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NRA-Water Quality 58

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# AQUATIC PESTICIDE POLLUTION INCIDENTS IN ENGLAND AND WALES 1992-1994



NRA - Water Quality 58

~~Pesticide~~

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## AQUATIC PESTICIDE POLLUTION INCIDENTS IN ENGLAND AND WALES 1992-1994

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## INTRODUCTION

This report summarises pollution incidents involving pesticides which the National Rivers Authority investigated in 1992, 1993 and 1994. The definition of "pollution incident" in this context is one which the NRA officers investigated as a result of a problem or potential problem reported to the authority. The NRA is often able to prevent an incident becoming serious and in many cases may prevent water pollution altogether, because of prompt reporting and immediate action taken when a pollution incident is reported.

## RESULTS

The results have been collated from NRA pollution incident reports and have been summarised as follows:-

- a) Tables 1, 2 & 3 give brief descriptions of the incidents in each Region, the pesticide involved (where known) and the prosecution status for 1992, 1993 and 1994 respectively;
- b) Table 4 summarises the statistics and categories of the incidents. Definitions of the categories are given in Appendix A;
- c) Figure 1 shows the areas covered by NRA regions.
- d) Figure 2 is a histogram showing the total number of substantiated incidents in each Region between 1992 and 1994;
- e) Figures 3, 4 and 5 are histograms giving the number of the incidents by category for 1992- 1994;
- f) Figure 6 shows pie charts illustrating the percentage of pollution incidents according to the cause of the incident.

## CATEGORY ONE INCIDENTS

In 1992, there were two category 1 incidents. One where groundwater used for water supply was contaminated by sheep dip on several occasions, and another where large numbers of dead fish were found in the Grand Union Canal following spraying.

In 1993, there were six category 1 incidents. One involved sheep dip, one timber chemicals (which was contained), three involving gamma HCH (lindane) which resulted in large numbers of dead fish, and one incident in which the bracken control herbicide asulam contaminated drinking water.

In 1994, there were eight category 1 incidents. Two were agricultural, one involving run-off of isoproturon from waterlogged soil and one where a sprayer tanker spilled 750 litres of cypermethrin & vinclozolin into a stream. There was one incident involving sheep dip and one transportation incident where 230 litres of asulam were spilled when a tanker overturned. Two

incidents were caused by fire; one when a mixture of herbicides entered a river via contaminated firewater following a fire at an agrochemicals store and another when lindane poured onto a bonfire contaminated a beck, killing more than 50 fish. Five hundred fish were killed when pesticide run-off from a golf course entered a watercourse. The pesticide was not identified. There was one further category 1 incident but no details are currently available due to legal action.

## **LEGAL ACTION**

None of the category 1 incidents in 1992 and 1993 resulted in prosecutions, due to insufficient evidence. Two category 2 incidents did result in a prosecution: in 1992, sprayer washing from a farmyard entered and discoloured a stream; in 1993, Cerevax drums were washed out close to the watercourse on a farm estate killing brown trout.

Four of the 1994 category 1 incidents resulted in legal action. One incident in North West resulted in prosecution but no details are available due to ongoing legal action. Also in North West Region, a warning letter was sent following an incident where sheep dip was sprayed onto thin topsoil and soaked into groundwater affecting drinking water supplies. In Southern Region formal samples were taken and served on a farmer after a tractor sprayer overturned causing the closure of an abstraction point. In South Western Region, a formal caution was given and costs fully recovered after pesticide run-off from a golf course killed five hundred fish. No category 2 or 3 incidents led to legal action in 1994.

## **CAUSES**

In 1992, most pollution incidents arose from agricultural use (31%), followed by sheep dips (18%), dumping (11%), transportation (10%) and fire (5%). In 1993 the number of incidents arising from agricultural use increased to 38%, sheep dip incidents decreased to 3%, transportation incidents rose to 15%, dumping declined to 6% and there was only one fire involving pesticides (2%). No reason was given for the remainder of the incidents.

In 1994, the greatest number of incidents (29%) arose from agricultural use, followed by fire 24%. Transportation and sheep dip incidents both declined to 10% and 8% respectively. Dumping also declined to 5%. The remaining 24% of incidents came in the 'other' category.

## **CONCLUSIONS**

The data presented provide a valuable source of information on the type of incidents and the pesticides involved.

Detailed information on the environmental damage caused is not generally available but improvements in reporting are anticipated as Regions in the NRA implement the suggested protocol for investigation.

## DISCUSSION

The NRA and, prior to 1989, the Water Authorities have responded rapidly to pollution incidents, through a 24 hour emergency service operating throughout the year. Once at the scene, the priorities are to identify the pollutant and its source, minimise the environmental impact, and investigate the extent of the damage. The evidence gathered may subsequently support a prosecution case.

In many cases the resources required to carry out more extensive follow up surveys of the incidents have not been available. It is hoped that this situation will be resolved in the near future if analytical support is provided by the Central Science Laboratory under the Wildlife Incidents Investigation Scheme (WIIS) so that the full protocol for these investigations mentioned in the 1993 report can be implemented by the Regions. It is anticipated that implementation of this scheme will result in an improvement in the quality of the investigations and that they can be reported in the same level of detail as the terrestrial incidents to the Government's Advisory Committee on Pesticides.

January 1996

**Table 1 Substantiated Pesticide Pollution Incidents 1992** (\* indicates no environmental effects because pollution was contained)

NB in 1992, Northumbria & Yorkshire Regions and South West and Wessex Regions were recorded separately. In 1993 the Regions had merged to form Northumbria & Yorkshire Region and South Western Region.

	Incident and Environmental Effect	Pesticide (\$ denotes trace levels only)	Category	Prosecution
	<b>ANGLIAN REGION</b>			
1	Wash out from sprayer discharged to stream. Discolouration and chemical odour in stream.	Fenoxaprop ethyl Isoproturon	2	Y
2	Tractor spray tank washed into road drain which flowed into river. No known effect.	Isoproturon(\$) Chlorotoluron(\$)	2	N
3	Sample of borehole water found to contain a range of pesticides. No environmental effect known.	Various	2	N
4	Suspected tractor spill entering river. 25+ dead fish. 1000+ dead invertebrates.	Atrazine (\$) Ethofumesate(\$) Fenpropimorph(\$) Oxadiazon(\$) Simazine(\$)	2	N
5	Dumping of pesticides into chalk pit. Suspected contamination of stream and spring.	DNOC	2	N
6	Spray drift into fish pond. Dead goldfish and carp.	Simazine(\$)	2	N
7	Mobile sheep dip collapsed and spilt 200g of contents. Dead fish and invertebrates.	Organophosphorus	2	N
8	Suspected spillage from sprayer filling. 100 dead fish in river.	Atrazine Chlorfenvinphos Propetamphos Terbutylazine	3	N
9	Tanker emptied into chalk pit. No known effect	Chlorothalonil Dimethoate Ethofumesate Fenoxaprop ethyl Pirimicarb Terbutryn Metribuzin	3	N
10	Suspected contamination of spring as 4 ewes had died. Grass around spring turned brown, no other effects.	Not known		N
11	Slug pellets spilt into drain from spreader. No known effects.	Methiocarb	3	N
*12	Rusty containers carried by lorry leaking onto road. Contained, no environmental effects.	Dimethoate	3	N
*13	Road accident resulted in spillage of herbicide. Contained, no environmental effects.	Diquat	3	N
*14	50g of dilute Birlane 24 spilt onto road from leaking sprayer. Contained, no environmental effect.	Chlorfenvinphos	3	N

*15	Spraying vehicle in ditch resulting from sheared axle. Contained, no known effects.	Quinalphos Triadimenol	3	N
	<b>NORTHUMBRIA REGION</b>			
16	Sheep dip contamination of water supply. Groundwater pollution.	Chlorfenvinphos	1	N
*17	Drum of weed killer found in river. No pollution or fish mortality.	Mecoprop	3	N
	<b>NORTH WEST</b>			
18	Pollution of a pond. Dead fish.	Mecoprop MCPA	2	N
	<b>SEVERN-TRENT</b>			
19	Trailer burst open releasing 100-140 gallons of Fusilade into river. Affected wildlife and amenity.	Fluazifop	2	N
20	Farm discharge containing trifluralin polluting river. No environmental effect.	Trifluralin	2	N
21	Catch pits found to be contaminated by pesticides. No environmental effect, potable supply contaminated	Trifluralin	3	N
	<b>SOUTHERN REGION</b>			
22	25 litres of PVA glue/biocide washed down drain.	None identified	3	N
	<b>SOUTH WEST REGION</b>			
23	High levels of pesticide recorded in routine sample. No known effects.	Soil disinfectant	2	N
24	Pesticide drum found in stream. Stream contaminated. No other known effects.	Dichlorprop	3	N
25	Run-off from sheep dipping operation causing possible pollution of spring. Risk of groundwater contamination.	Not known	3	N
	<b>THAMES REGION</b>			
26	Suspected spray drift entering canal. More than 1000 dead fish.	Cypermethrin	1	N
27	Suspected tipping of pesticide into brook. Hundreds of small dead fish.	Not known	2	N
28	Report of member of public pouring Verdane into river. No known effect.	2,4 D, Mecoprop	3	N
29	Panacide M used by contractor to remove moss from roof drained to pond. Dead fish in pond.	Dichlorophen	3	N
30	Report of chemicals being dumped in watercourse. No known effect.	Gamma HCH Aldrin	3	N
31	Half a litre of pyrethroid insecticide spilt and washed into drain. No known effect.	Deltamethrin	3	N
*32	Arson attack on barn where Gramoxone stored. Contained, no known effect.	Paraquat	3	N
*33	Trailer axle sheared resulting in spill of 150 litres of fungicide onto road. Contained, no known effect.	Fungicide	3	N
*34	Fire in insecticide can packaging plant. 1000 cans exploded. Contained, no known effect.	Bioallethrin Permethrin	3	Y

*35	Spillage of pesticides following overflow of steam heated vessel on industrial site. Contained, no known effect.	Cypermethrin Dimethoate	3	N
*36	Fork lift truck punctured 25 litre container. Spillage contained. No known effect.	Parathion	3	N
	<b>WELSH REGION</b>			
37	Disposal to ground of sheep dip which entered pond. No effects known.	Propetamphos Diazinon	2	N
38	Over flowing sheep dip. No effect known.	Not identified	2	N
39	Syphoning sheep dip resulted in run-off entering road drains. No impact on river.	Propetamphos	3	N
40	Sheep dip causing discolouration and odour to watercourse. No environmental effects.	Unknown	3	N
	<b>Wessex - No substantiated pollution incidents related to pesticides</b>			
	<b>Yorkshire - No substantiated pollution incidents related to pesticides</b>			

**Table 2 Substantiated Pesticide Pollution Incidents 1993 (\* indicates no environmental effects because pollution was contained)**

	Incident and Environmental Effect	Pesticide (\$ denotes trace levels only)	Category	Prosecution
	<b>ANGLIAN REGION</b>			
1	Contents of drums used in raft race leaked into river. Drums removed. Oily film on water. No environmental effects known.	Diquat (\$) Bitumen	2	N
2	Foam in watercourse resulting from spraying activity. 100 dace killed.	Unknown	2	N
3	Spray drift into lake. 2 carp, 1 eel and approx 4000 small rudd killed	Thiovit(\$)	2	N
4	River turned bright blue as result of discharge from fish farm.	Malachite Green	2	N
5	Spray tank fell off tractor when pin sheared. Dilute pesticide spilt on ground and soaked away. No environmental effects known.	Diquat	3	N
6	Vandals discharged 13,000 litres 77% sulphuric acid onto land. Neutralised with 60 tonnes of lime. No environmental effects known.	Sulphuric acid	3	N
7	Stream turned white, strong smell of agro-chemicals. No environmental effects known.	Unidentified	3	N
8	Herbicide applied to grass round pond. Grass turned brown. No environmental effects known.	Unidentified	3	N
9	Spray drift on river bank. No environmental effects known.	MCPA	3	N
10	Crop damage from spraying on railway. No effect on watercourse.	Unknown	3	N
11	Fire in farm chemical store. Watercourse not affected.	Unknown	3	N
* 12	Seven 5.5kg bags of slug pellets dumped in drain. Removed. No environmental effects known.	Methiocarb	3	N
*13	Vehicle spillage to road. Contained. No environmental effects known.	Pendimethalin	3	N
	<b>NORTHUMBRIA &amp; YORKSIRE REGION</b>			
14	Private spring water contaminated by sheep dip. Water unusable for 1 week.	Propetamphos	1	N
15	3,000 litres of timber chemicals spilt into watercourse. Downstream pumps turned off. No environmental effects known.	Bitumen in white spirit	1	N
16	Stream contaminated with bracken control herbicide. Drinking water supply contaminated.	Asulam (\$)	1	N
17	Sheep dip containers dumped in quarry pond. No environmental effects known.	Chlorfenvinphos Propetamphos	3	N
18	Accidental spillage of wool scour to water course. No environmental effects known.	Unknown	3	N
19	Long-term leakage from pipe, discolouring stream occasionally. Ongoing investigation.	Unknown	3	N
20	Vandals emptied wool scour into watercourse. No environmental effects known.	Unknown	3	N

*21	Crop sprayer overturned in roadside ditch. 30 litres of 'Chectah' weedkiller lost. Contained and pumped to crop. No environmental effects known.	Fenoxaprop-P-Ethyl	3	N
*22	Accidental spillage of wood chemicals to roadside. Contained. No environmental effects known.	P-Creosote	3	N
<b>NORTH WEST REGION</b>				
23	Herbicide and oil entered the watercourse in farm run-off. No environmental effects known.	Unknown	3	N
24	Sheep dip entered watercourse in farm run-off. No environmental effects known.	Unknown	3	N
25	Sheep dip entered watercourse in farm run-off. No environmental effects known.	Unknown	3	N
26	Sheep dip entered watercourse in farm run-off. No environmental effects known.	Unknown	3	N
27	A mixture of pesticides entered watercourse in farm run-off. No environmental effects known.	Unknown	3	N
<b>SEVERN-TRENT REGION</b>				
28	Lindane entered brook from farm run-off. 67 dead trout, all stream life killed.	Gamma HCH	1	N
29	Lindane detected in watercourse. 700 bullheads and brown trout killed. Farm not positively identified as source.	Gamma HCH	1	N
30	Water supply reservoir contaminated.	MCPA	2	N
31	Pesticide drums washed out close to watercourse. Brown trout killed.	Carboxin and thiabendazole (Cerevax)	2	Y
32	Agricultural vehicle crashed spilling 4.5 litres of herbicide onto verge. No environmental effects known.	Unknown	3	N
<b>SOUTHERN REGION</b>				
33	700 litres of pesticide spilt into storm sewer overflow. No environmental effects known.	Unknown	2	N
34	6 litres of Mecoprop spilt on road. Diluted and washed down storm drain. No environmental effects known.	Mecoprop	2	N
<b>SOUTH WESTERN REGION</b>				
35	Water supply contaminated. Source not found. No environmental effects known.	Dieldrin	2	N
36	High levels of herbicide detected in routine sample. No environmental effects known.	Propachlor	3	N
37	Formaldehyde drum in culvert. No environmental effects known.	Formaldehyde	3	N
38	River turned blue-green due to discharge from trout farm.	Malachite Green	3	N
39	Contents of sprayer emptied into river. No environmental effects known.	Unknown	3	N
40	Water supply contaminated with mixture of pesticides.	Unknown	3	N
41	River green resulting from discharge from aquaculture centre discharge.	Malachite Green	3	N

	<b>THAMES REGION</b>			
42	Ditch appeared green. No environmental effects known.	Unknown	2	N
43	9 litres of diluted pesticide emptied into road gully. No environmental effects known.	Dimethoate	3	N
*44	16 litres of pesticide spilt from lorry on road. Isolated and removed by fire service. 1 litre dilute pesticide washed down road drain. Brook turned pink.	Emazolo(\$)	3	N
	<b>WELSH REGION</b>			
45	Pesticides discharge to Brook from farm drain. Estimated 1066 trout and 4 salmon killed.	Gamma HCH Atrazine	1	N
46	Elevated pesticide levels detected in routine sample. No environmental effects known.	Atrazine	3	N
47	Spray drift into watercourse. Water company informed. No environmental effects known	Glyphosate	3	N

**Table 3 Substantiated Pesticide Pollution Incidents 1994** (\* indicates no environmental effects because pollution was contained)

	Incident and Environmental Effect	Pesticide (\$ denotes trace levels only)	Category	Prosecution
	<b>ANGLIAN REGION</b>			
1	Fire at agrochemical store on farm. Contaminated firewater washed down a drain to the river - Intake closed and samples taken. A mixture of herbicides were involved.	Mecoprop Hydrocarbons	1	N
2	Dead fish reported in river. Source of pollution unknown but pesticide spray suspected. Approx 200 fish killed.	Unknown	2	N
3	Spray tanker overfilled and fungicide passed to soakaway drain. No environmental effects known.	Unknown	2	N
4	Routine analysis showed exceedence of drinking water limit. Source possibly from a farm pit.	Terbutryn Trietazine	2	N
5	Sheep dip disposed of to canal. Fish affected.	Sheep Dip	3	N
6	Vandals broke into groundsmans store and spilled up to 100 litres of chemicals - Supertox, Clovotox & Mildothane Roural Liquid. Fire Service washed down with 2000:1 ratio of fresh water - soaked away at edge of playing fields.	2, 4 D Mecoprop Thiophanate-methyl	3	N
7	Sacks and containers found in river which said Iosan Anthem (teat dip for cows). No environmental effects known.	Unknown	3	N
8	Fungicide spilt on road following road traffic accident. Washed into roadside verge. No environmental effects known.	Unknown	3	N
9	9kg bag of Phorate fell from vehicle onto road. Fire service swept up and neutralised chemical. No environmental effects known.	Phorate	3	N
10	Reported washing out of spray tanks next to river. No environmental effects known.	Unknown	3	N
11	Overspraying near watercourse. Plant life affected.	Unknown	3	N
*12	Fungicide leaked from a 200kg drum being carried by a lorry. Approx 20 litres lost. The fire brigade blocked off the drains and absorbed the fungicide with sand.	Unknown	3	N
*13	Car containing 180 litres of herbicide Hysward caught fire. Most contained. No environmental effects known.	Mecoprop Dicamba MCPA	3	N
*14	Approximately 800 litres of diluted herbicide - Encore - spilt onto road and into drains. Spillage contained in road gullies. Tanker arranged to clean out gullies and sand to absorb puddles.	Isoproturon Pendimethalin	3	N
*15	About 23 litres of dilute Hoegrass herbicide spilt down a surface drain on a farm when pipe burst on chemical sprayer. Most of the spillage soaked up with sand. No environmental effects observed.	Diclofop-methyl	3	N

	<b>NORTHUMBRIA &amp; YORKSHIRE REGION</b>			
16	Lindane poured onto bonfire. Beck contaminated and 50+ fish killed.	Lindane	1	N
17	Tanker overturned spilling approx 230 litres of pesticide (Asulox). Abstraction point closed. No environmental effects known.	Asulam	1	N
18	Chemical smell reported near a farm. Sheep dip was entering the stream from dip trough. Watercourse affected.	Sheep dip (Unidentified)	2	N
19	Samples at intake found to be above drinking water standard for Mecoprop. Source unknown.	Mecoprop	2	N
20	Spillage of 100 litres of crop spray mix, 6 litres of active ingredient. Spillage soaked away in road verge. Unlikely contamination of watercourse.	Unknown herbicide	3	N
21	Helicopter spraying Asulox to control bracken. Pesticide spread onto Yatcholme reservoir.	Asulam	3	N
22	Sheep dip containers, some containing dip, dumped near stream. No environmental effects known.	Sheep Dip (Unidentified)	3	N
23	Selective spraying for nettles and rushes in windy conditions - threat to watercourse. Sample taken. No environmental effects known.	Unknown	3	N
*24	Approx 800 litres of MSS Iprofile herbicides entered surface water drain following barn fire at farm. Watercourse blocked off and contaminant contained and removed.	Isoproturon	2	N
*25	Pesticide spilt in trailer accident. Pollution contained & no environmental effects known.	Unknown herbicide	3	N
	<b>NORTH WEST REGION</b>			
26	No details available due to legal action.	No details	1	Y
27	Sheep dip sprayed onto thin topsoil and soaked via limestone sub-soil into groundwater. Drinking water supplies were affected as was a stream. Warning letter sent.	Chlorfenvinphos Propetamphos	1	N
28	Sheep Dip full to overflowing. No environmental effects observed.	Unknown	3	N
	<b>SEVERN TRENT REGION</b>			
*29	Spillage of 1000 litres of mixed herbicide (Ardent) in farmyard. Contained by earth bank. No environmental effects observed. Formal sample taken as a precaution.	Trifluralin (\$)	2	N
	<b>SOUTHERN REGION</b>			
30	Pesticide spraying during a period of wet weather and on waterlogged soil led to run-off causing exceedence of drinking water standard.	Isoproturon	1	N
31	Tractor sprayer overturned spilling 750 litres of pesticide into a dyke. Downstream drinking water abstraction point closed. Formal samples taken and served on farmer.	Cypermethrin & Vinclozolin	1	N
32	Yard fire involving timber preservatives. No environmental effects known.	Unknown	3	N

33	1800 litres of Pallitop fungicide spilt on land at cricket club.	Nitrothal-isopropyl	3	N
34	Formalin Sterilent Solution entered water - only traces remained.	Formalin	3	N
35	Water contaminated by Curzate upstream from water abstraction point.	Cymoxanil & Mancozeb	3	N
*36	200 litres of pesticide spilt at wharf but contained. No environmental effects known.	Lindane	3	N
	<b>SOUTH WESTERN REGION</b>			
37	Pesticide run-off from Golf Course. 500 fish killed. Formal caution given and costs fully recovered.	Unknown	1	N
38	Pesticide detected in water treatment works raw water. Source unknown.	Lindane	2	N
39	Water turned green at fish farm - visual effects only.	Malachite Green	2	N
40	Vet report of dog poisoned - source unknown. No environmental effects known.	Unknown	3	N
41	Vet report of dog poisoned - suspected organo-phosphate. No environmental effects known.	Organophosphate	3	N
42	Run-off from sheep dip. No environmental effects known.	Unknown Sheep Dip	3	N
43	Washings run-off to watercourse. No environmental effects known.	Unknown	3	N
44	Rat poison sachets found on watercourse. No environmental effects known.	Unknown	3	N
45	Run-off following accidental spill of "Optica".	Mecoprop-P	3	N
46	Factory discharge of timber treatment products. No environmental effects known	Cuprinol products	3	N
47	Run-off of organophosphate to watercourse. No environmental effects known.	Organophosphate	3	N
48	Bankside spraying of herbicide near watercourse. No environmental effects known.	Glyphosate	3	N
49	Borehole contamination by pesticide. Minor environmental effects occurred.	Atrazine	3	N
	<b>THAMES REGION</b>			
50	Spillage of Tristar to roadside ditch from spray tank. Ditch pumped out. No environmental effects known.	Trifluralin	3	N
	<b>WELSH REGION</b>			
51	Approx 30 Rainbow trout died and pond discoloured due to spraying of herbicide (Agricorn 500) adjacent to the pond and use of an aquatic herbicide (Claroslan) in an upstream pond.	MCPA Terbutryn	2	N
52	Contaminated water in tributary of River Llynor. Source of pollution not traced & no environmental effects known.	Unknown	3	N

**Table 4 Pesticide Pollution Incidents**

REGION	CATEGORY 1			CATEGORY 2			CATEGORY 3			TOTAL NUMBER OF SUBSTANTIATED INCIDENTS			UNSUBSTANTIATED INCIDENTS (CATEGORY 4)		
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Anglian	0	0	1	8	4	3	7	9	11	15	13	15	7	2	0
Northumbria/ Yorkshire	1	3	2	0	0	4	1	6	4	2	9	10	1	0	1
North West	0	0	2	1	0	0	0	5	1	1	5	3	6	0	0
Severn Trent	0	2	0	2	2	1	1	1	0	3	5	1	0	2	0
Southern	0	0	2	0	2	0	1	0	5	1	2	7	2	0	6
South Western	0	0	1	1	1	2	2	6	10	3	7	13	3	4	7
Thames	1	0	0	1	1	0	9	2	1	11	3	1	4	0	18
Welsh	0	1	0	2	0	1	2	2	1	4	3	2	3	0	18
<b>TOTALS</b>	<b>2</b>	<b>6</b>	<b>8</b>	<b>15</b>	<b>10</b>	<b>11</b>	<b>23</b>	<b>31</b>	<b>33</b>	<b>40</b>	<b>47</b>	<b>52</b>	<b>26</b>	<b>8</b>	<b>50</b>

## **APPENDIX A - DEFINITIONS**

### **NRA Definitions of Pollution Incident Categories**

#### **Category 1**

A major incident involving one or more of the following:

- a) potential or actual persistent effect on water quality or aquatic life;
- b) closure of potable water, industrial or agricultural abstraction necessary;
- c) extensive fish kill;
- d) excessive breaches of consent conditions;
- e) extensive remedial measures necessary;
- f) major effect on amenity value.

#### **Category 2**

A significant pollution which involves one or more of the following:

- a) notification to abstracters necessary;
- b) significant fish kill;
- c) measurable effect on invertebrate life;
- d) water unfit for stock;
- e) bed of watercourse contaminated;
- f) amenity value to the public, owners or users reduced by odour or appearance.

#### **Category 3**

Minor suspected or probable pollution which, on investigation, proves unlikely to be capable of substantiation or to have no notable effect.

#### **Category 4**

Introduced from January 1995. A reported incident which, on investigation, cannot be substantiated.

#### **MAFF Definition of a Serious Incident**

An incident that has any of the following effects and includes all cases where legal proceedings are initiated:

- a) downgrades the class of any water course classified in the River Quality Survey by more than 10% over 0.5 km;
- b) interferes with water abstraction through quantity and quality;
- c) results in fish mortality;
- d) causes significant interference with legitimate use of water, including stock watering;
- e) adversely affects any SSSI, nature reserve or area of high conservation interest.

Figure 1 NRA Regions in England & Wales



Figure 2 Substantiated Pesticide Pollution Incidents (Totals) 1992 - 1994

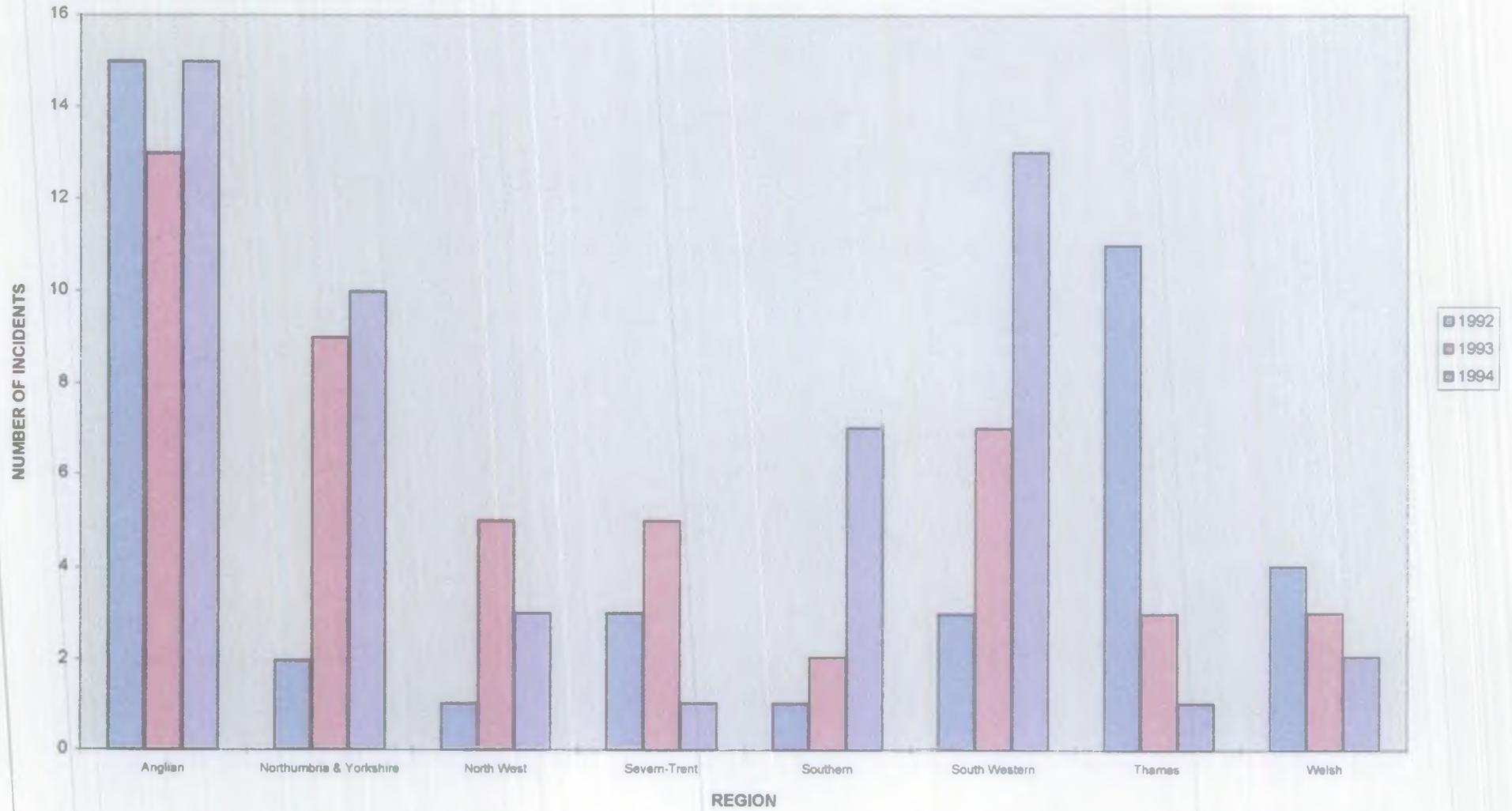


Figure 3 Substantiated Pesticide Pollution Incidents by Region 1992

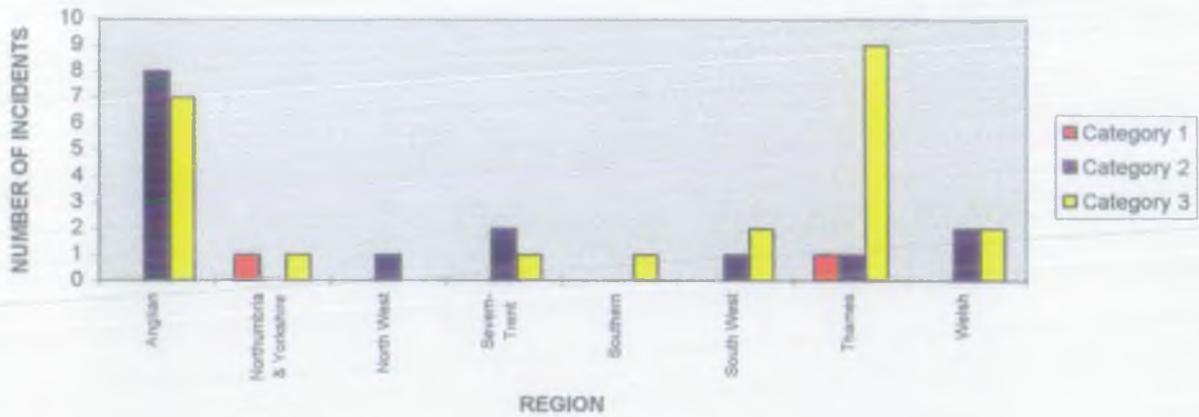


Figure 4 Substantiated Pesticide Pollution Incidents by Region 1993

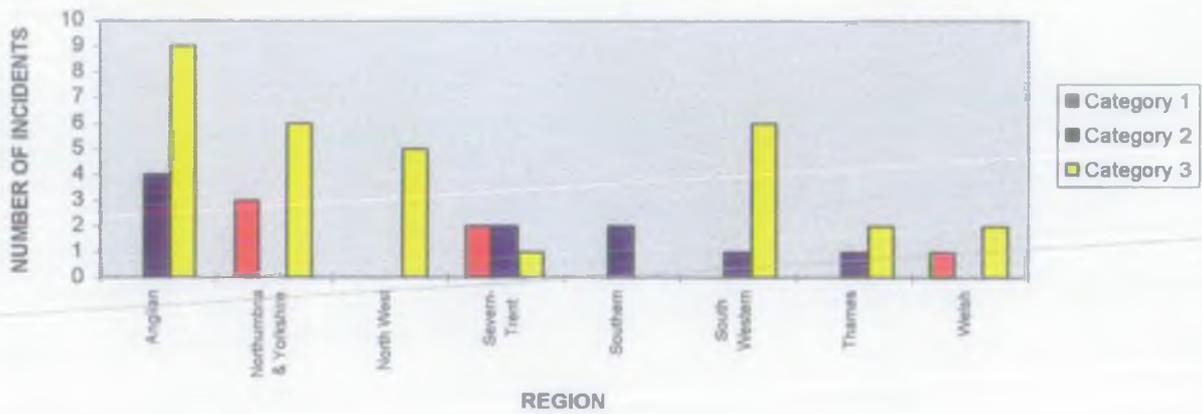


Figure 5 Substantiated Pesticide Pollution Incidents by Region 1994

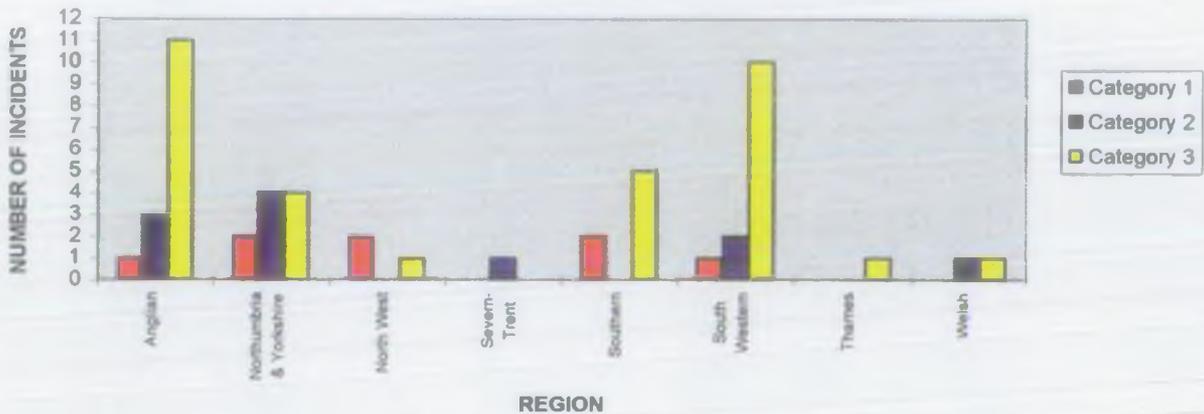


Figure 6 Percentage of Pollution Incidents According to the cause of the Incident

