

高雄港務分公司因應天使輪沉沒案  
與交通部航港局共同以側掃聲納進行  
目標物探測作業綜整報告


1 1 2 年 8 月 2 1 日

## 一、 本次側掃作業區域



- 測量船以多音束側掃聲納探測16個區域

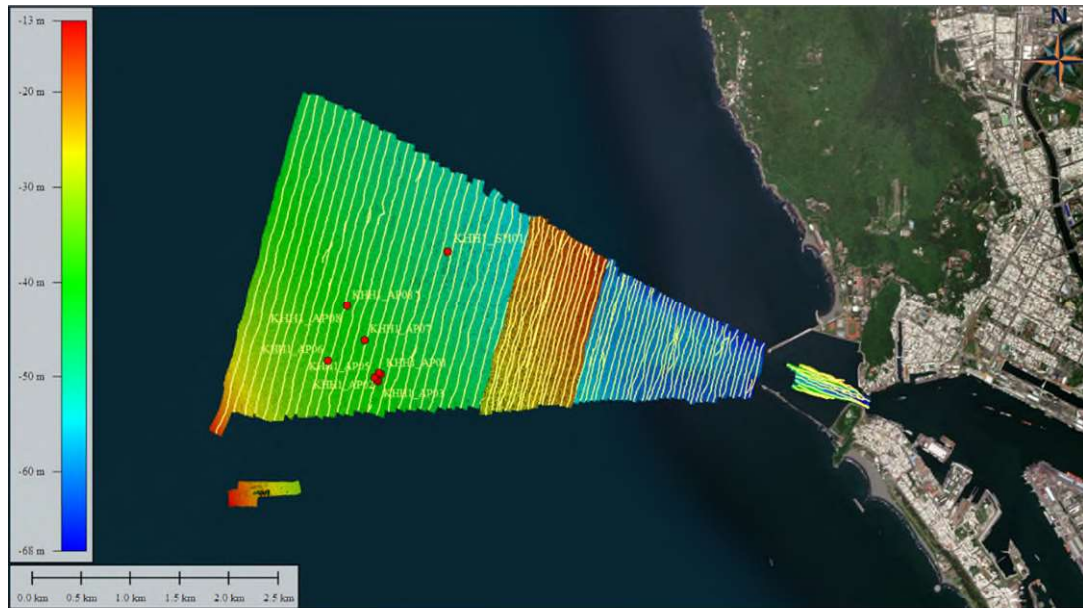
 港務公司側掃區域

 航港局側掃區域

## 二、 各探測區域側掃結果綜整表

編號	探測位置	測量船	作業期間	側掃 目標物數量	目標物 所在水深
1	一港口航道 及周遭水域	裕和號 萬寶龍128	112/7/31、8/14	5個	均逾34公尺 不礙航
2	天使輪 沉船周遭水域	裕和號	112/8/1	多個	均逾30公尺以上 不礙航
3	旗津沿岸水岸	裕和號	112/8/16、 8/17	0	*
4	二港口航道 及周遭水域	裕和號 萬寶龍128	112/8/9~ 8/14	32個	均逾18~41公尺 不礙航
5	南星灣內水域	裕和號	112/8/11	0	*
6	中油外海 浮筒周遭水域	萬寶龍128	112/8/15、 8/16	1個	逾35公尺 未影響海底管線
7	鳳鼻頭漁港	裕和號	112/7/30	2個，其中1個已 吊撈上岸	逾13公尺 不礙航
8	南星灣至中芸 漁港沿岸水域		112/8/9~ 8/11	3個	均逾10公尺 不礙航
9	港埔漁港		112/8/1	0	*
10	中芸漁港		112/8/1	0	*
11	東港 周遭海域	萬寶龍128	112/8/3	0	*
12	鹽埔漁港		112/8/10	0	*
13	大鵬灣 周遭海域		112/8/9	0	*
14	小琉球 白沙尾漁港		112/8/10	0	*
15	高屏溪 以北海域		112/8/8 ~8/9	11個	均逾20公尺 不礙航
16	鳳鼻頭漁港水深 12~15水域		112/8/8	22個	均約12公尺 不礙航

### 三、 側掃發現目標物色階圖及相對位置圖

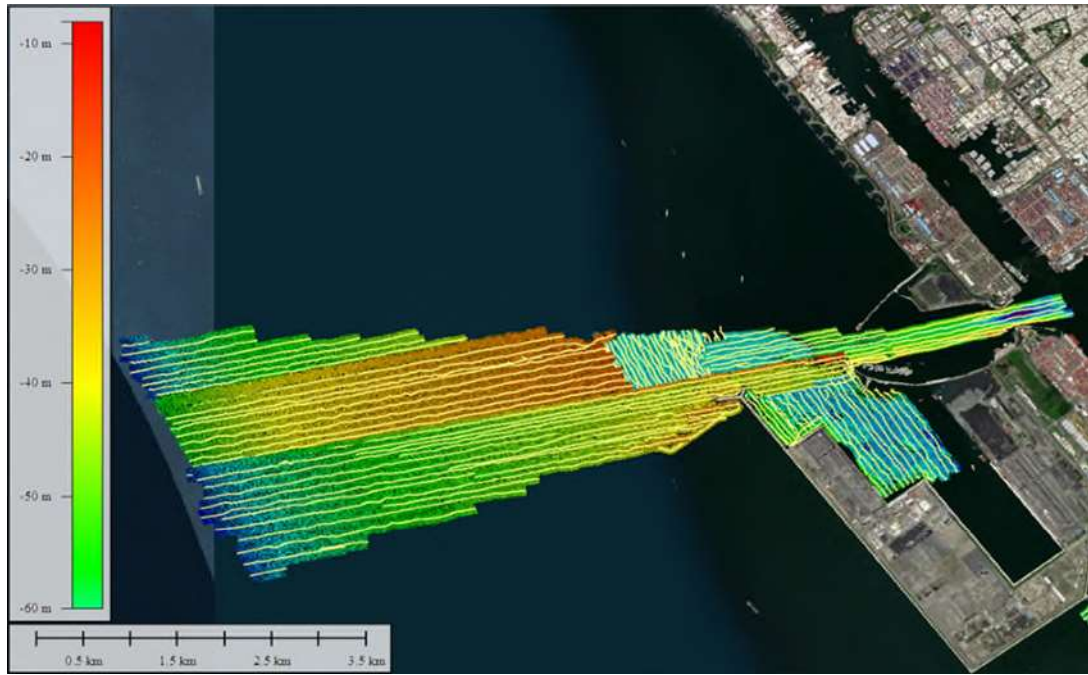


一港口航道及周遭水域側掃色階圖

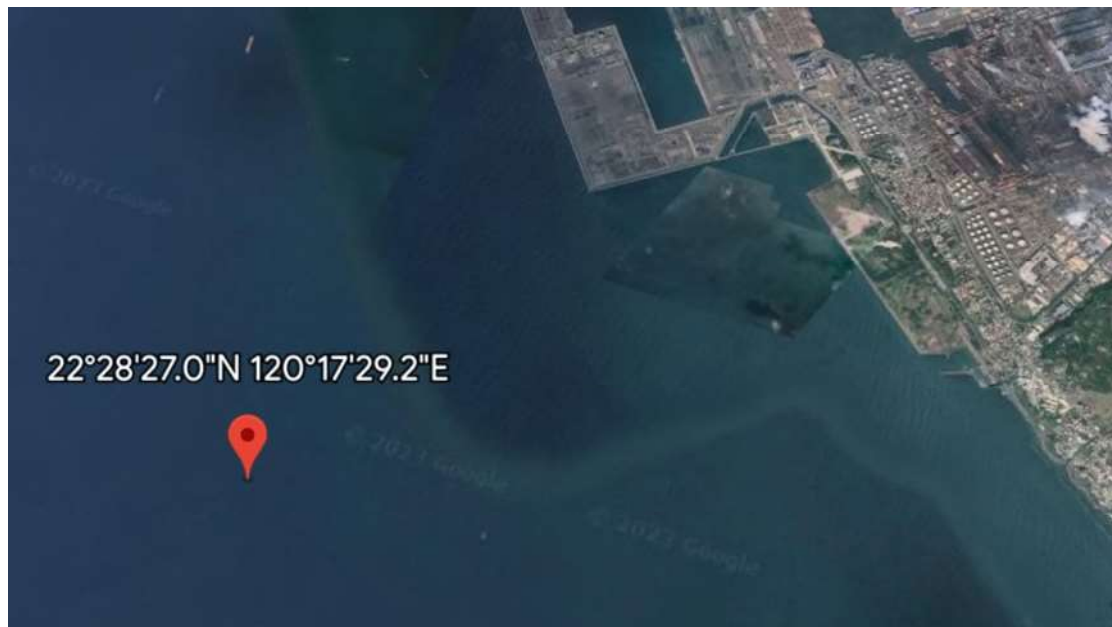


天使輪沉船周遭水域側掃色階圖

(該區側掃後，受颱風及海氣象不佳影響，船位移動至以下座標:N 22° 36'54、E 120° 12'41)



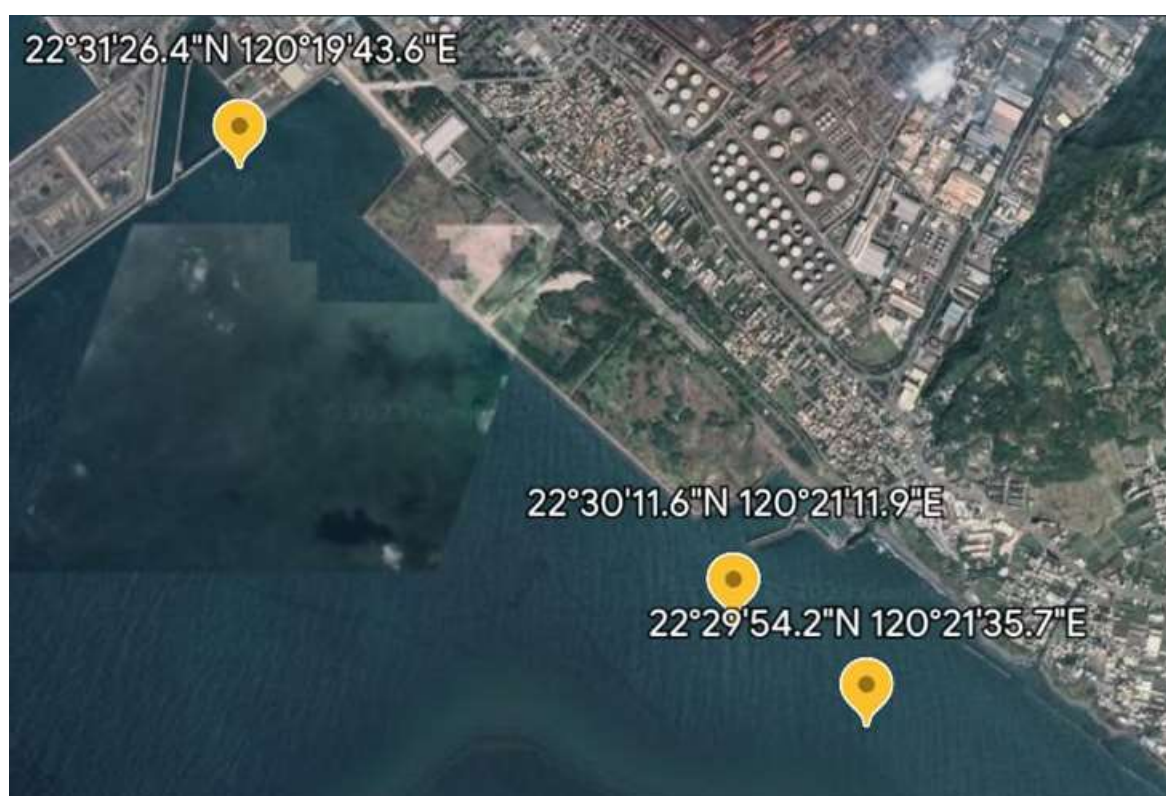
二港口航道及周遭水域側掃色階圖



中油外海浮筒側掃目標物相對位置



鳳鼻頭漁港航道及周遭水域側掃目標物相對位置



南星灣到中芸漁港沿岸水域側掃目標物相對位置



高屏溪以北水域側掃色階圖



鳳鼻頭漁港外水深 12~15 公尺水域側掃色階圖

## 四、目標物座標點位總表

編號	點位	TWD97 (TM2-121)		WGS84		L*W*H	水深
1	KHH1_AP02	169642.1	2502293	22° 37' 07.9994" N	120° 13' 05.9120" E	6*3*2.34	34.96
2	KHH1_AP03	169640.6	2502210	22° 37' 05.2928" N	120° 13' 05.8750" E	8*7*2.07	34.52
3	KHH1_AP04	169624.6	2502219	22° 37' 05.5885" N	120° 13' 05.3127" E	8*7*2.05	35.01
4	KHH1_AP06	169130.4	2502418	22° 37' 11.9780" N	120° 12' 47.9697" E	5.68*5.17*2.14	36.79
5	KHH1_AP07	169499.6	2502624	22° 37' 18.7285" N	120° 13' 00.8622" E	7.58*6.89*1.86	34.83
6	KHH2_AP01	176106.6	2494654	22° 33' 00.7175" N	120° 16' 53.5702" E	8.8*4.8*2	22.8
7	KHH2_AP02	176168	2494552	22° 32' 57.3832" N	120° 16' 55.7350" E	8.6*6.4*1.8	22.8
8	KHH2_AP03	175775.1	2494472	22° 32' 54.7360" N	120° 16' 41.9965" E	7*5.4*1.6	22.7
9	KHH2_AP04	175912.5	2494248	22° 32' 47.4573" N	120° 16' 46.8460" E	6*3.37*1.82	22.9
10	KHH2_AP05	176085	2493997	22° 32' 39.3436" N	120° 16' 52.9248" E	6.2*4.8*2	23.5
11	KHP2_AP05(柱形)	177943.3	2494050	22° 32' 41.3504" N	120° 17' 57.9549" E	4.15*3.42*1.89	20.7
12	KHP2_AP06	178198.6	2493898	22° 32' 36.4455" N	120° 18' 06.9126" E	3.75*3.11*5.13	23.8
13	KHP2_AP07(柱形)	178217.4	2493932	22° 32' 37.5434" N	120° 18' 07.5662" E	5.02*4.75*1.72	23.4
14	KHP2_AP09	178082.6	2494101	22° 32' 43.0233" N	120° 18' 02.8211" E	7.37*3.89*2.02	21.0
15	KHP2_AP11(柱形)	177122.1	2493863	22° 32' 35.1497" N	120° 17' 29.2442" E	5.72*4.75*1.80	18.6
16	KH2_AP01	171906.2	2493523	22° 32' 23.2573" N	120° 14' 26.7573" E	9*6.8*2	41.2m 39.8m
17	KH2_AP02	172220.5	2493576	22° 32' 25.0415" N	120° 14' 37.7470" E	6.32*5.28*2.58	39.2m 37.1m
18	KH2_AP03	172261.8	2493553	22° 32' 24.2842" N	120° 14' 39.1982" E	7*3.83*2.36	38.8m 37.7m
19	KH2_AP04	172363.6	2493556	22° 32' 24.4140" N	120° 14' 42.7572" E	8.32*5*2.11	38.2m 36.7m
20	KH2_AP05	172403.1	2493503	22° 32' 22.6967" N	120° 14' 44.1488" E	9.26*5*2.04	38.3m 36.5m
21	KH2_AP06	172330.4	2493693	22° 32' 28.8431" N	120° 14' 41.5725" E	6.5*3.84*2	38.2m 37.7m
22	KH2_AP13	171364.2	2494427	22° 32' 52.5646" N	120° 14' 07.6280" E	6.20*3.72*1.98	42.5 41
23	KH2_AP14	171519.8	2494579	22° 32' 57.5407" N	120° 14' 13.0450" E	5.86*2.36*2.74	40.7 39.7
24	KH2_AP15	171785.1	2494434	22° 32' 52.8483" N	120° 14' 22.3572" E	7.73*2.25*2.29	39.1 38.5
25	KH2_AP16	171780.7	2494448	22° 32' 53.2942" N	120° 14' 22.2003" E	4.96*2.85*2.42	39.2 37.9
26	KH2_AP17	171852.1	2494436	22° 32' 52.9401" N	120° 14' 24.7005" E	7.50*2.87*2.09	38.8 37.2
27	KH2_AP18	171835.3	2494467	22° 32' 53.9360" N	120° 14' 24.1073" E	5.19*2.52*1.92	38.9 37.5
28	KH2_AP19	171862.8	2494507	22° 32' 55.2336" N	120° 14' 25.0624" E	5.04*2.05*2.05	38.6 37.3
29	KH2_AP20	171771.4	2494566	22° 32' 57.1466" N	120° 14' 21.8529" E	6.34*2.35*1.91	39.2 37.2
30	KH2_AP21	171779.1	2494611	22° 32' 58.6155" N	120° 14' 22.1134" E	7.53*4.2*1.86	38.9 37.1
31	KH2_AP22	171991.4	2494226	22° 32' 46.1203" N	120° 14' 29.6127" E	5.56*3.86*1.06	38.9 38.2
32	KH2_AP25	172653.5	2492977	22° 32' 05.6308" N	120° 14' 53.0076" E	5.64*2.89*2.02	38.4 38.1
33	KH2_AP26	172691.3	2492950	22° 32' 04.7524" N	120° 14' 54.3326" E	6.98*2.82*2.07	38.2 38.1
34	KH2_AP27	172711.2	2492903	22° 32' 03.2443" N	120° 14' 55.0387" E	6.69*6.00*1.41	38.1 38.4
35	KH2_AP28	172780	2492741	22° 31' 57.9849" N	120° 14' 57.4746" E	6.51*6.82*2.05	38.2 38
36	KH2_AP31	176085.2	2493998	22° 32' 39.3795" N	120° 16' 52.9294" E	7.3*2.5*4.43	23.9 23.4
37	KH2_AP35	175873.1	2493429	22° 32' 20.8331" N	120° 16' 45.6052" E	6.02*3.03*2.86	23.1 22.7
38	DLP_AP01	177086	2486230	22° 28' 26.9774" N	120° 17' 29.2443" E	6.33*3.19*2.51	35.2 33.5
39	FBF_AP01	182802	2489354	22° 30' 09.4004" N	120° 20' 48.721 7" E	6.85*3.3*2	
40	NS_AP06	184141.3	2488881	22° 29' 54.2051" N	120° 21' 35.6529" E	7.12*5.36*2.13	10.2 9.2

編號	點位	TWD97 (TM2-121)		WGS84		L*W*H	水深
41	NS_AP07	183463.5	2489418	22° 30' 11.5555" N	120° 21' 11.8563" E	7.04*3.4*1.75	9.8 10.1
42	NS_AP08	180950	2491731	22° 31' 26.4145" N	120° 19' 43.5506" E	7.87*2.72*1.47	10.2 9.3
43	DOT_AP01	185626.840	2484190.234	22° 27' 21.9106" N	120° 22' 28.3124" E		
44	DOT_AP02	185622.472	2484188.567	22° 27' 21.8558" N	120° 22' 28.1599" E		
45	DOT_AP03	185726.974	2483983.517	22° 27' 15.2037" N	120° 22' 31.8450" E		
46	DOT_AP04	185873.018	2483584.764	22° 27' 02.2595" N	120° 22' 37.0110" E		
47	DOT_AP05	185868.896	2483591.017	22° 27' 02.4623" N	120° 22' 36.8659" E		
48	DOT_AP06	185520.351	2482587.777	22° 26' 29.7988" N	120° 22' 24.8218" E		
49	DOT_AP07	186080.125	2482204.611	22° 26' 17.4173" N	120° 22' 44.4545" E		
50	DOT_AP08	184625.989	2481320.926	22° 25' 48.4901" N	120° 21' 53.7304" E		
51	DOT_AP09	184838.903	2481002.459	22° 25' 38.1657" N	120° 22' 01.2230" E		
52	DOT_AP10	184854.202	2480968.036	22° 25' 37.0486" N	120° 22' 01.7631" E		
53	DOT_AP11	185459.644	2484499.586	22° 27' 31.9453" N	120° 22' 22.4192" E		
54	FPT_AP01	13396949.72	2571976.682	22° 30' 09.3706" N	120° 20' 48.6490" E		
55	FPT_AP02	13396999.82	2571860.594	22° 30' 05.9022" N	120° 20' 50.2692" E		
56	FPT_AP03	13397346.48	2571528.129	22° 30' 05.9022" N	120° 20' 50.2692" E		
57	FPT_AP04	13397370.85	2571518.324	22° 29' 55.6760" N	120° 21' 02.2681" E		
58	FPT_AP05	13397397.22	2571507.912	22° 29' 55.3649" N	120° 21' 03.1209" E		
59	FPT_AP06	13397443.71	2571545.431	22° 29' 56.4859" N	120° 21' 04.6242" E		
60	FPT_AP07	13397285.71	2571493.257	22° 29' 54.9271" N	120° 20' 59.5146" E		
61	FPT_AP08	13397191.62	2571491.005	22° 29' 54.8598" N	120° 20' 56.4720" E		
62	FPT_AP09	13397106.17	2571547.844	22° 29' 56.5580" N	120° 20' 53.7083" E		
63	FPT_AP10	13396473.99	2572369.524	22° 30' 21.1074" N	120° 20' 33.2640" E		
64	FPT_AP11	13396226.6	2572521.108	22° 30' 25.6362" N	120° 20' 25.2637" E		
65	FPT_AP12	13396236.33	2572480.117	22° 30' 24.4115" N	120° 20' 25.5782" E		
66	FPT_AP13	13397274.92	2571382.252	22° 29' 51.6104" N	120° 20' 59.1656" E		
67	FPT_AP14	13396433.79	2572289.632	22° 30' 18.7206" N	120° 20' 31.9640" E		
68	FPT_AP15	13397157.71	2571432.728	22° 29' 53.1186" N	120° 20' 55.3754" E		
69	FPT_AP16	13396455.63	2572168.508	22° 30' 15.1018" N	120° 20' 32.6703" E		
70	FPT_AP17	13397210.98	2571303.868	22° 29' 49.2685" N	120° 20' 57.0979" E		
71	FPT_AP18	13396930.63	2571527.766	22° 29' 55.9581" N	120° 20' 48.0317" E		
72	FPT_AP19	13396964.35	2571554.566	22° 29' 56.7588" N	120° 20' 49.1221" E		
73	FPT_AP20	13396624.02	2572235.673	22° 30' 17.1084" N	120° 20' 38.1159" E		
74	FPT_AP21	13396268.93	2572405.391	22° 30' 22.1790" N	120° 20' 26.6325" E		
75	FPT_AP22	13396794.74	2571998.178	22° 30' 10.0128" N	120° 20' 43.6370" E		