

AN INVESTIGATION OF SEWAGE ON THE BEACH
AT PORTHCOCHAN



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ENVIRONMENT AGENCY



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SUMMARY

A report was received by the National River Authority (NRA), South West Region in the Autumn of 1989 of sewage polluting the stream and freshwater pool on the beach at Porthcothan in Cornwall.

The Tidal Waters Unit of the NRA investigated the area on 21st September 1989 and reported little evidence of pollution from the stream or nearby properties. Sewage-related solids observed consisted solely of sanitary towels or associated plastic which was identified with sea-derived debris that had been washed ashore.

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1. INTRODUCTION

Porthcothan is a coastal village situated approximately 12 miles north of Newquay, Cornwall. In the Autumn of 1989 the National Rivers Authority (NRA), South West Region received a report concerning sewage polluting the stream and freshwater pool on the adjacent beach.

On 21st September 1989 The Tidal Waters Unit (TWU) of the NRA, South West Region investigated the area in an attempt to identify the extent of the pollution and its source.

2. OBSERVATIONS

The weather during the Summer and early Autumn of 1989 was exceptionally dry with drought conditions reported throughout the South West Peninsula.

At Porthcothan there is a deeply indented beach (see Figure 1) that faces the Atlantic in a WNW direction with a small stream (Porthcothan Stream) that runs across the beach (1).

No pipes or discharges were seen during an examination of the cliff base on the south side of the beach but a small stream was observed to enter the beach at SW85307200. An inspection of the beach revealed a few sanitary towels or plastics that appeared to be associated with seaweed and debris that had been washed ashore. A large semi-permanent pool exists where the Porthcothan Stream enters the beach. Reed debris and a few non-biodegradable sanitary towel plastics were present but there was no evidence of faecal contamination.

The Porthcothan Stream appeared clean with little discolouration and no sewage related solids. One road drain discharge pipe was observed; this was near the bridge in the village. Properties in the village and on the cliff top appeared to possess well-maintained septic tanks/cess pits but no discharges were observed. Directly upstream of the bridge the vegetation was very lush, yet there were no sewage-related solids trapped in or near the vegetation as would be expected if there were crude discharges to the stream.

3. SAMPLING PROCEDURE

A sample was collected at the road bridge, Site S (SW85837210), in the village to enable an assessment of the bacteriological quality of the Porthcothan Stream.

FIGURE 1 - PORTHCOOTHAN BEACH



4. RESULTS

The bacterial counts for the single sample are given below;

Total coliforms	3600
E. coli	3300
F. streptococci	1320

These presumptive counts are not indicative of a heavily polluted stream.

5. DISCUSSION

The low levels of bacteria found in Porthcothan Stream, the absence faeces on the vegetation in the stream, and the apparent lack of contaminating sources elsewhere on the beach implies that the pollution is derived from the sea rather than the stream. This theory is partially authenticated by the association of the observed sanitary towel plastic with debris and seaweed at the strand line on the beach.

The topography of the beach is such that material washed inshore, especially non-biodegradeable, might accumulate in the cove and result in the entrapment of sewage solids. The contaminating source is likely to be a sewage outfall that discharges into the sea up or down coast of Porthcothan. An alternative reason for the presence of sewage solids may be due to the septic tanks/cess pits servicing the village properties occasionally overflowing and discharging via some unknown outfall to an area in Porthcothan Bay or on to the beach. However, enquiries made with North Cornwall District Council and Environmental Health Department (EHD), Camelford revealed no knowledge of discharges at Porthcothan.

The original report mentioned the semi-permanent pool on the beach as being stagnant. A significant rainfall had occurred prior to the TWU investigation, resulting in clean freshwater entering the pool and as a consequence stagnant conditions were not observed.

6. CONCLUSIONS

The source of contamination does not appear to derive from Porthcothan Village or Porthcothan Stream but from the sea. The deeply indented beach at Portcothan is likely to give rise to accumulation, or stranding at spring tides, of debris from the sea that could include sewage-related solids.

The original report concerning stagnant conditions in the stream and semi-permanent pool on the beach are believed to be due to very little flow within the stream caused by drought conditions during the summer.

7. RECOMMENDATIONS

It is recommended that if a similar report is made in future, employees of the NRA should investigate the problem as soon as possible to discover if the source of contamination is from the stream/village or sea.

Efforts should be made to identify outfalls up and down coast that could be responsible for pollution at Porthcothan, the treatment involved before discharging i.e. whether or not the effluents are screened, and their efficiency.

8. REFERENCES

(1) Video of Porthcothan Beach. TWU Video Library.

M. HARRIS
16 OCTOBER 1989.