

## 35 Carnoustie



### 35.1 Background Information

Since completion of the Hatton sewage treatment scheme, Carnoustie has had a good compliance record. All normal sewage flows from the Carnoustie catchment are pumped to the Hatton STW for full treatment. SEPA required that this works was designed to ensure that guideline quality standards were met at Carnoustie.

The local Lochty Burn has been identified as an occasional source of pollution and the complexity and age of the Carnoustie public sewerage system requires continued vigilance and investigative effort to ensure that excellent bathing water quality is maintained. Its achievement in 2007, despite the exceptionally wet weather, illustrates the success of this ongoing work.

The temporary dip in bathing water quality in 2002 was ascribed to contamination from local surface water inputs, which were affected by increased rainfall. Continuing investigations have led to the identification and remediation of a number of potential problems with surface water drains, sewer overflows and possibly sewer leakage into the Lochty Burn, which outflows into the bathing water. Further remedial work was carried out on the sewerage system in 2006 after a poor quality bathing water sample was traced back to a specific malfunction. A local Environmental Improvement Action Plan (EIAP) was implemented by SEPA prior to the 2007 bathing season to seek out and eliminate remaining potential polluting inputs to the burn, to minimise the risk of future poor quality events. With the cooperation of local residents the direct discharges of septic tank effluent to the Lochty burn from the Clayholes and Carlogie areas were removed.

This beach was “recommended” in the 2008 good beach guide.

In March 2006 the revised Bathing Water Directive (2006/7/EC) entered into force and was enacted in the UK by Regulations in 2008. Key features are tighter microbiological standards to be met by 2015 and increased provision of public information.

Compliance and pollution improvement required for the designated EU Bathing Waters will be co-ordinated through the Water Framework Directive (WFD) programme of measures which will form part of the river basin management plan. The programme of measures will outline measures (actions) that are being taken to protect and improve the water environment in the river basin district. This EU designated bathing water (protected area) pollution reduction plan will identify measures relevant to this bathing water and associated water bodies that are being undertaken as part of the programme of measures.

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Good	Good	Excellent	Excellent	Excellent	Good	Excellent	Excellent	Excellent	Excellent	Excellent

**Table 35A:** Record of Compliance for Carnoustie, 1997 – 2007.

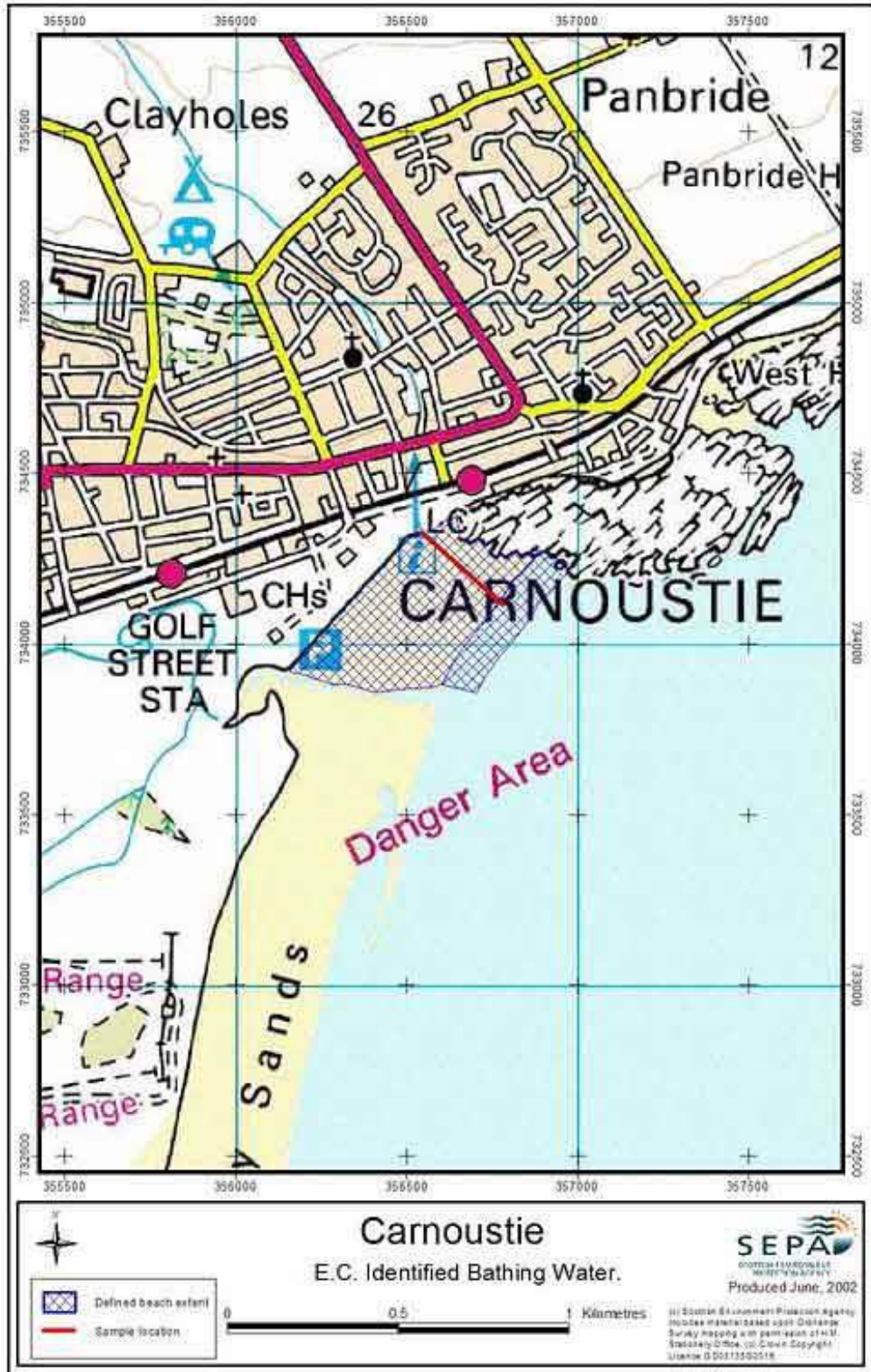


Figure 35A: Map of Carnoustie designated bathing beach and surrounding local area

## 35.2 Results for 2007

Carnoustie Results				
Date	Total Coliforms (colonies/100ml)	Faecal Coliforms (colonies/100ml)	Faecal Streptococci (colonies/100ml)	Abnormal Weather Waiver
22052007	10	6	2	-
06062007	2	<2	<2	-
13062007	800	600	314	-
15062007	66	66	48	-
19062007	22	12	2	-
27062007	600	62	26	-
04072007	6	6	<2	-
07072007	56	22	<2	-
10072007	2	2	4	-
17072007	100	38	6	-
23072007	144	58	44	-
25072007	116	48	10	-
01082007	58	22	14	-
07082007	4	2	2	-
09082007	68	50	6	-
15082007	60	40	14	-
23082007	2	2	2	-
27082007	4	4	2	-
29082007	22	22	14	-
05092007	6	4	8	-
Number of Samples taken : 20				

**Table 35B:** Microbiological results for Carnoustie bathing water, June – September 2007

## 35.3 Scottish Water Assets

All normal sewage flows from the Carnoustie catchment are now pumped to Hatton STW for full treatment. The Lochty Burn discharges onto the south end of Carnoustie beach and presents a risk to bathing water quality as a result of problems with the Carnoustie sewerage system. The Barry Burn discharges to the north end of Carnoustie beach and, in its upper reaches, receives discharges from Monikie STW and associated combined sewer overflows (CSOs). Treatment is by way of bio-filters and humus tanks.

## 35.4 Other Discharges

There is a cluster of septic tanks discharging to the Lochty Burn on the outskirts of Carnoustie. As the burn runs through the town, surface water discharges (SWDs) from housing estates also discharge to the watercourse.

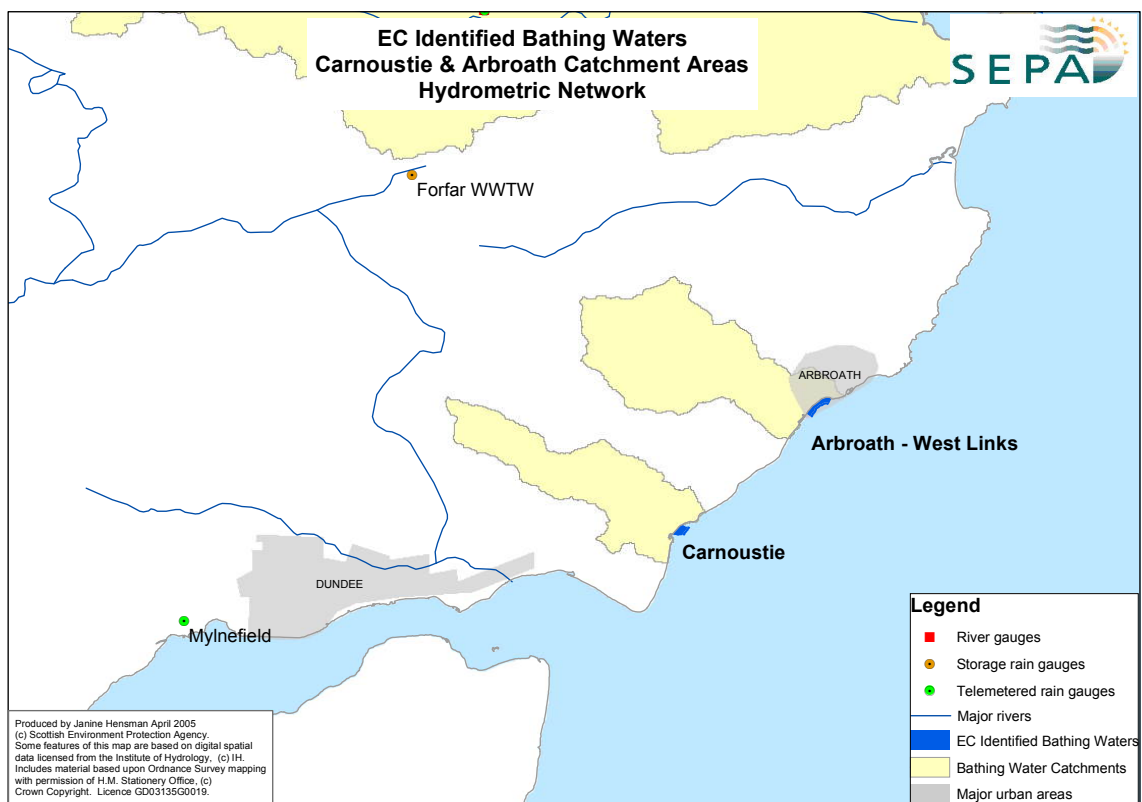
Properties out with the public sewered areas of Monikie and Carnoustie have their foul drainage dealt with via septic tanks.

### 35.5 Agriculture

The Barry Burn catchment is mainly arable but there is a piggery unit near the head of the system and a large poultry unit in the lower catchment. The burn also receives spill water from Monikie Country Park Reservoir, an area that attracts a significant bird population.

### 35.6 Hydrometric Network

Figure 35B shows a map of the hydrometric network in the area of Carnoustie bathing water.



**Figure 35B:** Hydrometric map of Carnoustie and surrounding area

### 35.7 Further Investigations

An extensive Environmental Improvement Action Plan (EIAP) conducted by SEPA starting in 2004 confirmed that the most significant influence on bathing water quality at Carnoustie is the Lochty Burn, a small burn that runs onto the beach in close proximity to the sampling point. The impact on bathing water quality of this watercourse can be disproportionate to its size.

Sampling of the Lochty Burn during the 2004 Bathing Waters season took place at locations throughout the catchment. The surveys found fairly low counts of faecal

indicator organisms (FIO's) in the upper rural part of the catchment but an increase in FIO's became apparent as the burn entered the more urban environment of Carnoustie and a number of SWD's discharged into the burn.

Following SEPA monitoring in 2003, a CCTV survey of the sewer in Carnoustie High Street area was undertaken, where FIO levels often increased despite there being no obvious source of pollution. This sewer runs parallel to the Lochty, which is also culverted under the High Street, and indications pointed to potential exfiltration from the sewer and into the Burn. The CCTV survey raised some issues that were consequently resolved and confirmed exfiltration was not occurring. Cleaning of the sewer upstream of the High Street area was also undertaken.

In July 2004 coliform measurements rose dramatically, and the bathing water sample on 28<sup>th</sup> July failed to comply with guideline values. A choked foul sewer running parallel to the SWD to the rear of Dalhousie Street was implicated, which led to leakage and sewage being discharged into the Burn. This issue has since been resolved by Scottish Water. There is still a risk to the Lochty Burn from the Dalhousie Street SWD but SEPA is working with Scottish Water to eliminate these risks.

SEPA's EIAP continued into 2005, and investigations pointed to the dual SWDs to the rear of Newton Crescent Pumping Station. Action was taken to improve the operation of the pumping station; however, problems with the pumping station continued to cause high FIOs on the beach. SEPA is currently taking action to require further improvement work to be carried out at the pumping station.

During August 2005, March 2006 and April 2006, Newton Road pumping station also caused problems. Improvements have been made to the pumping station to put an end to problem.

Following the two poor quality samples taken in July 2006 increased monitoring was carried out in both the bathing waters and the local watercourse and sewer catchments. There were no further failures during the bathing season.

SEPA is currently actively pursuing improvements to the Dalhousie Street sewer system and also a local pumping station where the pumps have previously failed. SEPA has also held discussions with local householders draining to septic tanks on the periphery of the Lochty Burn catchment with a view to getting them to resolve this by 1 June 2007. Five of the householders plan to connect to the public sewerage system with the remainder planning to install soakaways. Progress on this will be monitored by SEPA.

Investigations by SEPA over the last few years have led to the resolution of a number of problems with SWDs in Carnoustie that can impact the Lochty Burn and therefore also the bathing water. The complexity and age of the sewer system in the area requires continued vigilance and investigative effort, and SEPA will continue to keep a close eye on the burn throughout the year and particularly during the bathing season.

### **35.8 Response to Failure**

Carnoustie has been assessed for the 2008 season as being of medium risk of failing the mandatory standard.

Should there be a mandatory failure, there will be an immediate response to check all the relevant potential sources in the catchment area to confirm the reason, including follow-up microbiology sampling of the bathing water and nearby river inputs.

The regional Environmental Quality Unit will co-ordinate a response in conjunction with the local Environmental Protection and Improvement team and Environmental Science functions and post the result of the investigation and actions arising on the SEPA bathing waters internet site.