5400 5400–5600 5600–5800	6000–6100 6100–6400 6400–6500 6500–7700 7700–7800 7800–12470
Elphidium clavatum		X X X X X X	- - X X X	- - - - - -	- - - - - -	- - - - - -	Probably barren with sparse fauna from uphole
Elphidium bartletti		- X X X - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	
Quinqueloculina sp. (elongate)		- - X X - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	
Elphidiella cf. *E. oregonensis*		- - - - X X	- - - - - -	- - - - - -	- - - - - -	- - - - - -	
Nonionella sp. (large)		- - - - X -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	
Cassidulina tortuosa		- - - - X -	- - X X X X	- - - - - -	- - - - - -	- - - - - -	
Cassidulina californica		- - - - ? ?	- - X X - -	- - - - - -	- - - - - -	- - - - - -	
Epistominella pacifica		- - - - - -	X - X X - -	- - - - - -	- - - - - -	- - - - - -	
Uvigerina sp. (pointed, slightly costate)		- - - - - -	X - - - - -	- - - - - -	- - - - - -	- - - - - -	
Anomalina californiensis		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	
Uvigerina yabei		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	
Cibicides cf. *C. elmaensis* var. A		- - - - - -	- X - - - -	X - - - - -	- - - - X -	X - - - - -	
Cibicides pseudoungerianus evolutus		- - - - - -	- X - - - -	- - - - - -	- - - - X -	X - - - - -	
Melonis pompilioides		- - - - - -	- X - - - -	- - - - - -	- - - - X -	- - - - - -	- - X - - -
Cassidulina sp. (globular)		- - - - - -	- X - - - -	- - - - - -	- - - - X -	- - - - - -	
Uvigerinella obesa impolita		- - - - - -	- - - - - -	- - - - - -	- - - - X -	- - - - - -	
Cassidulina islandica		- - - - - -	- X X X - -	- - - - - -	- - - - - -	- - - - - -	
Melonis cf. *M. zaandamae*		- - - - - -	- - - - ? X	- - - - - -	- - - - - -	- - - - - -	
Cassidulina crassa		- - - - - -	- - - - ? X	- - - - - -	- - - - - -	- - - - - -	
Anomalina cf. *A. glabrata*		- - - - - -	- - - - X X	- - - - - -	- - - - - -	- - - - X -	
Elphidium minutum		- - - - - -	- - - - - ?	- - - - - -	- - - - - -	- - - - - -	
Siphogenerina kleinpelli		- - - - - -	- - - - - -	- - - - - -	X - - - X -	X - - - - -	- X - X - -
Bulimina inflata alligata		- - - - - -	- - - - - -	- - - - - -	X - - - X -	X - - - - -	
Valvulineria mexicana		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Sphaeroidina sp.		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Bolivina marginata adelaidana		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Eponides umbonatus		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Tipistominella sp.		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Lenticulina cf. *L. mayi*		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Layena sp.		- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	
Siphogenerina transversa		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	
Gyroidina soldanii (large)		- - - - - -	- - - - - -	- - - - - -	X - - X - -	X - - - - -	- - X - - -
Karreriella sp.		- - - - - -	- - - - - -	- - - - - -	X - - X - -	- - - - - -	
Cassidulina crassipunctata		- - - - - -	- - - - - -	- - - - - -	X - - X - -	- - - - - -	
Cassidulina sp. (large, globular)		- - - - - -	- - - - - -	- - - - - -	X - - X - -	- - - - - -	
Epistominella aff. E. parva		- - - - - -	- - - - - -	- - - - - -	- - - X - -	- - - - - -	
Virgulina sp.		- - - - - -	- - - - - -	- - - - - -	- - - X - -	- - - - - -	
Florilus cf. *F. incisum*		- - - - - -	- - - - - -	- - - - - -	- - - X - -	- - - - - -	
Pseudoglandulina inflata		- - - - - -	- - - - - -	- - - - - -	- - - X - -	- - - - - -	
Eponides mexicanus		- - - - - -	- - - - - -	- - - - - -	- - - X - -	- - - - - -	
Cibicides elmaensis		- - - - - -	- - - - - -	- - - - - -	- - - X - -	- - - - - -	? X -
Valvulineria cf. *V. tumeyensis*		- - - - - -	- - - - - -	- - - - - -	- - - ? - -	- - - - - -	? - -

(16) SULLIVAN #1

SPECIES	INTERVAL	Pliocene or Pleistocene	Lower and middle Miocene: Saucesian	Oligocene: Zemorrian	Upper Eocene: Refugian
		200–290	290–380	380–470 630–740 740–830 830–920 920–1010 1010–1100 1100–1560 1560–1750 1750–1840 1840–2000 2000–2190 2190–2360 2360–2450 2450–2630 2630–2720 2720–2860 2860–2950 2950–3400 3400–3790	3790–3880 3880–4110 4110–4400 4400–4490 4490–4580 4580–4670 4670–4760 4760–4850 4850–4940 4940–5030 5030–5120 5120–5210 5210–5390 5390–5480 5480–5570 5570–5660 5660–5750 5750–5840 5840–5930 5930–6020 6020–6110 6110–6200 6200–6290 6290–6380 6380–6470 6470–6560 6560–6650 6650–6740 6740–6830 6830–6920 6920–7010 7010–7100 7100–7190 7190–7280 7280–7370 7370–7460 7460–7550 7550–7640 7640–7730 7730–7820 7820–7910 7910–8000 8000–8090 8090–8180 8180–8270 8270–8360 8360–8450 8450–8540 8540–8630 8630–8720 8720–8810 8810–8900 8900–8990 8990–9080 9080–9170 9170–9260 9260–9350 9350–9440 9440–9530 9530–9620 9620–9710 9710–9800 9800–9890 9890–9980 9980–10070
Florilus cf. *F. labradoricus*		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Cibicides pseudoungerianus evolutus		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Quinqueloculina seminulum		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Quinqueloculina akneriana		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Elphidium clavatum		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina cf. *C. tortuosa*		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina californica		- - - X - -	- - - - - -	- - - - - -	- - - - - -
Uvigerinella obesa impolita		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Anomalina californiensis		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Sphaeroidina sp.		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Globigerina cf. *G. pachyderma*		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Cassidulina crassipunctata		- - - - X -	- - - - - -	X X X X X X -	- - - - - -
Melonis pompilioides		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Lagena sp.		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Florilus incisum		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Melonis zaandamae		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Buccella mansfieldi oregonensis		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Elphidium cf. *E. minutum*		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Sigmomorphina cf. *S. schenckl*		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Cibicides sp. (large, cf. *elmaensis* var. A)		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Uvigerina cocoaensis		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Quinqueloculina weaveri		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Cassidulina galvinensis		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Cibicides hodgei		- - - - X -	- - - - - -	- - - - - -	- - - - - -
Gyroidina cf. *G. condoni*		- - - - X -	- - - - - -	- - - - - -	- - - - - -

(17) SULLIVAN #2

SPECIES	INTERVAL	Upper Miocene and Pliocene undifferentiated	Oligocene: Zemorrian	Upper Eocene: Refugian	Oligocene: Zemorrian	Upper Eocene: Refugian	Oligocene: Zemorrian	Lower and middle Miocene: Saucesian
		0–100 100–200 200–300	300–400 400–500 500–600 600–700 700–800 800–900 900–1000 1000–1100 1100–1200 1200–1300 1300–1400 1400–1500 1500–1600 1600–1700 1700–1800 1800–1900 1900–2000 2000–2100 2100–2200 2200–2300 2300–2400 2400–2500 2500–2600 2600–2700 2700–2800 2800–2900 2900–3000 3000–3100 3100–3200 3200–3300 3300–3400 3400–3500 3500–3600 3600–3700 3700–3800 3800–3900 3900–4000 4000–4100 4100–4200 4200–4300 4300–4400 4400–4500 4500–4600 4600–4700 4700–4800 4800–4900 4900–5000 5000–5100 5100–5200 5200–5300 5300–5400 5400–5500 5500–5600 5600–5700 5700–5800 5800–5900 5900–6000 6000–6100 6100–6200 6200–6300 6300–6400 6400–6500 6500–6600 6600–6700 6700–6800 6800–6900 6900–7000 7000–7100 7100–7200 7200–7300 7300–7400 7400–7500 7500–7600 7600–7700 7700–7800 7800–7900 7900–8000 8000–8100 8100–8200 8200–8300 8300–8400 8400–8500 8500–8600 8600–8700 8700–8800 8800–8900 8900–9000 9000–9100	9100–9200 9200–9300 9300–9400 9400–9500 9500–9600	9600–9700	9700–9800 9800–9900 9900–10000 10000–10100 10100–10200 10200–10300 10300–10400 10400–10500 10500–10600 10600–10700 10700–10800 10800–10900 10900–11000 11000–11100 11100–11200 11200–11300 11300–11400 11400–11500 11500–11600 11600–11700 11700–11800 11800–11900 11900–12000
Cassidulina tortuosa		- - - - X -	- - X - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Anomalina cf. *A. glabrata*		- - - X X -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Epistominella pacifica		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Elphidiella cf. *E. bannai*		- - - - ? -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Elphidium clavatum		- - - X X -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Quinqueloculina cf. *Q. seminulum*		- - - - X -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Florilus cf. *F. labradoricus*		- - - - ? -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Elphidium bartletti		- - - X X -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Buccella frigida		- - - X X -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina islandica		- - - X - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Nonionella cf. *N. miocenica*		- - - - X -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Elphidiella cf. *E. arctica*		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Uvigerina yabei		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Gyroidina orbicularis planata		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cibicides cf. *C. lobatulus*		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Siphogenerina cf. *S. transversa*		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Pseudoglandulina aff. *P. inflata*		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Valvulineria mexicana		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Sphaeroidina variabilis		- - - - - -	- X X X - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Guttulina irregularis		- - - - - -	- X - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Gyroidina soldanii		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Gaudryina alazanensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cibicides cf. *C. pseudoungerianus evolutus*		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Anomalina californiensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Karreriella washingtonensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina crassipunctata		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Melonis pompilioides		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cibicides elmaensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Globobulimina pacifica		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Eponides cf. *E. duprei*		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Pseudoglandulina inflata		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina californica		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Florilus incisum		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina galvinensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Vaginulogeis saundersi		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Buccella mansfieldi oregonensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Elphidium cf. *E. minutum*		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Guttulina frankei		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Entosolenia sp.		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cassidulinoides sp.		- - - - - -	- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	- - - - - -
Valvulineria willapaensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	X - - - - -	- - - - - -	- - - - - -
Quinqueloculina imperialis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cibicides elmaensis var. A		- - - - - -	- - - - - -	- - - - - -	- - - - - -	X X X X X X X	- - - - - -	- - - - - -
Elphidium aff. *E. californicum* (small, thick)		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Quinqueloculina weaveri		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cassidulina cf. *C. kernensis*		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Uvigerina cocoaensis		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Cibicides hodgei		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Sigmomorphina cf. *S. schenckl*		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Elphidium californicum (large, discoid)		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Pseudoglandulina sp. (long, slightly costate)		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Uvigerinella obesa impolita		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Bulimina alligata		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Bolivina marginata adelaidana		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -
Eponides sp.		- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -

(18) RIOU BAY #1

SPECIES	INTERVAL	Pleistocene	Pliocene and Pleistocene undifferentiated	Pliocene (?)
		280–430 430–580 580–730 730–880 880–1030 1030–1180 1180–1330 1330–1480 1480–1630 1630–1780 1780–1930 1930–2080 2080–2230 2230–2380 2380–2530 2530–2680 2680–2830 2830–2980 2980–3130 3130–3280 3280–3430 3430–3580 3580–3730 3730–3880 3880–4030 4030–4180 4180–4330 4330–4480 4480–4630 4630–4780 4780–4930 4930–5080 5080–5230 5230–5380 5380–5530 5530–5680 5680–5830 5830–5980 5980–6130 6130–6280 6280–6430 6430–6580 6580–6730 6730–6880 6880–7030 7030–7180 7180–7330 7330–7480 7480–7630 7630–7780 7780–7930 7930–8080 8080–8230 8230–8380 8380–8530 8530–8680 8680–8830 8830–8980 8980–9130 9130–9280 9280–9430 9430–9580 9580–9730 9730–9880 9880–10030 10030–10180 10180–10330 10330–10480 10480–10630 10630–10780 10780–10930 10930–11080 11080–11230 11230–11380 11380–11530 11530–11680 11680–11830 11830–11980 11980–12130	12130–12280 12280–12430 12430–12580 12580–12730 12730–12880 12880–13030 13030–13180 13180–13330 13330–13480 13480–13630 13630–13780 13780–13930 13930–14080 14080–14230 14230–14380 14380–14530 14530–14680 14680–14830 14830–14980 14980–15130 15130–15280 15280–15430 15430–15580 15580–15730 15730–15880 15880–16030 16030–16180 16180–16330 16330–16480 16480–16630 16630–16780 16780–16930 16930–17080 17080–17230 17230–17380 17380–17530 17530–17680 17680–17830 17830–17980 17980–18130 18130–18280 18280–18430 18430–18580 18580–18730 18730–18880 18880–19030 19030–19180 19180–19330 19330–19480 19480–19630 19630–19780 19780–19930 19930–20080 20080–20230 20230–20380 20380–20530 20530–20680 20680–20830 20830–20980 20980–21130 21130–21280 21280–21430 21430–21580 21580–21730 21730–21880 21880–22030 22030–22180 22180–22330 22330–22480 22480–22630 22630–22780 22780–22930 22930–23080 23080–23230 23230–23380 23380–23530 23530–23680 23680–23830 23830–23980 23980–24130 24130–24280 24280–24430 24430–24580 24580–24730 24730–24880 24880–25030 25030–25180 25180–25330 25330–25480 25480–25630 25630–25780 25780–25930 25930–26080 26080–26230 26230–26380 26380–26530 26530–26680 26680–26830 26830–26980 26980–27130 27130–27280 27280–27430 27430–27580 27580–27730 27730–27880 27880–28030 28030–28180 28180–28330 28330–28480 28480–28630 28630–28780 28780–28930 28930–29080 29080–29230 29230–29380 29380–29530 29530–29680 29680–29830 29830–29980 29980–30130 30130–30280 30280–30430 30430–30580 30580–30730 30730–30880 30880–31030 31030–31180 31180–31330 31330–31480 31480–31630 31630–31780 31780–31930 31930–32080 32080–32230 32230–32380 32380–32530 32530–32680 32680–32830 32830–32980 32980–33130 33130–33280 33280–33430 33430–33580 33580–33730 33730–33880 33880–34030 34030–34180 34180–34330 34330–34480 34480–34630 34630–34780 34780–34930 34930–35080 35080–35230 35230–35380 35380–35530 35530–35680 35680–35830 35830–35980 35980–36130 36130–36280 36280–36430 36430–36580 36580–36730 36730–36880 36880–37030 37030–37180 37180–37330 37330–37480 37480–37630 37630–37780 37780–37930 37930–38080 38080–38230 38230–38380 38380–38530 38530–38680 38680–38830 38830–38980 38980–39130 39130–39280 39280–39430 39430–39580 39580–39730 39730–39880 39880–40030 40030–40180 40180–40330 40330–40480 40480–40630 40630–40780 40780–40930 40930–41080 41080–41230 41230–41380 41380–41530 41530–41680 41680–41830 41830–41980 41980–42130 42130–42280 42280–42430 42430–42580 42580–42730 42730–42880 42880–43030 43030–43180 43180–43330 43330–43480 43480–43630 43630–43780 43780–43930 43930–44080 44080–44230 44230–44380 44380–44530 44530–44680 44680–44830 44830–44980 44980–45130 45130–45280 45280–45430 45430–45580 45580–45730 45730–45880 45880–46030 46030–46180 46180–46330 46330–46480 46480–46630 46630–46780 46780–46930 46930–47080 47080–47230 47230–47380 47380–47530 47530–47680 47680–47830 47830–47980 47980–48130 48130–48280 48280–48430 48430–48580 48580–48730 48730–48880 48880–49030 49030–49180 49180–49330 49330–49480 49480–49630 49630–49780 49780–49930 49930–50080 50080–50230 50230–50380 50380–50530 50530–50680 50680–50830 50830–50980 50980–51130 51130–51280 51280–51430 51430–51580 51580–51730 51730–51880 51880–52030 52030–52180 52180–52330 52330–52480 52480–52630 52630–52780 52780–52930 52930–53080 53080–53230 53230–53380 53380–53530 53530–53680 53680–53830 53830–53980 53980–54130 54130–54280 54280–54430 54430–54580 54580–54730 54730–54880 54880–55030 55030–55180 55180–55330 55330–55480 55480–55630 55630–55780 55780–55930 55930–56080 56080–56230 56230–56380 56380–56530 56530–56680 56680–56830 56830–56980 56980–57130 57130–57280 57280–57430 57430–57580 57580–57730 57730–57880 57880–58030 58030–58180 58180–58330 58330–58480 58480–58630 58630–58780 58780–58930 58930–59080 59080–59230 59230–59380 59380–59530 59530–59680 59680–59830 59830–59980 59980–60130 60130–60280 60280–60430 60430–60580 60580–60730 60730–60880 60880–61030 61030–61180 61180–61330 61330–61480 61480–61630 61630–61780 61780–61930 61930–62080 62080–62230 62230–62380 62380–62530 62530–62680 62680–62830 62830–62980 62980–63130 63130–63280 63280–63430 63430–63580 63580–63730 63730–63880 63880–64030 64030–64180 64180–64330 64330–64480 64480–64630 64630–64780 64780–64930 64930–65080 65080–65230 65230–65380 65380–65530 65530–65680 65680–65830 65830–65980 65980–66130 66130–66280 66280–66430 66430–66580 66580–66730 66730–66880 66880–67030 67030–67180 67180–67330 67330–67480 67480–67630 67630–67780 67780–67930 67930–68080 68080–68230 68230–68380 68380–68530 68530–68680 68680–68830 68830–68980 68980–69130 69130–69280 69280–69430 69430–69580 69580–69730 69730–69880 69880–70030 70030–70180 70180–70330 70330–70480 70480–70630 70630–70780 70780–70