



Update on Seamount Database for Deepwater Group Ltd

Prepared for Deepwater Group Ltd

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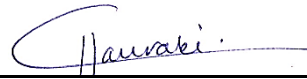

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Contents

1	Introduction	1
2	Scope of work.....	1
3	Seamount distribution	2
	Appendix 1 Deepwater Group_NIWA seamounts spreadsheet.....	3

1 Introduction

NIWA was requested by Deepwater Group Ltd to provide an updated record of seamounts with elevation $\geq 1000\text{m}$ within the New Zealand Economic Exclusion Zone (EEZ).

The following supporting information should accompany any new seamount records:

- Name (if any)
- Location (latitude and longitude of summit)
- Location by FMA
- Elevation above seabed (m)
- Depth at summit (m)
- Depth at base (m)
- Closed area status (SCA, BPA)

The original list provided by MPI to Deepwater Group comprised 100 seamounts. It was based on a Seamounts database developed over an extensive period by NIWA and enhanced under an MPI project in 2008. Since then NIWA has continued to collate and compile information on such features in the New Zealand region.

2 Scope of work

The update involved the following tasks:

- To extract seamount features as defined from the NIWA database
- To cross-check with the Deepwater Group extract, adding in NIWA's unique identification number, and updating the information for each seamount
- To add additional fields where not already included
- To check the source of new data to ensure no confidentiality issues
- To quality-check the final set of records
- To provide Deepwater Group with an updated list of seamounts and the requested supported information

All fields requested have been provided. We have added in the NIWA number (NIWA_no). This is unique to each feature and is an easy tag to identify specific features and check where data have been updated. It would be useful for Deepwater Group to include this number in any further correspondence.

Separate fields have been added to identify features in Seamount Closure Areas (SCA) and Benthic Protection Areas (BPAs). SCA seamounts are also indicated where they occur inside the geographical boundaries of BPAs but in parentheses to distinguish them from the BPA designation.

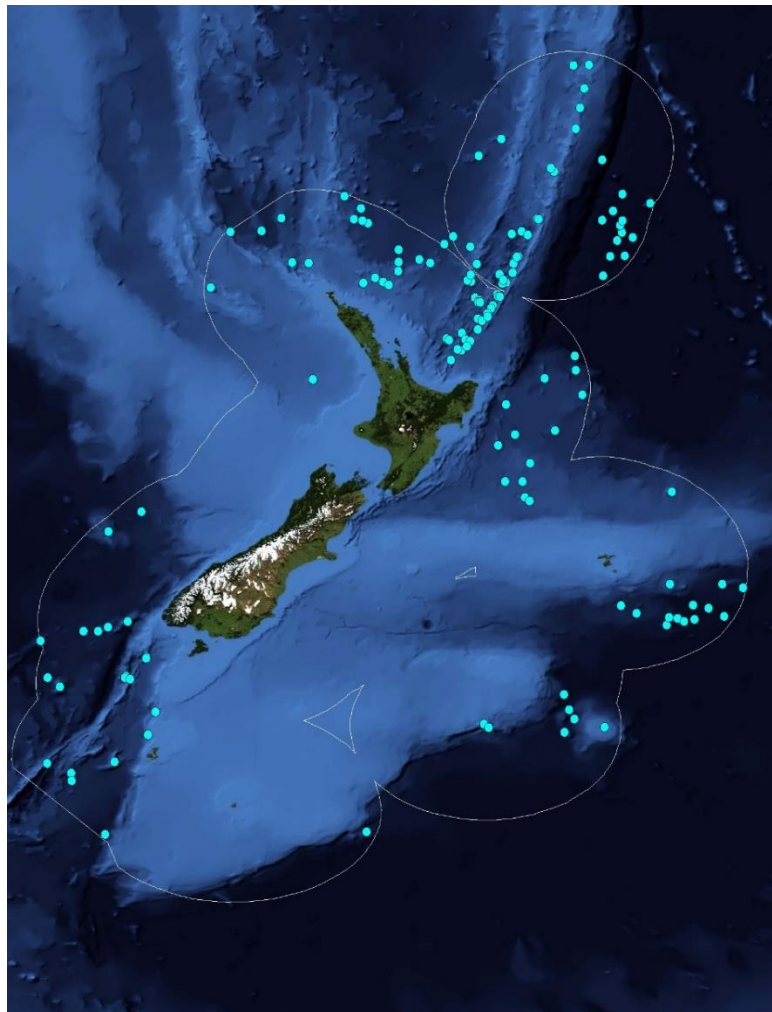
We have added a further field on which seamounts were included in the extract provided by MPI. Four of these have been deleted based on new information that has changed their original classification as a seamount. Several others have some values changed where there is updated information on location or depth.

Please note that names are in some cases informal, and not recognised by the New Zealand Geographical Board.

Additional records since 2008 are primarily where new areas have been covered by NIWA's vessel *Tangaroa*, or where other research ships running multibeam echosounders have provided their data to NIWA. The NIWA regional bathymetry has also been recently updated, with changes in a number of general depth contours which is reflected in some elevation values.

3 Seamount distribution

Records are provided for a total of 142 seamounts. Their distribution within the EEZ is shown in the plot below:



The data are provided in a separate excel spreadsheet ("DeepwaterGroup_NIWaseamounts_Feb2021"), as well as in hard copy as Appendix 1.

Appendix 1 Deepwater Group_NIWA seamounts spreadsheet

NIWA_no	FMA	latitude	longitude	long360	depth_top	depth_base	elevation	name	SCA	BPA	DWGdata
33	FMA10	-26.409	-177.854	182.146	1203	2348	1145			Kermadec	Y
78	FMA10	-29.000	179.387	179.387	1669	2690	1021	Mascarin		Kermadec	Y
86	FMA10	-29.601	178.524	178.524	1044	3692	2648	Matanourua Seamount		Kermadec	Y
120	FMA10	-30.958	-175.964	184.036	3000	5500	2500	Fleming Seamount		Kermadec	Y
123	FMA10	-31.273	-174.898	185.102	2750	5250	2500	Searle Seamount		Kermadec	Y
124	FMA1	-31.024	173.381	173.381	696	2000	1304				Y
136	FMA1	-31.464	174.016	174.016	1500	3250	1750				Y
137	FMA10	-31.546	-176.331	183.669	4337	5998	1661			Kermadec	Y
140	FMA9	-31.799	170.975	170.975	1750	4657	2907		Closed	[Norfolk Deep]	Y
143	FMA1	-31.842	173.746	173.746	676	3012	2336				Y
144	FMA10	-31.877	-176.741	183.259	3750	5750	2000	L' Atalante Seamount		Kermadec	Y
148	FMA1	-31.983	174.281	174.281	677	3300	2623		Closed		Y
153	FMA9	-32.286	169.021	169.021	826	2006	1180			NorfolkDeep	Y
154	FMA9	-32.249	170.205	170.205	2159	3402	1243			NorfolkDeep	Y
155	FMA10	-32.274	-179.828	180.172	1970	3276	1306			Kermadec	Y
156	FMA10	-32.308	-175.988	184.012	4690	5750	1060	Svensden Ridge		Kermadec	Y
159	FMA10	-32.495	-175.576	184.424	3852	6111	2259			Kermadec	Y
168	FMA10	-33.133	-175.876	184.124	3000	5500	2500	Hatherton Seamounts		Kermadec	Y
170	FMA10	-33.157	-176.443	183.557	3682	5829	2147	Hatherton Seamounts		Kermadec	Y
174	FMA1	-33.257	176.259	176.259	2000	3000	1000				Y
176	FMA1	-33.390	176.661	176.661	1492	2575	1083				Y
178	FMA9	-33.379	171.375	171.375	1250	2336	1086				Y
180	FMA1	-33.350	175.468	175.468	1629	3300	1671				Y
181	FMA9	-33.386	172.008	172.008	639	1700	1061	Massey Seamount			Y
185	FMA1	-33.679	175.435	175.435	1612	3000	1388				Y
187	FMA10	-33.838	-176.712	183.288	4250	5668	1418				Y
189	FMA10	-34.077	179.576	179.576	995	3000	2005	Sonne		Kermadec	Y
192	FMA10	-34.115	179.433	179.433	1636	3100	1464	SO1		Kermadec	Y
197	FMA2	-34.488	179.236	179.236	1060	2415	1355	KI1		Tectonic Reach	Y
198	FMA2	-34.622	178.381	178.381	1262	2750	1488	Gill Seamount			Y
202	FMA2	-34.709	178.545	178.545	1060	2564	1504	Yokosuka			Y
210	FMA2	-34.882	179.068	179.068	1197	2490	1293	Brothers	Closed	[Tectonic Reach]	Y
212	FMA2	-35.003	178.993	178.993	973	2000	1027	Healy		Tectonic Reach	Y
217	FMA2	-35.181	178.857	178.857	780	2224	1444	Silent II		Tectonic Reach	Y
224	FMA1	-35.860	177.884	177.884	1035	2739	1704				Y
226	FMA2	-36.092	178.026	178.026	477	2550	2073	Rumble IV			Y
228	FMA2	-36.142	178.196	178.196	367	2600	2233	Rumble V			Y
245	FMA2	-37.171	-177.757	182.243	2600	4123	1523	Holland			Y
250	FMA2	-37.468	-178.940	181.060	1902	3358	1456				Y
252	FMA9	-37.510	172.180	172.180	897	2147	1250	Aotea	Closed		Y

NIWA_no	FMA	latitude	longitude	long360	depth_top	depth_base	elevation	name	SCA	BPA	DWGdata
259	FMA2	-38.047	-177.505	182.495	2400	3700	1300	Marshall			Y
273	FMA2	-39.312	-178.551	181.449	2200	3500	1300	Palmer			Y
276	FMA2	-39.451	179.923	179.923	2111	3522	1411	Young Nicks			Y
306	FMA2	-41.115	-179.797	180.203	1500	2800	1300	Mobil		HikurangiDeep	Y
307	FMA2	-41.115	179.532	179.532	1750	2932	1182	Lee			Y
311	FMA2	-41.476	-174.085	185.915	1631	2970	1339	Polar Bear			Y
313	FMA2	-41.669	-179.710	180.290	1485	2580	1095			HikurangiDeep	
320	FMA7	-42.872	164.350	164.350	2322	4396	2074	Gilbert Seamount			Y
327	FMA3	-44.732	-172.145	187.855	2240	4700	2460	Erik		ArrowPlateau	Y
328	FMA3	-44.734	-174.151	185.849	1595	2700	1105	Munchen	Closed		Y
330	FMA3	-45.499	-176.016	183.984	2164	4187	2023				Y
333	FMA3	-45.773	-175.435	184.565	2350	4100	1750				Y
337	FMA6	-46.179	-174.268	185.732	3578	4700	1122				Y
343	FMA5	-46.741	161.747	161.747	3214	4705	1491	Pickersgill			Y
356	FMA5	-48.046	162.018	162.018	2993	4494	1501				Y
358	FMA5	-48.362	162.487	162.487	1652	4038	2386		Closed		Y
362	FMA6	-49.792	-176.665	183.335	800	4628	3828	Bollons A	Closed		Y
364	FMA6	-49.245	166.150	166.150	1000	2049	1049				Y
368	FMA6	-49.676	178.718	178.718	19	1348	1329			AntipodesTransect	Y
370	FMA6	-49.812	178.913	178.913	103	1808	1705			AntipodesTransect	Y
371	FMA6	-49.961	-178.187	181.813	3222	4250	1028	Bollons C	Closed		Y
376	FMA6	-51.024	164.581	164.581	910	3316	2406	Christable	Closed		Y
383	FMA6	-51.413	162.912	162.912	2729	3756	1027				Y
385	FMA6	-51.688	162.946	162.946	3152	4203	1051				Y
393	FMA6	-53.489	174.236	174.236	2750	4267	1517				Y
425	FMA10	-30.157	-178.592	181.408	98	1415	1317	Macauley		Kermadec	Y
428	FMA10	-32.353	179.793	179.793	2307	3428	1121			Kermadec	Y
429	FMA10	-32.388	-179.591	180.409	1840	3000	1160	Speight		Kermadec	
433	FMA10	-33.159	-179.957	180.043	550	3100	2550	Kuiwai		Kermadec	Y
435	FMA10	-33.790	179.319	179.319	1486	2500	1014			Kermadec	
437	FMA1	-33.905	174.551	174.551	1250	2950	1700	Purerua Seamount			Y
440	FMA2	-34.038	178.234	178.234	1000	3072	2072				Y
441	FMA1	-34.063	174.872	174.872	822	2303	1481	Ballance Seamount			Y
442	FMA1	-34.095	174.109	174.109	500	1567	1067	Cavalli Seamount	Closed		Y
444	FMA2	-34.576	179.262	179.262	1000	2000	1000	Kibblewhite		Tectonic Reach	Y
449	FMA2	-35.350	178.498	178.498	1142	2850	1708	Rumble II West Seamount		Tectonic Reach	Y
450	FMA2	-35.426	178.646	178.646	1029	2756	1727	Rumble II East		Tectonic Reach	Y
453	FMA2	-35.741	178.497	178.497	200	3506	3306	Rumble III	Closed	[Tectonic Reach]	Y
458	FMA1	-36.065	177.305	177.305	1079	2357	1278	Kawitihu West			Y
459	FMA1	-36.115	177.385	177.385	1335	3479	2144	Kawitihu C			Y
461	FMA2	-36.335	178.068	178.068	600	2500	1900	Tangaroa			Y
462	FMA1	-36.429	177.709	177.709	1448	2948	1500				Y
464	FMA1	-36.469	177.858	177.858	860	2500	1640	Clark Seamount			Y
467	FMA1	-36.811	177.466	177.466	880	2196	1316	Whakatane Seamount			Y

NIWA_no	FMA	latitude	longitude	long360	depth_top	depth_base	elevation	name	SCA	BPA	DWGdata
479	FMA2	-38.378	179.571	179.571	2250	3303	1053	Ruatōria Knoll			Y
485	FMA2	-39.823	179.274	179.274	2250	3378	1128	Mahia Knoll			Y
486	FMA5	-46.060	165.090	165.090	2250	3568	1318	Resolution Ridge			Y
487	FMA5	-46.254	164.325	164.325	3130	4345	1215				Y
567	FMA5	-47.310	165.814	165.814	864	2000	1136	Mt Duncan			Y
568	FMA5	-47.350	165.792	165.792	922	2000	1078	Porirua			Y
734	FMA5	-47.983	165.005	165.005	940	2000	1060	True confessions			Y
735	FMA5	-48.041	164.968	164.968	965	2000	1035	Fifino			Y
736	FMA5	-48.087	165.170	165.170	460	2000	1540	Bobs Gun			Y
823	FMA2	-41.800	-179.520	180.480	1250	2600	1350	Shipley		HikurangiDeep	Y
833	FMA2	-35.285	178.863	178.863	1250	2250	1000	Thompson		Tectonic Reach	Y
836	FMA2	-34.776	178.505	178.505	650	2250	1600	Rapuhia			Y
837	FMA2	-34.775	178.579	178.579	700	1800	1100	Giljanes			Y
838	FMA2	-34.578	179.345	179.345	1800	2800	1000	KI3		Tectonic Reach	Y
854	FMA10	-33.729	179.827	179.827	340	2500	2160	Ngatoroirangi		Kermadec	Y
855	FMA10	-33.410	179.870	179.870	1100	2650	1550	Cole		Kermadec	Y
857	FMA10	-33.170	179.990	179.990	1150	2750	1600	Ku1		Kermadec	Y
874	FMA10	-30.030	-178.720	181.280	67	1105	1038	Giggenbach		Kermadec	
879	FMA5	-46.390	163.950	163.950	2844	4285	1441				
880	FMA5	-46.400	163.390	163.390	2940	4380	1440				
890	FMA6	-48.640	-178.200	181.800	2938	4970	2032		Closed		
897	FMA2	-40.460	-179.500	180.500	1587	2827	1240	Moore			
901	FMA10	-31.820	-179.240	180.760	831	1980	1149	Wright 1		Kermadec	
902	FMA10	-31.840	-179.190	180.810	868	2000	1132	Wright 2		Kermadec	
907	FMA10	-28.650	-177.760	182.240	89	1236	1147	Hinetapeka		Kermadec	
910	FMA10	-27.900	-177.600	182.400	195	1350	1155	Putoto 1		Kermadec	
915	FMA10	-27.210	-177.440	182.560	224	1350	1126	Gamble 1		Kermadec	
920	FMA10	-26.390	-177.250	182.750	296	1350	1054	Hinepuia 2		Kermadec	
970	FMA3	-44.870	-171.350	188.650	2261	4461	2200	Berlin		ArrowPlateau	
971	FMA3	-45.590	-172.670	187.330	2512	4899	2387	Frankfurt		ArrowPlateau	
972	FMA3	-45.480	-173.270	186.730	3580	4905	1325	Stuttgart			
989	FMA6	-49.500	-177.810	182.190	2936	4900	1964	Bollons E	Closed		
990	FMA6	-49.180	-178.010	181.990	3348	4900	1552	Bollons F	Closed		
1004	FMA6	-50.054	165.862	165.862	942	2220	1278				
1027	FMA10	-29.750	-176.740	183.260	3450	4550	1100			Kermadec	
1037	FMA6	-45.940	-173.860	186.140	3232	4700	1468				
1038	FMA6	-46.050	-173.610	186.390	3580	4700	1120				
1039	FMA6	-45.990	-173.210	186.790	3400	4800	1400				
1080	FMA10	-32.450	177.560	177.560	2280	3500	1220			Kermadec	
1081	FMA10	-32.820	178.200	178.200	1430	2500	1070			Kermadec	
1099	FMA9	-34.260	168.260	168.260	373	1500	1127				
1100	FMA3	-45.910	-174.180	185.820	3712	4760	1048				
1113	FMA2	-36.680	-177.790	182.210	3148	4150	1002				
1240	FMA1	-32.729	177.215	177.215	2173	3350	1177				

NIWA_no	FMA	latitude	longitude	long360	depth_top	depth_base	elevation	name	SCA	BPA	DWGdata
1277	FMA1	-32.911	175.468	175.468	1799	3750	1951	Callum			
1325	FMA6	-51.067	161.995	161.995	279	1300	1021	SM5			
1330	FMA7	-42.182	165.601	165.601	3145	4400	1255				
1454	FMA1	-31.899	174.064	174.064	1900	3400	1500				
1465	FMA1	-34.172	175.086	175.086	750	1750	1000				
1471	FMA10	-33.976	179.462	179.462	1690	2750	1060			Kermadec	
1473	FMA2	-34.000	178.101	178.101	890	2400	1510				
1474	FMA2	-33.810	178.222	178.222	890	2400	1510				
1475	FMA10	-33.424	178.448	178.448	450	1750	1300			Kermadec	
1573	FMA10	-32.059	-176.063	183.937	4250	5650	1400	Moana Wave Ridge		Kermadec	
1574	FMA10	-31.885	-175.970	184.030	4300	5650	1350			Kermadec	
1575	FMA10	-32.601	-176.172	183.828	4750	5800	1050			Kermadec	
1576	FMA6	-53.571	164.225	164.225	2672	4250	1578			SubantarcticDeep	
1586	FMA3	-45.869	-172.069	187.931	3392	5000	1608			ArrowPlateau	