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# Were Health Resorts Bad for your Health? Coastal Pollution Control Policy in England, 1945–76

JOHN HASSAN

*Department of History and Economic History  
Manchester Metropolitan University  
Cavendish Street, Manchester M15 6BG, UK*

## SUMMARY

A case study of beach pollution illustrates economic and political influences that have shaped environmental policy in Britain. The need to provide irrefutable evidence that there was a risk to public health, before tangible steps were taken to control pollution, was a characteristic feature of official policy. The consequent deterioration of the holiday industry's prime asset – the marine environment – is traced from the early nineteenth century. The postwar period is selected for detailed study. The paper will explore why, despite the growth of opposition to the pumping of raw sewage into the sea, this traditional method of waste disposal continued to be relied upon until the recent past.

## I. INTRODUCTION

Coastal waters, important as a buffer between land and sea and a 'unique ecological heritage', have been increasingly degraded since the industrial revolution by the accumulation of pollution from river catchments and direct pollution to the sea (European Environment Agency 1995: 89). This paper presents a case study of an aspect of this problem, namely the issue of beach pollution in England over the quarter-century following the end of the second world war. The principal reason for worsening beach pollution was the pumping of raw sewage into the sea by coastal towns. This practice was castigated as 'barbarous' by the Council for the Preservation of Rural England in 1943 (PRO, 1943). Despite the growth of opposition to the policy in the postwar period it continued to be supported by the government until very recently.

The authorities' adherence to the marine disposal of untreated sewage, and the apparent indifference to the resultant deterioration of coastal waters, was surprising for several reasons. The growth of the British seaside resorts had been based on the perceived health-giving attractions of their natural environment, which was seriously threatened by sewage pollution. Unease over beach condi-

tions increased especially after 1945, because of fears that they might cause disease. Typhoid outbreaks were traced to polluted shellfish grounds in the 1900s, and during the poliomyelitis epidemics of the 1940s and 1950s filthy beaches elicited a stream of complaints from holiday-makers.

The paper will examine why the government continued to support the use of sea outfalls. It will also seek to demonstrate the difficulties facing local authorities, who may have shared the public's alarm at trends which were undermining their reputation as 'health resorts', in converting to different methods of waste disposal. The account supplied here does not exhaust the arguments in favour of marine disposal, including geographical factors such as strong tides which helped to disperse effluent. However, the discussion will focus upon economic and political influences which shaped the attitude of the authorities to beach pollution.

To economists, severe pollution is symptomatic of market failure. The coastal water environment is particularly liable to over-exploitation because of its multiple-use characteristics, and because it approximates closely to what is defined as a common property resource – no one is excluded from its use, whether for dumping sewage or for pleasure. Market imperfections also affect environmental investment. For example, the main beneficiaries of expenditure to improve sewage treatment are groups categorised as 'free riders', such as holiday-makers and neighbouring local authorities. Unlike ratepayers, they did not finance the clean-up of the beaches. The fluid nature of sewage meant that coastal resorts shared in the social costs and benefits of each other's disposal strategies. There is a strong disincentive to improve effluent quality when neighbouring resorts continue to discharge crude sewage into the sea.

Attention may also be directed to the role of political culture in the making of environmental policy. Historically, manufacturing and municipal interests, which have generally recognised little advantage in having tougher pollution controls imposed upon them, exercised a significant influence upon the development of water policy (Hassan, 1998). Partly because of this, for the public authorities there would have to be a very compelling and transparent case on public health grounds to justify intervention for the purpose of reducing environmental pollution. If there was no apparent risk to public health, then the policy objective was to maximise the use of the natural environment for the dilution and disposal of wastes (Rose, 1991; Jordan, 1997). Thus a cornerstone of British environmental policy since the Rivers Pollution Act of 1876 has been to require the authorities charged with pollution control responsibilities to take full account of the possible economic effects of taking legal action against polluters, such as local authorities administering sewage works or industrial firms. As will be seen below this principle remained a key influence upon the government's attitude towards coastal pollution in the post-1945 era.

To provide a background to the beach pollution debate of the postwar period, section II touches on public health issues posed by the growing popularity of the

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seaside holiday since the early nineteenth century. The emergence of beach pollution as a critical issue after 1945 is described in section III, which also notes the government's responses to the crescendo of concern that was registered by the late 1950s. The rationale of the government's position over the following years is then examined in more detail. Section IV indicates that medical research tended to support the view of officials that the sewage pollution of bathing waters represented an insignificant health risk. The government's position was also influenced by 'peripheral influences', including the predicament of the holiday resorts themselves and the organisation of opposition to existing policies. These factors are assessed in section V, and in particular the impact of the Coastal Anti-Pollution League (CAPL), active between 1957 and 1985, will be briefly noted.

## II. SEASIDE HOLIDAYS AND SEWAGE BEFORE 1945

The popularity of the English seaside holiday was always associated with the health-giving properties of the coastal environment. In the seventeenth century seaside resorts followed inland spas in the practice of hydropathy. From the 1760s sea-bathing began to be recommended by doctors. It was thought that a great range of disorders was ameliorated by bathing in, and even drinking, sea water – the latter becoming almost a national craze in the late eighteenth century. George III's entourage hoped his madness would be cured by his bathing in the sea at Weymouth. Initially, therefore, visitors were drawn to the seaside primarily for its therapeutic benefits. During their dynamic Victorian expansion, however, the significance of the curative role of the resorts gave way to a range of less serious diversions. Pleasure, to paraphrase Walton (1983: 12), had by the late nineteenth century supplanted health as the dominant motive for going to the seaside.

Meanwhile arrangements for handling the increasing volumes of waste which were being generated barely kept pace with requirements. Around 1850, resorts relied mainly on cesspools for the removal of household wastes or, in the case of larger centres, on short drains discharging directly on to the beach. By about 1870, competition for visitors led the resorts to give attention to the state of their prime asset, the coastal corridor. Over the following years new schemes were commissioned, with outfalls being pushed down to, and sometimes even beyond, the low-water mark. However, the extent of any improvement achieved by the re-siting and lengthening outfalls can easily be exaggerated. There was no question of treating the sewage before disposal. In this period the belief prevailed that the mixture of salt and freshwater in estuaries or tidal waters 'had a sort of magical effect' in purifying pollution (Turing, 1952: 17-18). Of 39 important seaside towns in England and Wales in 1898, all discharged sewage into tidal or marine waters, 26 had some form of storage to prevent the discharge of effluent on the incoming tide, but only a small minority, such as Torquay, had built longer

outfalls which extended beyond the Spring tide low water mark (Moore, 1954: 689-90, citing Nicholls).

With the expansion of the resident and seasonal population, an ever-increasing effluent load was discharged into the sea, with potentially serious environmental and public health effects. Foreshore and bathing areas became contaminated, and serious outbreaks of cholera had occurred at Southport, Hastings, Worthing and Great Yarmouth in 1849 (Walton, 1983). The amenity problem worsened towards the end of the century. Effluent from coastal outfalls joined contamination from industrial rivers, and the 'unimaginable had come to pass' as ocean waters became polluted; as Wohl (1983: 255) comments, 'Apparently England's moat against the "envy of less happy lands" had fallen victim to pollution'. This brought a considerable amount of contemporary comment and, in some cases, condemnation, but to little avail (Turing, 1947).

The most serious effect of sewage pollution was the contamination of inshore fisheries. In the 1900s a significant proportion of typhoid cases in Brighton, Blackpool, Southend and Margate were traced back to the consumption of contaminated shellfish (Walton, 1983). Three people died of fever and many were taken ill after eating oysters at a mayoral banquet at Whitstable. Bacteriological analysis showed that many shellfish beds were sewage polluted (Sheail, 1986). The Royal Commission on Sewage Disposal applied a great deal of attention to this problem, especially in its Fourth Report. However, it recommended little other than a tightening-up of public health procedures. It said it had received 'little evidence' of beach pollution, concluding that the pollution of bathing grounds should not present a serious threat to public health, 'if reasonable care is taken in selecting positions for outfalls' (Royal Commission, 1904: xli). In defending the principle of marine disposal, while glossing over the grossly inadequate location and design of most outfalls, this advice set the tone for official policy for the new century.

During the interwar period a further growth in the popularity of the English seaside holiday took place. More than ever the resorts endeavoured to appeal to potential customers by emphasising the healthy appeal of their natural setting. The bracing air, as well as other qualities of the coastal environment, were offered as attractions. Holiday publicity stressed the quality of beaches, the safe pleasures they offered the family, and the invigorating and restorative benefits of a holiday at the English seaside (Southern Railway, 1937; Cole and Durack, 1992). These centres still went out of their way to promote themselves as 'health resorts'.

Swimming and bathing became extremely popular in this period. During the hot summer of 1933 the facilities of municipal baths were taxed to the limit, and a large number of privately-owned pools were opened (Garner, 1933). Many holiday towns made considerable investments to meet the needs of health-seeking, outdoor-orientated, actively-inclined holiday-makers. New indoor baths, open-air pools and large lidos were built. Blackpool's large open-air baths

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were opened in 1923. Like a number of other 'tidal' swimming pools it was supplied with water pumped in from the sea. Scarborough's new bathing pool was also 'regularly refreshed by the tides' (Biggs, 1930: 65).

The sewage pollution of shellfish beds still provoked concern (Ministry of Agriculture and Fisheries, 1928). Otherwise, there was little perception of any public health risk posed by the increased use of beaches and baths supplied by sea-water. In line with contemporary interests in landscape and nature conservation in the 1930s, water or air pollution was less of a concern than the creeping suburbanisation of the coastline which threatened to destroy the wild scenery that attracted visitors (Sheail, 1976).

With the growing popularity of swimming baths and open-air pools, the public had an interest in the maintenance of hygienic conditions, but it was claimed that sanitary authorities were 'already armed with adequate powers in this respect' (Garner, 1933: 694). Regular bacteriological testing of swimming-bath waters was introduced. Typically extremely low counts of *B.coli* – a guide to the possibility of faecal contamination – were recorded. Confidence in the safety of swimming pools derived also from the adoption of standard procedures to recycle and disinfect the waters. The filtration, aeration and chlorination of waters became normal practice.

The situation for the beaches was rather different. During the period it was recognised that: 'Even sewage disposal by dilution in the sea may be troublesome under certain conditions'. Consequently, a number of resorts, 'owing to rapid growth with consequent increase in the volume of sewage', took steps to upgrade outfalls and also, in a minority of cases, to subject the sewage to some form of pre-treatment (Ibid.: 699). The decision by Bournemouth, more anxious than most to project itself as a healthy resort, to introduce disintegrators to comminute sewage at all its outfalls was regarded as particularly innovative (Ibid.). Even this scheme did not involve biological pre-treatment, and improvements consisted mainly of extending outfalls. By 1932 nine out of twenty prominent southern resorts had built outfalls which exceeded 1,000 feet in length. Professional satisfaction with the effectiveness of current methods of managing waste in coastal communities was almost complete. The President of the Institute of Sanitary Engineers stated:

In dealing with the sewage of seaside towns, it appears at the present time to be accepted by sanitary engineers as an axiom that the best and most economical method of discharging of the sewage is by discharging it into the sea in a crude state. (Taylor, 1934: 33)

It was not a public health, but simply a 'sentimental' objective, to want sewage treated so that, 'no floating solids will be visible to the public'. Correctly sited outfalls, added Taylor, would provide a satisfactory solution 'for all time'.

Bournemouth was unusual in the degree of its concern about beach pollution. Why did the majority of resorts continue to employ short outfalls, which caused

conditions to worsen? The technique's chief attraction was that it was cheap and convenient. Proposals which might increase the rates provoked stiff opposition in almost every locality. Municipal economism is the explanation mainly favoured by historians seeking to account for resorts' neglect of their prime natural asset (Walton 1983). It is hoped that the following will add further perspectives to this problem.

### III. THE EMERGENCE OF COASTAL POLLUTION AS A NATIONAL ISSUE, 1945-60

After the end of the second World War coastal pollution began to attract more attention and official policies were exposed to unprecedented criticism. The official surveys of British waters, which classified them on the basis of oxygen content, biological criteria and the presence of toxic substances, indicated a deterioration in the condition of tidal waters. The pollution displacement effect of environmental policies emerged clearly, because the surveys showed that between 1958 and 1980, '...the state of our estuaries is cause for considerable concern....Here pollution levels reflect a shift of effluent discharge from inland to tidal waters, rather than a solution to the problem as whole' (Parker and Penning Rowsell, 1980: 112).

Seaside holidays became even more popular after 1945 than they had been during the interwar years. Rising living standards and the advent of holidays with pay contributed to the postwar expansion. By 1955, 96 per cent of manual workers were entitled to two weeks paid holiday (Walvin, 1978). Beach pollution was worsening and also becoming a potentially more dangerous problem precisely because the resorts were receiving a greater number of visitors and, therefore, an attendant increase in sewage. The household and trade wastes from a population of 6 million, possibly growing to 12 million during the summer, were now being released into the sea. Along a coastal strip 150 miles in length from Liverpool to Barrow-in-Furness, a minimum of 200,000 gallons of crude sewage was discharged per mile daily (Turing, 1952). Meanwhile use of the beaches was gradually becoming more adventurous, extending from paddling and bathing to surfing, water skiing and snorkelling, which might take people nearer to areas where outfalls debouched sewage (Jordan, 1997).

The majority of coastal towns discharged sewage at, or not very far below, the low water mark. In a few resorts holding tanks had been built to retain sewage, for release during favourable moments of the tidal cycle. But even this technique had occasionally to be abandoned, because the decaying outfall pipes could not withstand the increased pressure to which they were now subjected. As the Ministry of Housing and Local Government admitted, at times sewage had to be pumped into the sea irrespective of the state of the tide (CAPL, 1967). Throughout the country little was done to modernise coastal sewage treatment, so that in

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1957 only 15 of 97 seaside towns had taken steps to supplement outfalls with full or partial treatment, and even nine years later only 22 out of 148 local authorities in England discharged to the sea with full treatment works (Jeger Report, 1970; PRO, 1957d). Even more objectionable than outfalls were the numerous storm overflows, which discharged sewage directly on to beaches during wet weather. The pollution of beaches and coastal waters, therefore, created an increasingly visible and noxious aesthetic and amenity problem during the 1950s.

With attention being directed increasingly towards coastal pollution there was an opportunity for the government to effect a change of policy because, during the period, the system of pollution prevention was entirely overhauled. Although sewerage remained under municipal control, legislation in 1948 led to the responsibility for prosecuting polluters passing from local government to River Boards, who did not face the same conflict of interests which the councils had confronted as major polluters themselves. The Act of 1951 introduced a system of discharge consents to be administered by the River Boards. This measure apparently removed the limitation under the 1876 Rivers Pollution Act whereby the extension of pollution controls to tidal waters was contingent upon the minister's perception of a public health need. However, as an official at the Ministry of Housing and Local Government (MHLG, then in charge of public health matters) put it, 'practical difficulties are not removed by a mere change of wording'. He added:

The Act specifically recognises the impossibility of looking at the elimination of pollution as anything save a long term problem, particularly in these times when industrial output is not lightly to be disturbed and until a portion of the National Investment Programme can be devoted to the reduction of pollution. (PRO, 1951)

Application of section six of the 1951 Act was conceivable, but,

...if the extension of the Act to tidal waters was likely to involve industrialists or local authorities in substantial expenditure or treatment works the case for such an expenditure at the present time would have to be very strong indeed. (Ibid.)

It was, therefore, far less the precise terms of the 1951 measure, and more the way the authorities interpreted the legislation, that had the effect of limiting its application to tidal waters. In only two cases before 1955 did the minister accede to River Boards' requests to have their jurisdiction so extended, and in both it involved relatively minor channels behind tidal gates, almost indistinguishable from non-tidal streams. In that year, however, the Isle of Wight River Board applied for an ambitious extension of its responsibilities into open estuary which merged with coastal waters. The outcome of this case would have important ramifications for other River Boards and local authorities, as the MHLG's reactions make clear. Internally, the MHLG accepted that in theory the operation of the Act could be extended. But in its opinion, in practice estuaries were receiving 'such immense quantities of sewage and trade wastes', that achieving



the quality standards desired by the Board would impose 'crippling costs' upon industry and local government, out of proportion to any benefits. The Board's application for extra powers was, therefore, blocked (PRO, 1955).

Unease about beach pollution was growing, however. Concern was expressed not only about disagreeable aesthetic conditions but also over fears that bathers might be exposed to the risk of infection from typhoid or even poliomyelitis. By 1956 a 'stream of complaints by irate bathers' about beach conditions was being received by central and local government ('Sewage at Sea', 1956: 563-4). A remarkable diversity of interests was involved. During 1956, medical officers of health, river boards, professional associations representing public health inspectors and engineers, Enoch Powell, MP, and the TUC General Congress all expressed varying degrees of outrage over the state of the beaches. The secretary of the British Medical Association warned the Minister of Health about the risks of typhoid infection, and added:

The risk, in a small island like Britain, is a national one and it is ridiculous that its elimination should be left to the mercy of local poverty, apathy or parsimony. (PRO, 1957b)

The Council of the British Medical Association saw it as a 'central' health problem. Referring to a later episode where a local authority deemed itself unable to finance a sewage treatment scheme, it was claimed:

The Minister of Health, forced into the position of arbitrator, is ingeniously trying to dodge what in our view is the strongest of moral responsibilities. In these days of nuclear warfare [sic] Britannia may rule fewer waves than she did in the past, but has she sunk so low that she is content merely to rule a sewer? ('Editorial', 1959: 164)

In the late 1950s the official policy received considerable adverse comment, for example in the *British Medical Journal*, and *The Times*. *The New York Times* ('Britain is investigating', 1957) quoted a claim that, 'England is fast becoming a jewel set in a sea, not of silver, but of sewage.'

By 1957 the controversy had come to a head. In its annual report for that year the MHLG recognised and sought to reassure the fears of the public about poliomyelitis. The debate was covered in the BBC programme *Panorama* in January 1958 (reported in 'Around and about', 4 January 1958: 17-8). By 1959 the Conservative Party manifesto promised that the government would tackle the pollution of rivers and estuaries. In 1960 the BMA passed a resolution at their annual conference condemning the government's complacency, and the Opposition decided to give supply time to a three-hour debate on the issue in Parliament. An appreciable increase in capital expenditure on water and sewerage was planned for 1961/62, the Chancellor of the Exchequer explicitly referring to the adoption of new schemes designed to clean up beaches in a number of resorts (HM Treasury, 1960: 24).

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However, such a high level of concern about coastal pollution was not sustained after 1960. The government was able to persevere with its non-interventionist policy for another fifteen years or so, leaving local authorities to devise and finance their own solutions in accordance with local circumstances. It is revealing that the comprehensive reform of pollution prevention legislation did not extend to coastal waters. The Rivers (Prevention of Pollution Act) of 1961 extended the application of the 1951 Rivers Pollution Act to (previously excluded) pre-1951 discharges. This and other measures provided for an effective system for the management of water pollution levels in England and Wales by the early 1960s. However, although the Clean Rivers (Estuaries and Tidal Waters) Act of 1960 enhanced ministers' powers to control new discharges into tidal waters through tidal water orders, the procedure was complex and cumbersome and involved the holding of public inquiries. Only fourteen such orders were made between 1960 and 1972. The Royal Commission on Environmental Pollution (1972: 18) believed that tidal waters were deliberately excluded from the more rigorous regime, which had been introduced for inland waters, in order to preserve the advantages of estuarine sites for industry. As the atomic scientist John Dunster observed in 1958, not the least attraction of coastal sites as dumping grounds was 'the lack of administrative controls' (quoted Rose, 1991: 10). In theory ministers could also influence local authority sewage disposal practice under the Public Health Act of 1946. Prior to 1970 it appears that virtually no attempt had been made by ministers, under any of the above powers, to modify proposals made by local authorities for the disposal of sewage into the sea (as opposed to estuaries) (Wakefield, 1970: 18).

Meanwhile an attempt in 1968 to introduce a Bill in the House of Commons seeking wider powers for the health minister to control coastal pollution never obtained a second reading. Why the position adopted by governments changed so little during the period under study may be better appreciated by evaluating the factors they had to take into account, including the advice received from medical authorities and the nature of the opposition to existing policies.

#### IV. THE GOVERNMENT, MEDICAL RESEARCH AND COASTAL POLLUTION, 1945-1976.

As has been seen ministers were disposed to extend pollution controls to coastal waters only if incontrovertible proof of a risk to public health could be demonstrated. However, it was not easy to prove such a risk existed when, as in the 1950s, the understanding of the nature and effectiveness of the sea's dispersal mechanisms, and of the aetiology of serious illnesses like poliomyelitis remained incomplete, and as long as the public health implications of polluted coastal waters remained a subject of dispute among scientists (Stevenson, 1953; Moore, 1954; 'Sewage at Sea', 1956; Gameson, 1974; Gould, 1995).

Given the partial state of scientific knowledge and the reluctance to commit substantial expenditures in order to avert a hypothetical health risk, government continued to rely upon localised and fragmented systems for handling coastal pollution and waste disposal problems. The concern of the Ministry of Housing and Local Government was solely that of a sanctioning body when loans for sewage works were involved. There was, indeed, an overriding concern over cost. The MHLG repeatedly set out its view in response to a flow of complaints from the public over the first fifteen years or so after the war. In its opinion the country simply could not afford higher environmental standards, other war-torn sectors of the economy having a greater claim on the national budget than the run-down infrastructures of coastal towns; and the discharge of raw sewage into the sea was not, in any case, conceived as a risk to public health. An official memorandum of 1947, for example, recognised that water pollution was, 'a heritage of the unplanned industrial expansion of the last century'. But it added (PRO, 1947):

The general policy of full treatment before discharge does not seem to be a practical proposition, as apart from the shortage of labour and materials, the immense expenditure which would be necessary could not be justified on grounds of public health, or in most instances, even on the score of amenity.

In the immediate postwar, however, there was anxiety among local health officers and others that outbreaks of typhoid and even polio might be linked to beach infections. Health ministry officials assured deputations from southern coastal resorts that even for 'unsavoury' beaches the risk of contracting an infection from sewage-polluted sea water was 'infinitesimal' (PRO, 1953a,b). In the face of mounting concerns the government's position remained constant. In answer to questions in Parliament, the Minister of Housing and Local Government reiterated the familiar themes that sewage outfalls were efficient, the sea was a great diluter, and that this field was one properly of local government responsibility and finance. Above all, to raise water quality to a standard whereby all the health risks associated with sea bathing might be eliminated would be an 'impossible task' (PRO, 1957a,c).

These viewpoints become more intelligible when placed in the context of the contemporary medical understanding of the health risks posed by environmental pollution. Before the 1940s the image of the English seaside holiday as a thoroughly invigorating and healthy experience had hardly been undermined. Improvements in public health administration and water supplies contributed to a sustained decline in the incidence of typhoid and also of a range of gastro-intestinal disorders (Huckstep, 1962; Mercer, 1990). Because such diseases were ceasing to be endemic and with carrier rates in the population as a whole becoming very low, the risk of contracting infection, even with exposure to disgustingly polluted bathing waters, was in fact declining (Coetzee, 1961). There were some worrying outbreaks of typhoid at seaside resorts in the 1940s,

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but these were later traced back to contaminated ice-cream (MRC, 1959: 3). On the other hand, a much more frightening spectre was about to cast a shadow over the pleasure beaches of the health resorts.

Infantile paralysis, to become better known as poliomyelitis, is a relatively ancient disease, but a combination of factors led to its becoming epidemic by the early twentieth century. By the 1930s a rather tentative proposal was made that there was a need for further research into the possible relationship between poliomyelitis and bathing in sewage-polluted sea-water (Ellsworth, 1940). This was reported as a 'new theory' in the British literature in 1941 (Elsdon, 1941). After the end of the war the disease became more widespread and the 'summer plague' now spread feelings of fear and helplessness. In the 1950s it became a scourge in the United States, affecting 25,000 annually, and swimming-pools were placed off-limits to children. Developments and reactions were less intense in Britain, but 7,776 cases were notified in 1946, compared to the previous maximum number of 1,500 cases in one year. Feelings of impotence and anxiety became widespread here too, with polluted bathing waters being among the chief suspected causes of infection (Gould, 1995: 161).

Meanwhile an American inquiry in the 1920s described relatively high frequencies of throat and nose infections, including tonsillitis, sinusitis and ear infections, as a 'sequel' to bathing. Later, Stevenson's (1953) more systematic epidemiological study appeared to confirm that gastro-intestinal disorders, and especially eye, ear, nose and throat ailments, were significantly higher among bathers than among non-bathers. The methodology and conclusions of this and similar work were subsequently strongly criticised in the British medical literature (Moore, 1974). Nevertheless, in the meantime apprehension was fuelled concerning the healthiness of sea-bathing.

The government's prime response to the growing disquiet over coastal pollution was to ask in 1953 the Public Health Laboratory Service (PHLS), which was directed by the Medical Research Council (MRC) on behalf of the Ministry of Health, to initiate research into the medical and bacteriological aspects of the sewage contamination of bathing beaches of England and Wales. Dr B. Moore, appointed chairman of the PHLS committee charged with undertaking this task, as early as the following year published his views which were supportive of the traditional, official approach. While admitting that there was a possibility of contracting typhoid from swimming in sewage-polluted waters, he claimed that 'the risk of contracting any other disease is apparently minimal' (1954: 698).

The findings of the research were published in 1959. The main conclusions were firstly, that a personal history of sea bathing was 'irrelevant to the causation of poliomyelitis', as the disease was as prevalent among non-bathers as among bathers; secondly, that proven cases associating typhoid with bathing in sewage-polluted seas were extremely rare; there were four cases from 1956 to 1958 that were traced back to polluted beaches, but the report claimed that infection was

caused by, 'direct contact with undisintegrated faecal matter rather than by swallowing contaminated sea-water'; thirdly, fixed bacteriological standards were dismissed as impracticable, due to the heterogeneity of coastal conditions; this was linked to the opinion that apart from extreme cases there was no need for extensive improvements to be made to effluent quality, the implication being that most coastal sewage works were adequate; and the final conclusion was that apart from, 'a few aesthetically revolting beaches...the risk to health of bathing in sewage contaminated sea-water can, for all practical purposes, be ignored' (MRC, 1959: 20-3).

The scientific correctness of the published results of the PHLs research has rarely been questioned. With reference to the research team's remit the findings appeared reasonable, which explains why, despite strong misgivings in certain quarters, they were to prove so influential. From a later perspective the conclusions of the report might be objected to on a number of grounds, above all in making such broad policy recommendations – that it was unnecessary to upgrade the majority of sea outfalls – on the basis of a fairly narrow research exercise. Only 150 cases of poliomyelitis and a larger number of typhoid cases were researched, a range of 'minor' illnesses were excluded, and conditions at only forty beaches, excluding some of the most popular such as Blackpool and Brighton, were examined. Even from a contemporary viewpoint several criticisms could be made of the project. Above all, it had taken a long time, from 1953 to 1959, to complete. This had important consequences. Many local authority engineers, surveyors and medical officers of health may have been uneasy about coastal conditions but delayed recommending action until the findings of the research were published. When the conclusions were announced it was 'little wonder that such plans as were being prepared were quickly shelved' (Wakefield, 1970: 14). Aspects of the report could even be ridiculed, particularly the ingenuous distinction made between 'undisintegrated faecal matter' and contaminated sea-water as causes of typhoid infection. As a medical doctor said in the House of Commons debate on the issue (*Hansard*, 7 July 1960: col.738): 'What are we quibbling about? They bump into the stuff and eat it instead of drinking it. Is this not a fantastic document?'

Despite such flaws the 1959 report was extremely influential. During the 1950s the research-in-progress justified the government's resistance to hasty intervention. Its publication in 1959 helped to vindicate its stance. The conclusions were a devastating blow to the nascent coastal protection movement, and in many respects represented a triumph for the traditional British approach to environmental policy, particularly in the rejection of the precautionary principle. When the results of the research were published in December 1959 they were described as 'reassuring' by government health officials. Their conclusion was that investment to achieve an extensive improvement in the quality of effluent discharged to the sea was unjustified on health grounds (PRO, 1959).

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The PHLS report exercised a decisive influence upon official policy over the following years. During debates in the Houses of Parliament in 1960 and 1967 many expressed impatience, even disgust, with what they regarded as stonewalling complacency over coastal pollution, but government spokespersons were unmoved, being able to refer to the 1959 report in defence of their relaxed attitude towards prevailing policies (*Hansard*, House of Commons, 7 July 1960: col.722; House of Lords, 26 April 1967: cols.603-8). However, the legacy of the PHLS research extended well beyond these Parliamentary debates. The Jeger Report, otherwise quite censorious of official sewage disposal policies, attributed instances of seaside salmonella and diarrhoea to 'travellers diarrhoea', rather than beach pollution. The 1972 Royal Commission on Environmental Pollution quoted the 1959 evidence to support the claim that even where waters had become uninhabitable for fish, the existence of 'visible' domestic sewage, although objectionable, did not constitute any hazard to human health (Jeger Report, 1970: 30; Royal Commission, 1972: 29). In 1981 a government spokesperson claimed: 'The fundamental study here was published in 1959 ... this shows unequivocally that for all practical purposes there is no risk to health from bathing in UK coastal waters' (cited in Kay and MacDonald, 1986: 322).

It has to be acknowledged that official confidence in chosen policies was sustained by scientific work of the highest reputation. Dr Moore published a series of papers which, in the most rigorous and uncompromising manner, rejected the precautionary approach and reaffirmed the conclusions of 1959. Those advocating pollution prevention measures on the grounds that sewage in the sea might become dangerous in the future (due to mutations in pathogens as one critic suggested), based their arguments on 'prophecy not science' (Moore, 1970: 32). Moore reiterated the prevailing views that pathogenic agents survived for only a limited time under coastal conditions, and that human contact with them did not necessarily lead to infection (Moore, 1959, 1974). He found that no satisfactory evidence linking infectious diseases to polluted bathing beaches had been discovered, and dismissed 'microbial standards for bathing waters [as] irrelevant to public health' (Moore, 1974: 103). Moore insisted that environmental health policies had to be based upon scientifically and statistically proven relationships, even requiring proof that apparent relationships between disease and pollution were not the fortuitous outcome of an unrelated third factor, such as food-poisoning. He displayed an unrivalled command of his specialist field of medical microbiology. While others interpreted the evidence differently, critics had little answer to Moore's argument that measures to improve coastal effluent could be justified only on amenity, as opposed to public health, grounds.

Widespread public concern over beach pollution receded after 1959 not primarily, however, because of the findings of the PHLS project. The poliomyelitis scare was diffused mainly because of the effectiveness of the campaign launched in 1958 to encourage the take-up of the Salk vaccine. From Spring 1959

large supplies began to arrive from the United States, and there was a massive response to the campaign. By 1961 poliomyelitis cases were being numbered in the hundreds rather than the thousands, and Gould comments (1995: 176): 'In Britain, at least, the battle was won'. At a more local level Medical Officer of Health reports reveal that the year 1959 was the first for many when no case of poliomyelitis was reported in Blackpool; in the 1960s there were only two reported cases, as against over 130 between 1946 and 1958. The year 1961 was the first in nineteen when none were reported for the whole of Cornwall.

Because of such developments the government's views that only the most disgustingly polluted beaches signified a risk to public health, and that the marine disposal of raw sewage had much to recommend it not least on grounds of economy, prevailed during the period in question.

## V. RESPONSES AT THE PERIPHERY

In short, the government saw little cause for altering the institutional and physical arrangements applying to coastal pollution control between 1960 and the early 1970s. It would have been disposed to this conclusion also because of the rather ephemeral nature of the opposition, for example by tourists, to chosen policies. The disappointments of filthy beaches and 'holiday diarrhoea' were soon forgotten, or at least rarely acted upon. Moore (1970: 27) himself noted that the visitors' unwillingness to see a doctor when afflicted by 'resort enteritis', made notification inadequate which, in turn, complicated the task of epidemiological research. The discomfiture of holiday-makers was too fragile a basis upon which to develop an agitation which could seriously influence government policy.

Reasons for the government's adherence to its policies might also be found in the rather weak resistance to them from the coastal local authorities themselves, and in the tradition of municipal laxity which prevailed in the area of marine conservation. These traits in turn, however, derived from a number of complex factors. As has been argued in section I, it was not simply municipal economism which discouraged local authorities from spending money to upgrade sewage disposal methods. The physical and economic characteristics of coastal waters made it hard to justify such improvements, when the immediate beneficiaries (tourists and neighbouring resorts) had played no part in financing them. The type of difficulty facing local authorities is reflected in the comments of a council engineer, employed by an authority which did not fully treat all effluent at a sewage treatment works. He complained (CAPL, 1969) of,

...the filthy habits of many visitors to the area, who each year leave their litter...on our beaches. The local ratepayers have done their share in keeping the beaches clean, isn't it time the 'Visitors' were educated in anti-pollution.

Such problems would lead many economists to recommend regulatory intervention to remedy the effects of market imperfections. The British government, however, refused to impose a regional solution (before 1973), or to set quality standards, and devolved the task of financing and managing waste disposal to the coastal local authorities. To describe this as a weak regulatory regime would be an understatement. It left the resorts with problems which they were ill-equipped to handle. This analysis helps to account for the resorts' apparent inability or unwillingness to fund a significant improvement in the quality of effluent discharged to the sea. For the vast majority of the resorts the overcoming of beach pollution appeared to involve costs and difficulties out of all proportion to the benefits generated.

There were exceptions, of course. Some resorts because of the specific nature of the clientele they served had to adopt more active policies. Bournemouth, for example, was 'more specifically and more obviously a health resort than, say, Blackpool' (Walvin, 1978: 135). Needing to accommodate the requirements of convalescent, long-stay nursing-home residents, a study of local sources (Medical Officer of Health, 1949-50; *Bournemouth Echo*, 1950-53) will reveal that Bournemouth was more anxious than most resorts to ensure that environmental reality was in harmony with its chosen image. Where it was considered desirable to site hotels and boarding houses as close as possible to the invigorating shore, embarrassment, and even significant commercial costs, might arise from allowing the bay to degenerate into a polluted sink. Suffice to say Bournemouth, like Jersey a resort area with similar problems, took decisive measures from the 1960s to improve its sewage treatment works.

It must be emphasised, however, that Bournemouth and Jersey were exceptional. They were singled out in the House of Commons debate in 1960 as examples of especially innovative practice. The outlook of many resorts was reflected in the low level of expenditure upon sewerage; in 1960 while inland boroughs committed on average between £0.85 and £0.95 of rate expenditure per head on sewage, many seaside towns devoted much less, Brighton, for example, only £0.2 and Hythe £0.36 (*Hansard*, 7 July 1960: col.717). In Cornwall county health officials recognised in 1945 the inadvisability of discharging raw sewage near to bathing beaches (Shaw, 1945). But in the 1950s little risk to public health from beach pollution was perceived even in Bude, a town later to attract much adverse comment concerning its polluted beaches and where poliomyelitis was described as 'endemic' for a number of years (Smith, 1987). Nationally some steps were taken in the 1960s to extend and resite outfalls (Southgate 1969: 145), but the process of improvement was fitful and by-passed some important holiday areas. Reflecting the status attached to the problem, in Blackpool responsibility for some sewerage matters was transferred from the health committee to the highways committee in 1959. It was the latter which received the Medical Research Council memorandum on beach pollution. A brief entry claimed that, 'all reasonable steps' had been taken to minimise beach pollution (Blackpool,



1960: 29). These steps involved discharging the sewage of the town, which attracted 8 million visitors 'in the season', without any treatment other than 'fine screening and maceration' (CAPL, 1960).

As has been seen the socio-environmental crisis of the beaches receded after 1960. Faced with municipal economism, the government's victory in the health debate, the welcome evaporation of the polio scare, and the difficulty of recruiting environmental activists to its cause, the coastal protection movement faced an uphill struggle. In 1973 the Department of the Environment revealed in a survey that of 333 'principal outfalls', almost two-thirds discharged to or above the low water mark, and only two could be classified as long sea outfalls. However, given that concealment and secrecy had long characterised the government's environmental policy, for the Department to respond to criticisms by carrying out and publishing this survey suggests that a change in the political climate regarding environmental matters had occurred by the 1970s. During the unpromising years after 1960 the organisation which spearheaded the struggle to press the authorities into taking action and coming clean on the true situation regarding the extent of beach pollution was the Coastal Anti-Pollution League.

The League acted as a clearing house for complaints about pollution. It helped to raise awareness through publishing the original 'Golden List of Beaches', and by giving evidence at public inquiries it helped to influence the design and siting of outfalls. It was one of the first modern environmental pressure groups. It was one of the first to lobby the European Commission, and even claimed to have played a small part in influencing the final form of the Bathing Water Directive (CAPL, 1984/85).

The CAPL was founded by J.A. and Daphne Wakefield after their young daughter had died in distressing circumstances, having contracted poliomyelitis after bathing in polluted sea-water which, the parents had been advised, was perfectly safe for swimming in. It started life in 1957 as a local pressure group. Having failed to convince Gosport and the Solent authorities of the need for an inland treatment works, the group decided to re-establish itself as a national association and to campaign on national issues. The publication of the PHLS research in 1959, in both denying that filthy beaches posed a health risk and in rejecting the need for a bacteriological standard, was a devastating blow to the infant organisation. It responded by seeking to inform and educate public opinion. The PHLS report had conceded that a few repulsive beaches might present some health risk. The CAPL challenged the MRC, responsible for the publication of this research, to identify the grossly polluting beaches. It was informed that such revelations would betray the confidence of the local authorities, and later the League was advised that to seek to publish material unflattering to resorts might invite litigation.

Thereupon the CAPL refined its strategy and in an inspired move collected information and proceeded to publish details for coastal resorts where beach conditions were reasonably fair. The Golden List of Beaches was published

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regularly from 1960. The public could draw its own conclusions regarding omissions from the list. Initially the List was compiled from details gathered from a questionnaire sent to 221 local authorities in England and Wales about beach conditions, of which 116 responded. The appearance of the Golden List attracted a good deal of media attention. J.A. Wakefield had recognised from the outset the importance of political influence and won election as a Hampshire county councillor on a clean beaches ticket. Later, working with a local MP and assisted by media interest in the Golden List, he succeeded in getting the issue debated in Parliament in 1960.

Subsequently, as has been explained, it became more difficult to maintain interest in the subject as a national issue. It was during this phase that the dogged endeavours of the CAPL proved their worth. There was a suspicion among activists that the dismissal by scientists of sewage pollution as a public health risk was flawed, but recognising political realities the CAPL decided to conduct their campaigns more on amenity and aesthetic grounds. At a local level the CAPL often had a tangible impact. It was called upon by many local groups for assistance and advice. Wakefield attended numerous inquiries at which proposals for new outfalls were examined. Occasionally, extreme passions were displayed by local anti-pollution groups, whose leaflets and actions certainly on occasion strayed perilously close to the illegal. By contrast, the League pursued a pragmatic course, seeking to preserve the good will and cooperation of the local authorities. It did not oppose sea outfalls as such. Wakefield, as a practical man and working engineer appreciated that a well-sited, long outfall could produce better results than full treatment of sewage and discharge from a short outfall. He also, no doubt, had views on what were realistic aims in political terms.

Considerable interest was shown in the activities of the League from a wide range of organisations, from the consumer magazine *Which*, and the National Federation of Women's Institutes to student project work at every level (in a given year up to 2,000 requests for assistance might be received). The CAPL's Golden List, the original and direct precursor of all good beach guides, exercised an influence upon local authorities, instigating the type of competitive endeavour among resorts to vie for beach awards which is so typical of the tourist industry today. There can be little doubt that until it merged with the Marine Conservation Society in 1987, the campaigns organised by the CAPL had a cumulative effect, imperceptibly influencing public attitudes. Since the 1970s opinion polls have continually placed sewage pollution high up the list of environmental concerns (Jordan, 1997). As early as 1967, during an inquiry into a proposed longer outfall at Bognor Regis, opinion polls into ratepayer attitudes revealed a preference for inland treatment and opposition to sea outfalls: 'as a holiday resort, Bognor should have a sewage disposal scheme that would not raise doubts about the safety of the beaches'. Objectors continued to believe that outfalls did pose a health risk and some, perceptively, anticipated that this method might become obsolete in the future (CAPL, 1967).

The CAPL was a pioneering group, but was obviously only one very small element in an evolving situation which saw the environment assuming gradually more importance in the eyes of politicians and the public. This was reflected in 1970 being declared as World Conservation Year and the EC Council of Ministers agreeing in 1972 on the need to develop a Community environmental policy. From the outset attempts to curb water pollution lay at the heart of the EC's environment policy. Among measures agreed to was the bathing water directive in 1976. This writer is persuaded that European environmental law has changed greatly the rules of engagement in environmental politics, green pressure groups, for example, being provided with much more potent tools than they ever possessed before.

## VI. CONCLUSION

It may be suggested that the aim of British policy was to make maximum use of the sea for the economical disposal and dilution of the effluent produced by the enlarged summertime population – to exploit the marine environment as a common sink. The state's desire for economy also encouraged it to leave to coastal authorities the tasks of financing and devising solutions to the problem of waste disposal. The above analysis has demonstrated why, given other calls upon finance, the local authorities tended not to view heavy investment in sewage treatment works as a profitable use of municipal capital. Consequently, despite considerable disquiet over beach pollution, waste disposal methods, that were simply an extension of techniques developed in the mid-Victorian period continued to be relied upon until very recently.

As has been indicated, the crisis of the beaches receded after 1960. However, the upsurge of complaints against beach pollution persisted as a seasonal phenomenon. The debate over the risks to public health was never entirely closed, and the work of organisations like the CAPL, together with much wider influences, began slowly to modify public attitudes. As a consequence, while the scientific validity of the positions adopted by supporters of government policy did not change between the 1960s and the 1980s, it ceased to be politically viable for several reasons.

It is now widely accepted that the risks of contracting a serious illness from bathing in an aesthetically disgusting sea are, indeed, very small. However, even exponents of the official position, if believing that it would not kill them, would probably not wish to be immersed in sewage-polluted sea-water (see Discussion in Moore, 1974: 111). The public in due course would share this distaste, especially as many modern epidemiological studies show a close relationship between contact with polluted waters and the incidence of gastro-intestinal, eye, ear, nose, and throat infections or irritations, and respiratory symptoms. By the 1980s and 1990s not only was the damage to amenity caused by beach pollution becoming less acceptable, but the public in general and, even more, politicised

groups like surfers, would no longer be prepared to have the risks of contracting such illnesses dismissed as a trivial inconvenience. In brief, society's expectations regarding beach conditions are now much higher than they were, and improved standards along the length of the English coastline are demanded.

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