

7. Sediment Bioassay

7.1. Introduction

Sediment bioassay was conducted on samples collected during offshore survey around the Chirag platform in 2010. The sediment for bioassay was subsampled from the same grab samples as the sediment analysed for physicochemical parameters, so toxicity can be directly related to measured concentration of contaminants. The bioassay sediment samples were stored frozen before analyses were commenced.

All 11 stations were assessed for sediment toxicity by exposing animals to the sediment in laboratory conditions (bioassay). Two field replicate samples from each station were tested, and the laboratory tests were conducted in duplicate.

The toxicity of contaminated sediment samples were estimated by testing of 100% sediment (whole) samples.

7.2. Bioassay Method

The bioassays were conducted following the Caspian Specific Ecotoxicology Protocol (CSEP). The sediment bioassay procedure uses the Caspian amphipod *Pontogammarus maeoticus*, which is exposed directly to the sediment for 96 hours. Tests were conducted in 1-litre glass vessels, each containing approximately 300 grammes of sediment, 500ml of filtered Caspian seawater, and 10 adult amphipods.

7.3. Results

As seen in table 7.1 after 96 hours zero mortality was observed in all sediment samples.

Table 7.1 Mortality of *Pontogammarus maeoticus* on Exposure to Seabed Sediment, Chirag Benthic Survey 2010

Station	Mean Response (%)
1	0
2	0
7	0
8	0
9	0
25	0
33	0
34	0
35	0
36	0
37	0

The survey data presented in table 7.2 indicates that the toxicity of sediment on amphipods has reduced from the levels recorded in 2004 and 2006.

Table 7.2 Mortality of *Pontogammarus maeoticus* on Exposure to Seabed Sediment, Comparison of Resampled Stations Chirag Benthic Survey 2004, 2006, and 2010

Station	2004	2006	2010
1			0
2	2.5	0	0
7	7.5	0	0
8			0
9			0
25			0
33			0
34	55	40	0
35	2.5	0	0
36	0	0	0
37	45	0	0
38	0	0	0
39	12.5		0