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**Contract No. SAE03/02/021**

**Benthic survey of reefs East of The Napoli**

**Report to**

**NATURAL ENGLAND**

***Marine Bio-images***



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## 1 INTRODUCTION

The MSC Napoli container ship was grounded off Branscombe Beach, Lyme Bay, in January 2007. Numerous containers were washed off the vessel before subsequently being recovered and small amounts of oil also leaked from the vessel. In August 2007 Marine Bio-images was contracted to survey the seabed near the grounded vessel, with particular emphasis on the subtidal reef areas nearby, to assess whether significant impacts had occurred as a result of the grounded vessel.

## 2 METHODS

The location of the Napoli grounding, and the surrounding area, was surveyed using a drop-down video system. This consisted of a Sony DV camcorder within a Gates underwater housing fitted with a wide-angle port, mounted in a custom-built stainless steel frame and connected to a surface colour monitor by a video umbilical. Video was reviewed in real time as the camera travelled across the seabed. The video was also recorded on to DV tape, for subsequent analysis and editing.

Video drop locations were selected at regular intervals, parallel to the shore, from approximately one nm East of the Napoli to approximately one nm West of the Napoli. This process was then repeated approximately 500m further out, in slightly deeper water. A number of video drops were then conducted across the main reef areas within 2nm East of the Napoli. These included the named reefs Beer Home Ground, Eastern Heads, West Tennants Reef, and Pinhay Settle.

The video survey was conducted from the 10m workboat *Miss Pattie*, working out of Lyme Regis.

## 3 RESULTS

The Survey was undertaken between the 6<sup>th</sup> and 8<sup>th</sup> of August 2007. A total of 48 stations were surveyed. At each station the video was allowed to drift close to the seabed for 2-5 minutes, to allow a reasonable amount of seabed to be observed. The time, location, depth and observations for each video drop are given in table 1.

No obvious signs of contamination or physical damage from the Napoli could be seen on any of the nearby reefs. Physical damage (numerous detached *Eunicella verrucosa* seafans) was noted on the West Tennants Reef; however this is most likely due to recent activity by mobile fishing gear, specifically scallop dredging, in the area. Given the distance from the Napoli, and the lack of any observable debris in this area it is difficult to see how the grounding of the Napoli could have caused this.

Some debris was observed on the seabed relatively close to the Napoli, in around 10m water depth slightly East of the ship. This was in a relatively high energy area of cobbles, small boulders, algal turf and some erect sponges. No signs of physical damage from this debris moving around could be detected on the video image.

Oiling of static fishing gear was also noted in this vicinity (Picture 1 and 2), with heavy coat coating pot floats. How recently this had occurred could not be ascertained, however it seems unlikely that that fishermen would continue to handle oily gear for any length of time without either cleaning or replacing it given the inevitability of contaminating both boat and catch with oil.

Close to the ship (less than 1000m) the visibility deteriorated markedly. This was probably due to a combination of fine sediment seabed in this area (particularly in slightly deeper water) and the pumping out of the bow section that was occurring throughout the survey period.



Picture 1. Pot buoy contaminated with heavy oil



Picture 2. Pot floats heavily contaminated with oil

#### **4 DISCUSSION AND CONCLUSIONS**

No physical damage could be seen on any of the nearby reefs, the only debris being found lay in shallow water relatively close to the ship. No signs of oil or other contamination could be observed on the reefs either, although surface oil contamination was noted on fishing gear approximately one nm East of the ship. This does not mean there is no debris or contamination. These are extensive reefs and small amounts of debris could easily be missed. However it does indicate that there are not large amounts of debris widely scattered across these reefs. Similarly, the lack of signs of contamination does not in itself mean that no contamination occurred.

However any that may have could not be detected by video, and any effects on species present that may have occurred were not obvious enough to show on the video. In general the condition of the reefs appeared similar to that found on previous survey we have conducted in this area.

If significant physical disturbance or contamination has occurred, it is most likely to be under, or in close proximity to where the two sections of the Napoli lay. These areas were protected by an exclusion zone at the time of this survey. It is therefore recommended that these areas are surveyed once the exclusion zone is lifted when both sections of the hull are removed.

## **5 RECOMMENDATIONS**

1. If significant physical disturbance or contamination has occurred, it is most likely to be under, or in close proximity to where the two sections of the Napoli lay. These areas were protected by an exclusion zone at the time of this survey. It is therefore recommended that these areas are surveyed once the exclusion zone is lifted when both sections of the hull are removed.
2. It may be there has been contamination of epibiota too subtle to be detected by drop video. It is therefore recommended that a dive survey is conducted at selected spot locations close to the site of the Napoli grounding, allowing detailed examination of the low faunal and algal turf present.

## **6 APPENDICES**

### **6.1 Table 1. Video drop station locations & description**

### **6.2 Summary DVD showing representative video drops**

**Table 1. Video drop station locations & description**

Stn No	Site name (if any)	Date	Time (down)	Position down (OSGB36)		Position up (OSGB36)		Depth (m) sea level	Signs of impact	Notes/habitat description	Additional description
				Lat	Long	Lat	Long				
1		06/08/2007	10:00	50 40.923	03 04.690	50 40.939	03 04.660	18	No	Cobbles, mixed sediment	
2		06/08/2007	10:15	50 40.930	03 05.429	50 40.944	03 05.479	15	No	Cobbles, mixed sediment	
3		06/08/2007	10:40	50 40.948	03 0.747	50 40.962	03 05.745	10	Yes	Cobbles, small boulders, erect sponges, algal turf.	Some debris (fabric, spools ) observed on the seabed
4		06/08/2007	10:55	50 40.952	03 05.983	50 40.930	03 05.850	10-8	No	Cobbles, small boulders, erect sponges, algal turf.	
5		06/08/2007	11:05	50 40.967	03 06.345	50 40.965	03 06.230	10	No	Cobbles, large boulders, algal turf, sand patches.	
6		06/08/2007	11:25	50 40.997	03 06.855	50 41.010	03 06.787	10	No	Cobbles, large boulders, algal turf, sand patches.	
7		06/08/2007	11:45	50 41.120	03 06.991	50 41.140	03 06.930	7-5	No	Cobbles and sand onto clean cobbles.	
8		06/08/2007	11:56	50 41.026	03 07.226	50 41.035	03 07.131	10	No	Cobbles, mixed sediment, algal turf, erect sponges.	
9		06/08/2007	12:05	50 41.036	03 07.645	50 41.049	03 07.560	8-9	No	Rippled sand, few flat boulders with algal turf, some sparse kelp. Few erect sponges.	
10		06/08/2007	12:25	50 41.023	03 07.709	50 41.028	03 07.642	8.5	No	Boulders with kelp	
11		06/08/2007	12:45	50 40.911	03 08.627	50 40.940	03 08.507	9.1	No	Sand, large boulders, algal turf.	

12		06/08/2007	13:10	50 40.999	03 09.226	50 41.019	03 09.204	6.5	No	Clean sand, cobbles, boulders, algal turf, some kelp.	
13		06/08/2007	13:25	50 40.956	03 09.637	50 40.967	03 09.612	7	No	Clean sand.	
14		06/08/2007	13:35	50 40.929	03 10.026	50 40.944	03 09.977	8	No	Clean sand, cobbles, boulders, algal turf.	
15		06/08/2007	13:50	50 40.810	03 10.528	50 40.845	03 10.420	9	No	Clean sand.	
16		06/08/2007	14:15	50 40.713	03 11.055	50 40.743	03 11.004	10	No	Clean sand.	
17		06/08/2007	14:30	50 40.722	03 11.675	50 40.759	03 11.622	9	No	Clean sand.	
18		06/08/2007	14:45	50 40.674	03 12.167	50 40.715	03 12.105	7.5	No	Clean sand.	
19		06/08/2007	15:00	50 40.211	03 12.059	50 40.251	03 11.965	16.6	No	Clean sand.	
20		07/08/2007	10:00	50 40.683	03 05.224	50 40.684	03 05.326	18	No	Sand, small stones, cobbles.	
21		07/08/2007	10:10	50 40.572	03 05.839	50 40.567	03 05.913	19.4	No	Sand, small stones, cobbles.	
22		07/08/2007	10:20	50 40.460	03 06.560	50 40.473	03 06.655	20	No	Sand, small stones, cobbles.	
23		07/08/2007	10:30	50 40.378	03 07.252	50 40.384	03 07.351	21	No	Mostly sand, some pebbles, cobbles.	
24		07/08/2007	10:40	50 40.292	03 07.872	50 40.317	03 07.965	21	No	Sand with few burrows.	
25		07/08/2007	10:50	50 40.223	03 08.474	50 40.237	03 08.568	22	No	Sand with few burrows.	
26		07/08/2007	11:00	50 40.111	03 09.200	50 40.175	03 09.269	22	No	Sand, cobbles (poor visibility)	
27		07/08/2007	11:35	50 39.834	03 09.627	50 39.850	03 09.648	22.5	No	Sand, occasional small boulders and cobbles.	
28		07/08/2007	11:55	50 39.686	03 10.237	50 39.710	03 10.267	22.6	No	Sand (very poor visibility)	
29		07/08/2007	13:35	50 38.162	03 05.313	50 38.162	03 05.099	26.5	No	Sediment, cobbles, low bedrock. Few erect sponges.	



30		07/08/2007	14:00	50 38.164	03 04.432	50 38.167	03 04.363	22-24	No	Level bedrock, few sponges, few seafans
31		07/08/2007	14:10	50 38.238	03 04.093	50 38.220	03 04.097	25	No	High, rocky ledge, few seafans
32		07/08/2007	15:00	50 38.221	03 03.754	50 38.210	02 03.656	24-27	No	High ledge, few Pentapora, few seafans, few erect sponges.
33		07/08/2007	15:15	50 38.237	03 03.342	50 38.219	03 03.234	25-22	No	Steep bedrock slope, bedrock plateau. Few seafans, few erect sponges.
34	Tescos Reef	08/08/2007	10:00	50 41.670	03 01.230	50 41.660	03 01.409	9	No	Gravel waves then rocky ledges, v undercut. Kelp park and red algae on top.
35	Inside edge of Eastern Heads	08/08/2007	10:30	50 41.881	03 01.134	50 40.826	03 01.231	21	No	Gravel waves, rock ledges.
36	Eastern Heads	08/08/2007	10:50	50 40.355	03 01.590	50 40.304	03 01.653	20	No	Mixed sediment, cobbles, small boulders, flat bedrock, few Alcyonium, few sponges.
37		08/08/2007	11:05	50 39.443	03 02.213	50 39.417	03 02.284	22.6	No	Low level bedrock with sand veneer.
38		08/08/2007	11:20	50 38.975	03 02.075	50 38.958	03 02.127	23	No	Level broken bedrock, numerous small seafans
39		08/08/2007	11:30	50 38.801	03 02.457	50 38.766	03 02.503	22	No	Low, level bedrock, few seafans, numerous small Alcyonium.

40		08/08/2007	11:50	50 38.415	03 03.008	50 38.379	03 03.077	26	No	Raised broken bedrock, few seafans.	
41		08/08/2007	12:00	50 38.458	03 03.323	50 38.435	03 03.390	25.5	No	Slightly raised bedrock. Few seafans. Potted.	
42		08/08/2007	12:40	50 38.509	03 03.570	50 38.463	03 03.666	26-23	No	Rising broken bedrock, few erect sponges, few seafans.	
43		08/08/2007	12:50	50 38.475	03 03.793	50 38.444	03 03.834	26-23	No	Rising bedrock with low faunal turf. Bedrock plateau with sediment veneer above.	
44	West Tennants Reef	08/08/2007	13:40	50 38.961	03 57.920	50 38.920	02 57.929	28-22	No	Rising bedrock with numerous seafans near top of ridge.	
45	West Tennants Reef	08/08/2007	14:00	50 38.904	02 57.313	50 38.877	02 57.344	25.5	Yes*	Rising, broken bedrock, rock plateau above. Dense stands of large Eunicella in patches. Several recently detached Eunicella noted.	*Damage likely due to scallop dredging, not Napoli.
46	West Tennants Reef	08/08/2007	14:10	50 38.850	02 56.806	50 38.787	02 56.786	26.5-24	Yes*	Rock cliff and plateau above. Numerous Eunicella in stands. Numerous detached Eunicella also.	*Damage likely due to scallop dredging, not Napoli.
47	West Tennants Reef	08/08/2007	14:40	50 38.759	02 55.840	50 38.720	02 55.782	28.4	Yes*	Low ledges, few detached Eunicella.	*Damage likely due to scallop dredging, not Napoli.

48	Pinhay Settle	08/08/2007	15:30	50 42.094	02 56.936	50 42.059	02 56.936	17.6	No	Mixed sediment, cobbles, small boulders, occasional low bedrock. Few erect sponges, few Eunicella, few Pentapora.	
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