

The Eocene sardine †*Bolcaichthys catopygopterus* (Woodward, 1901) from Monte Bolca,
Italy: osteology, taxonomy and paleobiology

GIUSEPPE MARRAMÀ and GIORGIO CARNEVALE

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Supplementary data 1. Morphometric measures in millimeters (mm) for 287 examined specimens of
†*Bolcaichthys catopygopterus* (Woodward, 1901).

SPECIMEN	STANDARD LENGTH	HEAD LENGTH	HEAD DEPTH	PRE-ORBITAL LENGTH	POST-ORBITAL LENGTH	ORBIT DIAMETER	MAXIMUM BODY DEPTH	DORSAL-FIN BASE	ANAL-FIN BASE	CAUDAL PEDUNCLE LENGTH	CAUDAL PEDUNCLE DEPTH	PRE-PECTORAL DISTANCE	PRE-DORSAL DISTANCE	PRE-PELVIC DISTANCE	PRE-ANAL DISTANCE
MCSNV 438	76.4	17.6	11.2	4.3	7.9		17.2						33.1	40.5	
MCSNV 439	51.8	15						4.7			4.1		21.8		
MCSNV 443	40	12.7									3				
MCSNV 451	41.3	12													
MCSNV 456	27.4	8.3				1.1	6.2				2.6		13.1	16	
MCSNV 457	25.7	8.7		2.2			5.6	3.3			2.2			15.8	
MCSNV 461	24.6	7.2	4.3	1.7	2.6	1.3	4.4	3.4			2.2	7	10.7	13.7	
MCSNV 462	80.2			4.5				10.1			6.5		31		
MCSNV 467	28.5	7.9	4.5	1.9	3.1	1.5	6.2	2.9			2.4	8	12.7	15.5	
MCSNV 470	45.1	11	6.8					4.2	6.2		3.7				35.4
MCSNV 471	55.3	14.8													
MCSNV 522	82.2		12.1	3.8			16.9	9.7			6.2		29.9	39.6	
MCSNV 631	29.3	8.4	5	2	3.3	1.4	5.7	2.5			2.2		14.7	18.1	
MCSNV 632	25.1	8.1	4	1.8	3.1	1.1	5.2	2.7			2.3		11.6	15	18.8
MCSNV B.27	75.4	19.8					16							44.5	58.8
MCSNV B.35	38.9	10.4	7.4	2.3	4	2.1	8.1	5	6.1	2.7	3		16.3	22.5	30.1
MCSNV B.37															
MCSNV B.38	43	11.9									3.6		21.7	26.1	
MCSNV B.39	29.4	8.5	5.7	2.1	3.3	1.4	6.9	3.6	4.2	2.4	2.9		14.1	16.2	22.8
MCSNV B.40	42.9	12.4	9	4	5.2	1.9	11.1	6.3			3.3		19.3	24.6	32.6
MCSNV B.60	44.3	13.6	8.6	3.1	6.3	2.1	9.2	4.7	5.9	3.8	3.8		19.8	24.6	34.6
MCSNV IG.126467								6.1	13.9						
MCSNV IG.126483	73.2	17.1	13	4.8	8	2.7	17.9	7.1					28.2	34.2	
MCSNV IG.126484			10.3				18.7	8.7	10.4		6.2				
MCSNV IG.126485	74.6	20.1	13.1	4.6	8.4	3	19	7.5	9.6	7.3			29.9	38.2	57.7
MCSNV IG.126486	29.2	7.6									2.6	7.5	14.1		
MCSNV IG.126487	40.1	12.3	8.3	3.1	4.4	2.2	9.3	4.2	5.4	3.2	3.9	12.1	18.4	23.8	31.5
MCSNV IG.129674	54.2	13.2	9.1	3.2	5.4	2.2	13.3	6.5	8	3.9	4.5		24.4	29.1	42.3
MCSNV IG.129687	25.3	7.1	4.6	1.4	2.8	1.2					2.2		12.4	15.1	
MCSNV IG.129689	48.4	13.2	7.5	3.5				4.6	6	4.3	3.9	13.1	18.4	25.1	38.1
MCSNV IG.129690	34.5	10.1	6.3	2.2	4.5	1.6	7.6	4.3			2.9	9.1	16.9	18.4	
MCSNV IG.129692	20.1	5.6	3.1	1.1	2.4	1.1	3.3	1.8	2.3	1.6	1.5		9.2	10.9	16.2
MCSNV IG.129693	26.3	7.2	4.5	1.4	3	1.3	5.6	3			2.5	7.6	13	15.2	
MCSNV IG.129696	20			1.3	2.3	1	3.6	2	2.2	1.8	1.5	5.5	9.1	11.5	16
MCSNV IG.129705	20.8	5.9										6.2		10.1	
MCSNV IG.129706	28.5	7	4.3	1.7	2.8	1.3		2.8			2.6	7.2	13.8	16.4	23.3

MCSNV IG.129713	14.9	4.5		1.1	2	0.7		1.4			1.1	4.6	8.1	8.5	
MCSNV IG.129717	15.3	4.2	2.2	0.8	1.9			1.3	2.2	1.3	1.4	4.2	7.7	8.8	11.8
MCSNV IG.129719	15.9	4.5	2.4	1.3	2.1	0.7	2.3	1.4			1.5		8.1	8.7	12.5
MCSNV IG.129720	23.9	6.3	3.7	1.4	3	1.2		2.7			2	6.6	10.3	13	18.2
MCSNV IG.129721	21	5.6	3.7	1.2	2.4	0.9	3.4	2.7	3.2	1.4	1.9	5.8	10.1	11	16.4
MCSNV IG.129724	17.7	4.7	2.7	1.1	2.1	0.9	3.6	1.8	2.6	1.3	1.5	4.8	7.8	9.8	13.8
MCSNV IG.129725	15.2	4.4	2.4	1.1	1.9	0.8	2.4	1.8		1.3	1.2		7.8	8.2	12.4
MCSNV IG.129727/129728	60.4	16.2	10.5	3.6	5.8	2.4	13.5	7.2	9.9	4.6	5.1		26.7		45.9
MCSNV IG.129729/129730							17.9	7.3	7.9		6.2				
MCSNV IG.129731	55.9	15.1	9.6	3.8	5.9	2.1	12.9	5.8	7	4.3	4.6	16.3	22.4	30.1	44.6
MCSNV IG.129732/129733	51.2	16									4.7				
MCSNV IG.129736	46.1	12.4	8.9	2.7	4.5	2.1	11.4	5.7					19.4	25.4	37.3
MCSNV IG.129737							12.9	4	6		4.3				
MCSNV IG.132601	44.8	12.7	8.4	2.8	5		10.2	4.9	5.6	3.3	3.8	13	18.6	27.7	35.9
MCSNV IG.135688/135689	42.3	10.5	6.4	2.8	5.2			4.1					17.4	22.5	
MCSNV IG.135689	40.1	11.6	7.6				8	4.4			3.7		16.7	22.2	
MCSNV IG.135692	55										4.3				
MCSNV IG.135695	53.9		8.1	2.7	6.3		13.2	5.1	6.8	3.6	4.3		21.3	32.2	43.5
MCSNV IG.135727	18.5	5.6		1.6	2.5						1.6	5.7		11.3	
MCSNV IG.135731	20.8	5.4									1.7	5.5			
MCSNV IG.135741	48.1	14.5	9.5	3.8	5.6	2.2	12.4	5.9			4.3		21.3	28.9	
MCSNV IG.135750	21.2	6.1									1.6				17.5
MCSNV IG.135751	19.6	5.7	3.2	1	2.1			2.3			1.7	5.5	9.6	11.2	
MCSNV IG.135754	21.3	6.2	3.7	1.2	2.6	1	4.9	2.6	2.8	1.6	1.8	6	10	11.8	16.9
MCSNV IG.145058 a	95.7	25.6									7.4			53.6	71.9
MCSNV IG.145058 b	101.1	25.9						12.2				25.9		55.6	76.4
MCSNV IG.145058 c	49.6	13.7		3.8	6							14.5		23.2	37.1
MCSNV IG.145080/145081	19.2	5.6		1.1	2.2						1.5	5.5		10	
MCSNV IG.145084	17.7	5		1.1	2.3	0.8					1.4	4.7	9	10.1	
MCSNV IG.145088	23	7.7	4.6	2	2.8	1.3	5.1	2.8		2.3	1.9	7.4	11.3	14	
MCSNV IG.145093	17.4	5.1	2.6	1.1	2	1	3.3	1.6		1.4		5	8.4	9.8	14.3
MCSNV IG.145094	16.9	5.3	3	1.3	1.8	0.9	3.4				1.3	5	8.5	9.8	
MCSNV IG.145098	37.1	10.2	7	1.8	4		8.1	4.2	5.2	3.3		9.6	14.7	20.4	28.6
MCSNV IG.145141/145142	52	13.1													
MCSNV IG.145143/145144	70.8										5.2				
MCSNV IG.145146	57.9	15.9	12.6	3.8	7.3	2.9	14.5	5.6	8.6	5.5	4.7		24	33.1	43.8
MCSNV IG.145147	46.7	11.8	8.1	3.1	4.9	2.2	10.7	5.4	8.1	3.4	3.9		19.8	23.6	35.2
MCSNV IG.145148	32.8	9.3	5.4	2	3.6	1.8		2.9			2.7			17	
MCSNV IG.145149	68.6						18.2				6.3				
MCSNV IG.145150	43.1	11						4.8			3.8		18.1		33.8
MCSNV IG.145152															
MCSNV IG.145153	36.8	9.6									3.1				
MCSNV IG.145155	58	16.1	10.1								4.7				
MCSNV IG.145156	31.8	9.4	6	2.2	3.8	1.7		3.5			2.8		16	19.3	
MCSNV IG.23588/23589	73	18.2		3.2		3	16.6	9.4					27.9	40	57
MCSNV IG.23591/23592	32.5	8.9	5.1	2.5	3.6	1.7	5.7	4.3	4.6	2.2	2.8		13	17	25.7
MCSNV IG.37584/37585	42.9	13.2	8.6	2.3	4.9	2.3	11.4	5.6	7.4	3.8	4.2	13.7	19.9	26.4	31.7
MCSNV IG.VR.24358															
MCSNV IG.VR.24426	20.3	6.4	3.8	1.4	2.6	1	4	2.3			2	6.6	10.4	12	
MCSNV IG.VR.24428/24429	53.7	14.2	9.1	3.1	6.1	2.4	11.3	4.9	6.6	4	4.5	15	22	29.7	43.1
MCSNV IG.VR.27760/27761	54.3	15.5	10.7	3.5	6.4	2.7	12.9	6.7	9	4.7	4.5	16.4	21.3	31.7	40.6
MCSNV IG.VR.27762			5.3				7.9								
MCSNV IG.VR.27764		18.5		3.2								19.4	27.1	36.4	
MCSNV IG.VR.27769/27770		14.1	9.4	2.8	5.6	2	12.7	5.7				15	20	28.5	
MCSNV IG.VR.27771	57.1	15.7	8.9	3	6.2	2.1	15.1	6.8			4.1		25.3	33.9	
MCSNV IG.VR.27776	35		5.3	2		1.4	6.1	3.1	5.4	2.1	3.1	8.9		19	27.5
MCSNV IG.VR.27777	33.4	9	5.1	2.4	3.4		5.8	3.3	4.8	3	3.2	9.5	14.1	18.5	25.6
MCSNV IG.VR.27778	29.7	8.9	5.3	2.3	3.6	1.2					2.8				
MCSNV IG.VR.27780	31.3	9.2	4.8	2.3	3.8	1.4					2.5				

MCSNV IG.VR.27783/27784	32.6	9.5	5.4	2.2	3.8		7.5	4			2.7	10	16.3	19.9	
MCSNV IG.VR.27785/27786	55.4	15.2	10.8	3.1	6.5	2.4	13.1	6	9.3	3.6	4.8	16.1	21.7	30.9	42.5
MCSNV IG.VR.27790		17.9	10.5	3.9	7.2		14.8	6.6				17.8	25.8	33.8	
MCSNV IG.VR.27799	58.9	17.5	11.7	3.7	7.5	2.6	15.2	9	8.2	4.8	5.4	18.5	27.3	35.2	45.9
MCSNV IG.VR.27800	60.4	17.5	10.7	4.4	7.7	2.9	14.3	8.2			5.2	18.4	27.7	34.2	47.2
MCSNV IG.VR.57598/57599	56.9	15.6	11.5	3.3	7.5	2.6	15.8	6.7	8.5	6	5.2	17.7	25.4	34.2	42.4
MCSNV IG.VR.57604/57605	53.7	13.4	8.4					4.7			4.5	13.8	22.8		
MCSNV IG.VR.57608/57609															
MCSNV IG.VR.57611/57612															
MCSNV IG.VR.57625/57626											4.5				
MCSNV IG.VR.57631/57632	41	10.4		2.8	4.2	1.9	11.2	4.8	6.4	4.1	4		17.9	22.5	30.5
MCSNV IG.VR.57790/57791															
MCSNV IG.VR.57792/57793	53.1	13.4	8.1		6.2		10.7	5.4			5		21.9	28.2	
MCSNV IG.VR.57794/57795		15					13.3								
MCSNV IG.VR.57798/57799	61	16.9						7.1	8.3	4.1	5.2		27.3		48.6
MCSNV IG.VR.71155/71156	67.4	18.7	13.4	6	9.1	2.5	17.8	7.8			5.2		29.9	37.6	
MCSNV IG.VR.71271	76.2	22.7	14.8	5.3		3.2	21.2	10.3	11.7	5.9		22.8	30.4	45.7	58.6
MCSNV IG.VR.71305/71306	65.2	16.8	9.7	3.3	6.7		15.5	7.3			5.3	17.1	26	37.1	
MCSNV IG.VR.71309	66.2	18.3		4.1	7.5			5.7			5.6	19	26.1		
MCSNV IG.VR.71312/71313		18.3	12.8	4	7.8	3.3	18.2	7.3				19.2	29.1	36.7	
MCSNV IG.VR.71325/71326	24.7	7.6	4.4	1.7	3.5	1.3	5.8	3.2				7	12.3	14.9	
MCSNV IG.VR.71358	72.3	18					14.7	7.5	10.8	5.8	6.2		34.4		55.7
MCSNV IG.VR.71368		2.8	1.2		1	0.4	1.2					2.5	4.6	4.6	7.4
MCSNV IG.VR.71371	70.6	18.2		4	8.2	3.3	18.9	7	10.7	5.1	6.6		32.2	41.9	54.8
MCSNV IG.VR.71379/71380	50.5		11.4	4.1			13.5	6.4	7.2	3.8	4.8	17.4	21.9	31	39.5
MCSNV IG.VR.71394		16.4	12.2	4.2	7.2	3.2	15.9					15	23.6	29.4	
MCSNV IG.VR.71395		19.4	12.9	4.5	8.8	2.9	20.6	8.6				17.6	36.6	43.7	
MCSNV IG.VR.71397/71398		18.8	12	4.1	9.1	3.1									
MCSNV IG.VR.71401/71402		16.3					15.1	7.5	9			15.3	24.9	35.5	48.5
MCSNV IG.VR.71407/71408	39	11.5	8.1	2.1	5	2.3	9.4	4.4	6.8	4.7	3.7	12.3	17.8	23.2	
MCSNV IG.VR.71431	24.1	7.4	4.3	1.5	3.3	1.4	5		3.4	2.2	1.9	7.6		14	18.5
MCSNV IG.VR.71432/71433	9.5	2.9									0.7	2.8	5	4.9	7.8
MCSNV IG.VR.71449		18.3	10.6	3.9	8.2	2.6	13.5	4.8				20	24.1	32.5	
MCSNV IG.VR.71461/71462		15.5	10.5	3	6.8	2.5	12.3	6.5				15.6	20.2	28.5	
MCSNV IG.VR.71471/71472	87.7	21.9	14				22.8				8.1	22.8	33.7	44.7	
MCSNV IG.VR.71473/71474	58.1	16.3	10.2				15.8	7.1	7.7	6.2	5.4	17.6	23.5	32.5	44.2
MCSNV IG.VR.71477/71478	91	23.9						10		9.9	8.4	24	40.6	55.1	71.5
MCSNV IG.VR.71485/71486	17	5.5	2.8	1.3	2.5	0.9		1.5	1.9	1.9	1.5	4.8	8.9	10.3	13.2
MCSNV IG.VR.71498	32.6	8.6	4.7	1.9	4.5	1.3	6	3.1			2.7	9.4	14	17.6	
MCSNV IG.VR.71499	30.5	9.9		1.9		1.6	6	3.2			2.7	10.2	15	19.3	23.5
MCSNV IG.VR.71505/71506		16	9.1	4.2	7.2		12.9	6.3				16.3	22.6	32.4	
MCSNV IG.VR.71507/71508								5.2	8.6		4.3				
MCSNV IG.VR.71529		17.6	11.7	3.6	8		14	7.5				18.4	30.1	34.2	
MCSNV IG.VR.71532/71533	52.4	15.3	8.2	3.9	6.1		12.9	5.4	7.3	4.8	4.7	15.2	22.4	31.4	40.3
MCSNV IG.VR.71536/71537	20.2	5.8		1.2	2.9	1.1		2.7				6.1	9.9		
MCSNV IG.VR.71540/71541	52.1	15.4	11.2	3.7	6.7	2.5	13.1	5.3	7.8	5.1		15.9	22.7	31.3	39.2
MCSNV IG.VR.71561/71562	77.8	18.9	12.9	3.6	9.1		18.9	7.5	11.4	7.4	6.1	21	30.8	40.5	59
MCSNV IG.VR.71570/71571	45.3	14.8						4.6				14.8			
MCSNV IG.VR.71576/71577	27.4	7.6	5.2	1.9	2.9	1.1	6	3.6	4.9	1.9	2.3	7.8	12.8	16.3	20.6
MCSNV IG.VR.71578/71579	60	17.6	11.5	3.3	6.4	2.9	14.4	7.7	9.3	4.3	5.3	17.9	22.9	35	46.4
MCSNV IG.VR.71580/71581	54	15	10.4	3.5	6	2.6	15.6	6.3	8	4.4	5.2	16.9	21.7	30	41.6
MCSNV IG.VR.71592/71593	60	17	11.8	3.9	7.9	2.4	14.9	8.2	9.4	5.4	5.2	18.2	25.6	34.3	45.2
MCSNV IG.VR.71596/71597	23.8	7.2									1.9	7.1		13.3	
MCSNV IG.VR.71608/71609	44.1	11.8	6.7				8.5	4.7			3.6	11.5	19.6	26	
MCSNV IG.VR.71619/71620	17.9	5	2.7	1.1	2.1	0.8				2.2		4.7		9.9	14.2
MCSNV IG.VR.71621/71622	61.4	18.1	10.9	4.2	8.4	2.2	12.4	7.8			4.9	18.4	27.2	35.8	
MCSNV IG.VR.71650		16.1	10.7	3.5	5.9	3	13.7	7.1				16.2	26.8	31.4	47.6
MCSNV IG.VR.71679	67.7	19.2	14.8	4.7	8.7		20.3	7.4	10.4	4.6	6.6	20	30.7	40.9	52.7
MCSNV IG.VR.71721/71722	53.2	14.5	10.6	3.8	6.8	2.6	11.9	6.4			3.8	15.9			

MCSNV IG.VR.71810/71811	22.9	7	3.6	1.5	2.8	1.2	4.8	2.4			2.1	7.1	11.6	14	
MCSNV IG.VR.71817/71818	72.9	18.5	11.3	4.6	7.7	3	16.2	6.8	8.8	5.3	6.2	18.9	28.1	40.8	58.8
MCSNV IG.VR.71829/71830	54.9	15.5	10.9	3.4	6.8		11	6.4	9.3	4.9	4.8	18.1	26.4	30.1	40.7
MCSNV IG.VR.71868/71869	54.7	17.1	12	3.9	7.5	2.8		6.4			4.8	17.6	25.2		
MCSNV IG.VR.71879/71894	69.4	20.7	12.5	4.7	8		19.1	5.9	9.8	5.4	5.7	22	31	41.8	54.2
MCSNV IG.VR.71898/71899	30.5	9.4	5.7	1.8	4.2	1.7	6.6	4.7			2.7				
MCSNV IG.VR.71955/71956	79.9	21.1	13.4	4.7	8.4	4	17.4	10.2	13.4	8.2	6.7				58.3
MCSNV IG.VR.71992		14.3	10	3.2	4.9	2.4	11.9	6.8				14.8	24.2	28.2	44
MCSNV IG.VR.71996/71997	37.1	10.4	6.8	2.4	4.6	1.9	8.2					11.2	16.3	22.3	28.4
MCSNV IG.VR.72004/72005		5.5		0.9	2	0.7	2					4.7	7.8	9.7	
MCSNV IG.VR.72017/72018	47.8	13.3	9.5	3.3	6.1	2.3	10.6		7.2	3.9	4.3	13.5	21.4	27.7	36.7
MCSNV IG.VR.81970/81971	53.7	16	11.8	4.1	6.9			7	9.5	3.3			22.1	33.7	40.9
MCSNV II.D.188/189	65.7	16.6	11.1	4.8	6.7	2.9	17.3	10.7	11.4	5.4	5.6		26.3	38.2	48.9
MCSNV II.D.190/191	75.8	21.7	15	6	9		19.7	8.6	9.2	6.2	6.3		30.7	47.8	60.4
MCSNV II.D.193/194	77.2														
MCSNV II.D.196/197	77	20.4	12.5	6.2	8.8	2.9	18.4	9	11.4	5	6.5		33.7	44.9	60.6
MCSNV II.D.198	70.8	18.9	12.5				17.6	9.9			5.8		31.5	44.9	
MCSNV II.D.199	74.9	21.4	12.8				19.8		12.5	5.4	6.1		32.4	45.3	57
MCSNV II.D.200/201	80.4						20.5	10	12.7	7	7		32.5	45.2	64.2
MCSNV II.D.204/205	57.6		12.4	5.7	7.2		13	6.7	7.8	3.7	4.6		24.8	32.2	46.1
MCSNV II.D.206	49.5	14.3	10.8	4.2	5.9	2.4	11.5	5.5			4.8		24.3	31.6	
MCSNV II.D.210	57.2	16.5	11.4				16.4	7.1	8.9	4.1	4.7		24.3	36.8	44.2
MCSNV II.D.213	82.3	22.6	14.1	5.6	10.5	3.3	20.3	10.2	12.5	6	7.6		33.5	48.6	63.8
MCSNV II.D.214	48	13.4	9.1	3.9	6.2	2	12.7	6.5	8.4	4.1	4.5		21.4	28.6	35.5
MCSNV II.D.233/237	48.1	14.7	8	4.3	6.5	1.8	10.2	5.5	7.5	3.6	3.7		20.1	30.3	37
MCSNV II.D.234/235	50.5	13.9	10				10.5		7.5	3.2	4.4				39.8
MCSNV II.D.240	53	14.5	10.8	4.3	5.9	2.5	13.1	6.8	8.5	4.4	4.9		24.5	32.2	40.1
MCSNV S.110/111		8.9	5.5	2.1	3.4	1.5	7.1						15.4		
MCSNV S.112/113	65.5						13.1				6.1				
MCSNV S.114/115	24	7.2	4.8	1.6	3	1.1	4.9				2.3		9.9	15.6	18.6
MCSNV S.118/119	38.3	9.3		2.2		1.7	8.6	3.7	5.3	4.2	3.4		16.1	22.9	28.8
MCSNV S.120/121	43.2	13.2	8.6	3.3	5.4		10.1	4.8	6	3	3.8		18.9	23	34.2
MCSNV S.122/123	34	9.8	5.5	2.3	4	1.5		3.9	4.5	2.8		10.2	14.4	19.6	26.7
MCSNV S.124	78.7	19.6	15.3	4.4	10.6		20.2	8			7.2		33.1	39.1	62.3
MCSNV S.125	83.4						19.6	8.7						46	
MCSNV S.126	39.3	12	6.8	2.9	5	1.7	9.4	5.1		5.1	3.2		17	23	30.3
MCSNV S.127	47.1	12.5	8.8	3.6	6	2.6	10.6	6.4	8	3	3.8		19.6		36.1
MCSNV S.128	43.7	11.4	8.3	3.3	4.7	2.3	9.3				3.7		17.9	27	
MCSNV S.129		13.1	9.2	3.5	5.3	2.6	11.3	6.6	6.8				19.2	25	
MCSNV S.132	50.4	14.8	10.2	3.3	6	2.3	11.8	6.1	7.9	3	4.2		21.5	27.6	39.5
MCSNV S.133	46.8	13.3	8.6	3.8	5.7	1.8	11.7	5.3					21.8		36.3
MCSNV S.134	45.3	13.1	7.3	3.2	5.9	1.9	11.4	5.5	6.7	3.2	4.5		19.9	29.1	35.4
MCSNV S.135	46.5	14.4					9.8	5.1	8.2	3.3	4.4		19.8	27.2	35
MCSNV S.136	27.3	8.4	4.8	1.6	3.5	1.3	5.7	3.6					13.8	16.3	
MCSNV S.142	77	19.2	14.4	5.6	9.3	2.8	17.5				7.2			47.7	
MCSNV S.143	43.7	11.5	5.7	3	5.3	2.3	9	5.4	5.6	4.2	3.5		19.5	28.2	33.9
MCSNV S.145	39.4	11.3	7.3	2.8	4.1		10.3	4.4	6.4	3.2	3.8		16.9	24.3	29.8
MCSNV S.148	35.7	9.3						4.3			3.2		15.5	19.1	
MCSNV S.149	45														
MCSNV S.15	33.1	8.8	4.5	2	3.5	1.7	6.3	3.6			2.7		14.1	18.1	
MCSNV S.150	34	9.8							5.5	2.8	3		16.1	19.3	25.7
MCSNV S.151	64.3	16.2									5.2			35.6	
MCSNV S.152	71.4	18.6	10.9	4.3	7.6	2.7								34.1	
MCSNV S.154	51.1	15.4	10	3.7	6.9	2.3	11.8	6.8	7.3	3.8	4		20.1	29.8	40
MCSNV S.156	47.8	11.8					11	5.8	8.1	3.5	4.1		21.1	24.4	36.2
MCSNV S.16	83.1	20.1	14.2	5.3	10.5		18.5				6		33.3	41.6	
MCSNV S.169		15.4	11.8	3.9	6.1	2.8	15.4	7.4					24.6	27.8	41.7
MCSNV S.19	38.8	10.6													
MCSNV S.21	43	11.4	7.6		5.9		7.9	4.5		4.1	3.9		19.2	25.5	34

MCSNV S.22	54.7	15.3	9.8	3.9	7.5	2.5	11.5	8.1			4.1		23.6	32.2	
MCSNV S.3	61.1		9.8				14.5		10.9	5.8					44.4
MCSNV S.37	76.9	19.2		6.3	8.1	2.7		6.6					35.3	43.4	
MCSNV S.8	33.2	8.8					6.7							18.7	
MCSNV T.201		17.9					13	4.4					25.7	33	
MCSNV T.202		18.3	10.6	4.6	7.5	3	14.6	8.1	8.1				29.7	34.8	51
MCSNV T.203		16.9	10.8	4	6.8	2.8	13.5	7.8					27.4	34.6	
MCSNV T.205		17.9		4.5	6.8	3.3	15.9	6.9				18.1	28.6	32.4	
MCSNV T.359	40.1	11.4	6.7	2.3	4.4	1.6	7.8	4.2	6	2.9	3.3		17.1	23.2	31.2
MCSNV T.361	52	14.7	10.9	3.5	6.9	2.2	12.4	6.9	7.9	5.6	4.3	15	23.5	30.3	38.5
MCSNV T.402		15.1		3.2	5.8	2	11.6	5.3					19.8	27.5	36.3
MCSNV T.403			7.2				10.9	5.2	6.4		4.1				
MCSNV T.53	40.4	12.7	7.8	2.9	5.1	1.9		4.3	6.2	3.8	4.1	12.4	18.7	24.7	30.4
MCSNV T.833	51.8	16.1	11	3.7	6.2	2.2	13.6	6.2	6.9	5	4.5		21.9	30.5	39.9
MCSNV T.887	61.3	18.7	13.3	4.6	8.7	3.1	18		9.1	4.4	5.6	19	26.3	36.1	47.8
MCSNV T.889	64.6	16.9	10.4	4.2	7.4			7.8	8	6.9	5.6		25.7	35.8	49.7
MGPUP 27056	34.1	10.6	6.8				6.5	4.9			3.1	11.3	17.7	21.5	
MGPUP 27080	47.7	15.5	10	3.2	6.6	2.6	10.6	6.5			4.3	15.9	20.4	28.7	
MGPUP 27085	62	17.8	13.9	3.4	7.2	2.8	16.1	9	9.8	4.5	5.1	18.6	27.9	35.8	47.7
MGPUP 27120	45.8	13		2.8		2	10.1	5.6	6.3	3.2	3.4	11.7		24.8	36.3
MGPUP 30036	46	12.1	9.2	2.6	4.7	2	10.4	5.9			3.9	13.2	18.5	26.8	
MGPUP 31146 a/b	20.6	6	4	1.5	2.1		3.8				1.8	5.5	9.7	10.6	16
MGPUP 4 C	30.8	8.7	6.1				6.4				3.1	9.4	15	18.8	
MGPUP 5769	67.2	18		3.8	7.5		17.8	8.3	11.9	6.3	5.4	20.7	27.7	35.8	49
MGPUP 5770	63.2	17.5	13.7	3.6	6.7	3.2	15.8				5.4	18.6	26.3	36.4	
MGPUP 5771	49.2	14.4	8.8				10.7	6.1		5.8	4.7	13.7	21	28.5	38.6
MGPUP 5772	50.8							7.2	8.8	3.5	5		20	28.1	38.5
MGPUP 5775	52.3	13.4					10.6	5.7			4.2		21.6	28.3	
MGPUP 6937 Z	65.8	19.8						8.3	9.3	4.8	5	21.1	27.7	37.1	51.7
MGPUP 6939 Z	62	19		4.6	8.7	2.7	17.7	7.8	9.9		6.1				
MGPUP 6944 Z	33.7	9.5	6.4				7.1				2.9	9.9			
MGPUP 7425 C	36.2	9.2						5.5				10.7		19.1	
MGPUP 8926 C/8927 C	51.2	15.9	9.7				12.4	7.5	8.9	3.5	4.4	13.4	24.9	27.4	38.8
MGPUP 8928 C/8929 C	67.5	19	13.2	3.8	7.8	2.9	15.8	7.7	8.6	6	5.8	19.8	31.5	35.4	52.9
MGPUP 8981 C	55.5	16		3.5	6.9		13.8	7.4			4.1	18.2	24.6	32.6	
MGPUP 8984 C	28.4	9	5.9	1.6	4	1.7	6.3	3.5			2.7	9.4	12.9	16.9	
MGPUP 9050 C	54.7	15.9	11.9				13.8					18.1	23.6	32.3	
MGPUP 9092 C	55.4	16.6	11.4	3.8	6.9		13.7				5.2	17	26.5	31.1	
MRSN PU 12058	60.3	18.2		4	7	2.7		7.4			4.5	18.8	25	34.2	45.2
MRSN PU 12059	39.6	12.2	8.5	3.3	4.8		10.5	5.3		3.1	4	13.6	18.5	25	
MRSN PU 12060	43.2	12	8.4	2.5		2.3	10	6.2	8		4.1	14.4	18	26	
MRSN PU 12061	48.9	14.4		3.7				7.1	8.1	4.1	4.6	13.9	20.4	27.6	36.7
MRSN PU 12062	58.1	16.6		3.9	6.5		11.8	7.6	8.3	5.4	4.8	16.3	26.3	30.9	44.4
MRSN PU 12063	41.9	11.8		2.7			11.1	5			3.9		17.8	25.8	30.6
MRSN PU 12064															
MRSN PU 12065	27.1	8.6									2.4				
MRSN PU 12066	33.6	9.8	6.1				6.7				2.8	10.1	16.2	19.8	
MRSN PU 12067	26.9	7.6	5	1.8	3.1	1.4	5.9	3.6	4.2	1.9	2.4	7.8	12	14.4	20.8
MRSN PU 12068	85.4	24.2									6.7				68.1
MRSN PU 12069															
MRSN PU 12071	51.2	14.9	9.9	2.9	6.5	2.7	14.4	6.6	7.6	4	4	15.8	23.7	28.4	39.6
MRSN PU 12090	42.3	12.5	8.5	2.8	5.6		10.4	5.2	7.7	3.7	3.7	12.6	18.6	26	30.9
MSNM V149	53.2	14	9.7	3.4	6.7	2.3	14	8.4	9.5	4.4	5.1	17	22.1	31.9	39.3
MSNM V164a	43.4	12.9	8.8	2.5		2.3	10.4	6.6	7.2	3	4.1	11.7	18.4	25	33.2
MSNM V164b	43.6	14.1	8.8	2.8	5.6		10.6	6	6.6	3.1	4.3	14	17.4	27	33.9
MSNM V164c	46.2	13.3	9.2	3.1	6	2.3	10.4	5.5	7.1	3.4	4	14.7	18.5	26.2	35.7
MSNM V164d	44.8	13.1	9.7	3.3	5.5	2.5	11.4	5.9	7.2	3.5	4.1	13.6	19	25	34.1
MSNM V186							15.7	9.9	10.7		7				
MSNM V195	48.4	14.8		3		2.7		6.6	8.4	4.4			20.6	30.3	35.6

MSNM V204	76.3	21.7	14.5	6.6	8.8	4	18.2	9.5	10.5	7.7	7.2	24.7	29.8	44.2	58.1
MSNM V206	85	23		4.3	10		18.8				7.7	23.7		43.7	
MSNM V207		19	13.8	4.7	7.8	3.4	16.5	6.6				19.6	31.4	38	
MSNM V220	77.6	21.9	15	5	9.3	3.6		9.6			6.5	24.4	35.4	43.7	58.6
MSNM V221	72.2	19.3	14	4.1	8.4	3.6	16.5	6.2	11.1	4.9	6.7	20.4	31.1		56.2
MSNM V246	58	15.2						7.1	7.5	4.1	4.6		25.4		46.4
MSNM V261	71.2	22.4					16.6	7.1		7.8		23.4	34	43.9	55.4
MSNM V342 a	71.3	17.6	12.2	4.6			18.2	8.1	11.1	6.2	6.1	22.5	30	41.7	54
MSNM V342 b	30.2	9.3					6.3	4			2.7	9	15.1		
MSNM V342 c	72.1	18.2	13	4.3	8	3.6	16.5	8.7			6.2		32.1	38	59.1
MSNM V342 d	55	15.4	10.9	3.8	5.8	2.8	12.6	6.3			5.1	16.3	21.9	32.3	
MSNM V342 e	54.1	16.3	10.7	4.5	7	2.9	13.8	6.8	9.2	4.6		16.5	23.5	33.5	40.3
MSNM V74	66						18	7.3	9.8	6.1	6.7			41.7	50.1
MSNM V92	61.8	16.3	12	4.8	7.1	3.2	12.8				4.8	17	26.6	33.5	
NHMMUK P.3829 a	57.9	16.7	13.3	4.1	7		14.7	7.7	8.8	4	5.1	16.2	27.2	31.6	