



SUMMARY REPORT OF A SURVEY TO INVESTIGATE THE USE OF ANTIFOULING PRODUCTS (AFPs) IN UK FRESHWATERS

Report produced by HSE's Biocide and Pesticide Unit based on the results of a survey undertaken by Applied Management Techniques.

Introduction

In December 2001, a survey to investigate the use of antifouling products (AFPs) in UK freshwaters was conducted on behalf of the Health and Safety Executive (HSE) by an independent marketing company - Applied Management Techniques. HSE would like to thank all those who took the time to respond to the questionnaire, which has been successful in providing an overview of AFPs use in freshwaters.

The results provide useful insight into AFP usage in freshwaters and will help target future monitoring.

Background information to this survey is also provided along with details of its strategy, aims and the format of the work undertaken.

Copies of the report and the list of responses to the questions that created comments, have been distributed to members of the UK Government Interdepartmental Group to Co-ordinate Antifouling Research (IGCAR), British Marine Federation, Royal Yachting Association and the distributors of the questionnaire (which included, National Parks Authority, Norfolk Broads Authority, sailing clubs and boat yards). The dissemination of this information will allow for appropriate consideration of the more general water pollution issues highlighted along with other concerns raised by lake users.

Background

HSE as the authority responsible for the approval of AFPs has conducted reviews of biocides used in AFPs along the UK coastline. These reviews have been conducted in response to concerns over the effects of these products in the environment and the safety of their use.

The Reviews

Initial reviews considered the environmental effects of Triorganotin compounds (TOTs) following the restrictions already placed upon the use of TOTs on boats over 25 m long, as a result it was considered that additional restrictions were likely to be placed upon the future use of TOTs. The Advisory Committee on Pesticides (ACP) were concerned that after further restrictions were placed on TOTs, the main alternatives, which were copper compounds, would be used much more widely. A review of copper compounds was undertaken, which indicated that the restriction of use of TOTs would not result in an increase in the environmental concentration of copper that would pose a greater risk than TOTs.

The copper review also highlighted a new concern; the use of biocides added to copper products to boost their effectiveness against copper-tolerant algae, known as booster biocides, were likely to increase following TOT restrictions. As a result a review of booster biocides was carried out in 2000, which led to the use of two booster biocides; Diuron and Irgarol 1051 being revoked.

The reviews are reported in the purchasable disclosure documents:

'A Review of the Environmental Effects of Triorganotin Compounds' (document no.111)

'Triorganotin Compounds (2) 1st Update to the Review of Their Environmental Effects' (document no.182)

'Copper Compounds 1st Review of Their Use in Antifouling Products' (document no. 183).

'Environmental Risk Assessment of Booster Biocides' (yet to be published)

'Diuron (Dichlorophenyl Dimethylurea): Use as a Booster Biocide in Antifouling Products (document no. 201)'

'Booster Biocides in Antifouling Products: Full Review of Irgarol 1051' (yet to be published)

The booster biocide review was carried out using the assumption that the use of AFPs by boat owners was significantly higher for estuary and sea-going boats than for freshwater boats and the risk assessment was based on this argument.

In 2001, a survey was initiated because the ACP required this assumption to be investigated and additional information gathered to assess the impact of AFPs containing booster biocides on freshwater environments.

Strategy for survey

The survey focused on enclosed freshwater areas (e.g. lakes and broads) because the risk assessment for river situations was considered to be covered by the existing estuarine scenarios developed using a model called REMA (Regulatory Environmental Modelling of Antifoulants).

The survey HSE performed was a preliminary fact-finding survey to look at HSE's assumptions that AFPs were of greater environmental concern in coastal waters than they were in freshwaters and to target future monitoring surveys, which will be carried out by DEFRA.

Aims

The aims of the survey were to:

- Highlight locations with the highest boating densities, to help target questionnaires and future monitoring
- Establish boating patterns in freshwaters (seasonal variability in pleasure vs. commercial craft, moorings vs. day trippers) to confirm highest boating densities
- Establish the extent of usage of AFPs in freshwaters in order to find out whether an additional risk assessment and/or monitoring would be necessary
- Collect the information needed to develop a new risk assessment strategy for 'lake' systems, including average boat size, and quantity/frequency of use of AFPs

- To identify the main AFPs used in freshwaters and hence the chemicals that may need to be monitored for.

Format of survey

Phase 1:

Telephone contact with the authorities of 100 freshwater sites in England and Wales to establish boating usage

Location questionnaires sent to the 6 sites found to have relatively large numbers of moored boats to find out seasonal variations in boating numbers (both privately owned and commercial)

Phase 2:

Postal survey of boat owners, targeted at the locations previously found to have large numbers of moored vessels, to establish:

- whether or not AFPs are used
- type/size of boats
- make/content of AFPs used
- frequency/timing/location and method of applying AFPs
- frequency/timing/duration of boat residence in freshwater environments

Summary of Results

Boating densities

The results of phase 1 suggested that 8 out of the 100 contacted sites in England and Wales might have use by boats treated with AFPs. These included the sites that completed the location questionnaire: Lakes Windermere and Coniston, Derwentwater, Carsington water and the Norfolk Broads. The sites with the highest boating densities were identified.

The results of phase 2 confirmed that on certain reservoirs boats treated with AFPs were used.

Use of Antifouling Products (AFPs)

The following section is an overview of the survey's findings in relation to AFP use. Summaries of the survey results are included for:

The Lake District Lakes; Coniston, [Derwentwater](#), [Ullswater](#) and [Windermere](#)

The Midlands Lakes; [Carsington](#), [Grafham Water](#) and [Rutland](#)

The [Norfolk Broads](#); [Barton Turf](#), [Brundall](#), [Horning](#), [Potter Heigham](#) and [Wroxham](#)

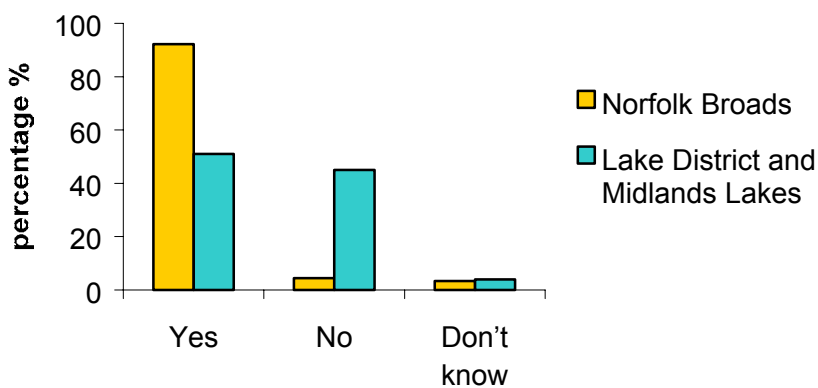
In the results, the Norfolk Broads responses are separate from the Lake District and Midland Lakes responses. This separation is due to the distinct nature of the Norfolk Broads. The Norfolk Broads are an interconnected system of lakes and rivers, that allow a great deal of movement between lakes. The water body is shallow with soft sediments and the water is brackish and tidal. This distinct nature contributes to a different pattern of use of AFPs, compared with that for the Lake District and Midlands Lakes.

1016 boat owners/main users responded to the survey. 296 of those were in the Norfolk Broads and 720 were in the Lake District and Midland lakes.

Boating Patterns

The survey confirmed that boat owners largely sail at the locations they were surveyed at. 35 % of owners based on the Norfolk Broads regularly used other locations whereas only 13 % of owners based at other sites did.

Extent of AFP Usage



The above figure shows the percentage of responses to the question; Do you use a boat that has been treated with an antifouling paint product? A higher percentage of boat owners in the Norfolk Broads use AFPs (92 %) than those based in the Lake District and Midlands lakes (51 %). A [table](#) of these responses is shown.

Estimates (litres/yr) for the annual AFP usage in each of the surveyed lakes and the Norfolk Broads are shown in the table below.

Site	Litres/yr
Windermere	4000
Ullswater	250-500
Derwentwater	70-100
Coniston	75-150
Carsington Water	25-50
Rutland Water	350-450
Grafham Water	15-20
Norfolk Broads	16,000-20,000

The values are calculated estimates derived from:

- The number of boats using AFPs on each site (worked out from the total number of boats that use the site multiplied by the percentage of boat owners in the survey that use AFPs).
- The average amount of AFP used per boat per application
- How often the AFP was applied.

The question “At which location is your boat usually kept?” was asked to confirm that the majority of respondents kept their boats at the sites where they were surveyed.

A [worked example](#) of this calculation is provided.

Main AFPs Used

The Active Substances that are in the most commonly used products, as reported from the results.

Active Substance *	All Sites (%)	Lake District & Midlands Lakes (%)	Norfolk Broads (%)
Cuprous Oxide +Diuron	32	35	27
Cuprous Oxide	30.5	26	41
Cuprous Oxide + Zinc Pyrithione	24	24	24
Cuprous Thiocyanate + Tributyltin Oxide + Zineb + Tributyltin Methacrylate	9	12	1.6
Cuprous Oxide + Irgarol 1051	1.4	1.3	1.6
Cuprous Thiocyanate + Diuron	0.9	0.7	1.6
Cuprous Oxide + Diuron + Dichlofluanid	0.9	0.7	1.6
Copper + Diuron	0.9	0.7	1.6

*Only Active Substances that more than one respondent reported to use have been included.

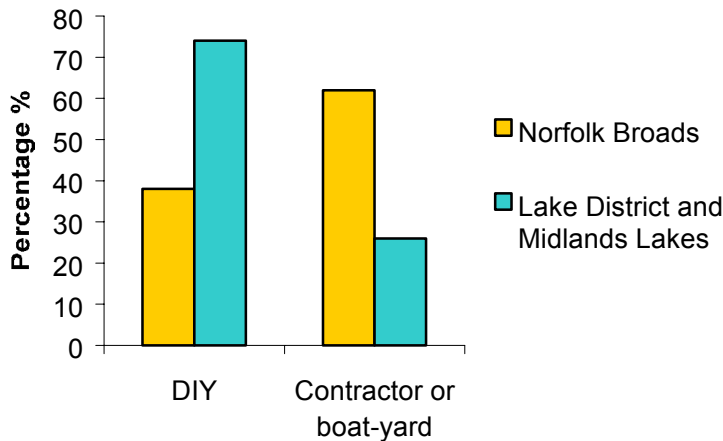
The Active Substance/s in a product can be found on the product label or in [Pesticides 200X](#) (the blue book).

As a result of the booster biocide review Diuron (known as Dichlorophenyl Dimethylurea) and Irgarol 1051 (known as 2-Methylthio-4-Tertiary-Butylamino-6-Cyclopropylamino-S-Triazine) have been revoked. Use of products by amateurs and professionals containing Diuron after November 2002 will be illegal. Use of products

containing Irgarol 1051 by amateurs after November 2002 and by professionals after July 2003 will be illegal.

Only 53 % of respondents to the question; What type of coating was used? Knew the type of coating that had been used on their boat when it was last painted.

Application of Antifouling Paints



The figure above shows responses to; “Do you carry out the cleaning/ scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?”. 74 % of boat users in the Lake District and Midlands Lakes carried out the work on a DIY basis while only 38 % of those in the Norfolk broads did. In the Norfolk Broads 62 % of boat users employed a contractor to do such work, where as only 26 % of those in the Lake District and Midlands Lakes did. The higher percentage use of contractors on the Norfolk Broads could be attributable in part to the larger proportion of longer boats. The responses are in a [table](#).

Information to be used to assess the risk of AFPs to freshwaters

The most common boat length recorded was in the range 3 - 7.5 m (66 % of all sites), with the Norfolk Broads having a more significant proportion of longer boats (46 % > 7.6 m) than the other surveyed sites (24 % > 7.6 m).

Information regarding locations where work involving AFP application was carried out was requested and the results are as follows;

Site	Norfolk Broads (%)	Lake District and Midlands Lakes (%)
Club Site	2.5	24
Marina	7.4	9.9
Boat-yard	69	26
Home	15	24
Other	0.7	2
Don't Know	5.3	7.9
No answer	0.7	6.9

The total number of responses was 688.

The survey asked; If the work was done at the sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

85 % of respondents to the question either did not know or were unaware of the regulations relating to the disposal of antifouling paints/scrapings.

Conclusions

The survey has been successful in terms of its aims in that;

- the locations with the highest boating densities have been identified
- the boating patterns have been established
- the extent of AFP usage in freshwaters has been established
- the information needed for risk assessment has been collected
- the main AFPs used in freshwater environments have been identified.

Survey Results for Individual Lake Sites

Summaries of the results are presented, summary tables of responses are presented in Appendices. Where survey questions have not been presented in tables, the responses have been represented in the text.

The term respondent refers to the number of people who answered the question. The term specific respondent refers to the number of people who gave a specific answer ie. An answer that wasn't 'don't know'.

Lake District Lakes

Coniston
Derwentwater
Ullswater
Windermere

The Midlands Lakes

Carsington water
Grafham water
Rutland

The Norfolk Broads

Norfolk Broads Summary

- Barton Turf
- Brundall
- Horning
- Potter Heigham
- Wroxham

Coniston

The number of returned questionnaires was approximately 29 % of the local Coniston boating population.

1. Of the 49 total respondents for Coniston Water; 41 (84 %), confirmed their boats were treated with AFP.
2. All of the boats were over 3 m long and almost all kept permanently moored during the season.
3. Twenty-one (68 %) specific respondents specified the age of their paint coatings as being at least a year old; most respondents appeared to know when it was last renewed, but 10 did not.
4. Nineteen (51 %) specific respondents using AFPs said they intended to renew the coating within 6 months, but only 9 of the 37 who specified renewal (24 %) normally do so every year. Another 9 of the 37 indicated renewal (24 %) was carried out every 2 years.
5. Most estimates of usage per application were 1 – 3 l; but 15 (38 %) respondents did not know.
6. A majority of the respondents, 36 (97 %) carried out work involving AFPs on a DIY basis, with the club site the most prominent workplace.
7. A large proportion of respondents, 23 (68 %) said they did not know about local regulations regarding disposal of paint scrapings and 7 (21 %) thought there weren't any.

Derwentwater

The number of returned questionnaires was approximately 25 % of the local Derwentwater boating population.

1. Of the 19 total respondents for Derwentwater; 15 (79 %), confirmed their boat was treated with AFP.
2. All the boats were over 3 m long and kept permanently moored during the season.
3. Ten (77%) specific respondents had AFP coatings which were at least a year old.
4. A majority of specific respondents, 10 (71 %) said they intended to renew the AFP coating within 6 months, but only 1 (7.1 %) normally did so every year.

5. The most common estimates of usage per application were 1 – 3 l; but most (50 %) respondents did not know.
6. A majority of respondents, 9 (60 %) carried out work involving AFPs on a DIY basis, with the marina being the most prominent working site.

Ullswater

The number of returned questionnaires was approximately 25 % of the local Ullswater boating population.

1. Of the 60 total respondents for Ullswater; nearly all, 59, confirmed their boat was treated with AFP.
2. All the boats were over 3 m long and kept permanently moored during the season.
3. Thirty (54 %) specific respondents had AFP coatings that were more than a year old; most respondents did appear to know when it was last renewed.
4. The majority of specific respondents using AFPs, 38 (73 %), said they intended to renew the coating within a year, but only 20 (36 %) normally did so every year.
5. Twenty-four (57 %) specific respondents used less than 1 l per application of AFP. A further 14 (33 %) use in the range 1 – 3 l.
6. A large majority of the users, 49 (78 %) respondents, carried out work involving AFPs on a DIY basis, with the club site and home being the two most prominent working sites. Multiple answers indicated that owners often did part of the renewal process themselves and used help for other parts.
7. A very large number, 46 (81 %) respondents, said they did not know about local regulations regarding disposal of paint scrapings.

Windermere

The number of returned questionnaires was approximately 9 % of the local Windermere boating population.

1. Of the total respondents for Windermere, only 169 (36 %) confirmed their boat was treated with AFP. The two shared boat respondents were omitted.
2. Almost all the boats were over 3 m long and kept permanently moored during the season.

3. Sixty-eight (46 %) specific respondents said that their AFP coatings were at least a year old.
4. Forty-one (22 %) respondents did not know when the coating was applied, possibly having acquired the boat already painted.
5. Of specific respondents using AFPs, 97 (67 %) said they intended to renew the coating within a year, but fewer than half, 41 (25 %) normally did so every year.
6. There was a large number unable to tell us the volume of AFP used per application, but the most common estimate was 1 – 3 l.
7. A large majority of respondents, 121 (63 %) carried out work involving AFPs on a DIY basis, while the rest relied on boat yards, with boat yards and home the two most prominent working sites.
8. A large number, 114 (80 %) said they did not know about local regulations regarding disposal of paint scrapings.

Carsington Water

The number of returned questionnaires was approximately 26 % of the local Carsington Water boating population.

1. Of the 12 total respondents for Carsington Water; 9 (75 %) confirmed their boat was treated with antifouling paint.
2. All of the boats were over 3 m long and most were kept permanently moored during the season.
3. Three (60 %) specific respondents stated that their AFP coatings appeared to be at least a year old.
4. Four (44 %) respondents did not know when their AFP coating was last renewed.
5. Five (83 %) of specific respondents using AFPs, said they intended to renew the coating within 6 months, but only 1 (17 %) normally did so every year.
6. The respondents generally could not tell us usage volumes, but the most common estimate of usage per application was 1 – 3 l.
7. A majority of respondents, 7 (88 %) carried out work involving AFPs on a DIY basis, with the club site and home being the most prominent workplaces.

Grafham Water

The number of returned questionnaires was approximately 27 % of the local Grafham Water boating population.

Grafham yielded only 2 boats with AFP coatings, which were both permanently moored during the sailing season. The renewal date of the AFP coating for one of these 2 was given as 6 – 12 months and it was renewed each year. There was no information for the other boat.

The volume of paint used for each application was 2 – 3 l, and the work is done on the sailing club site on a DIY basis.

Rutland

The number of returned questionnaires was approximately 28 % of the local Rutland Water boating population of 400 boats.

1. Between the Watersports Centre and the Sailing Club, there were 110 respondents of which 108 (98 %) were boat owners at Rutland Water.
2. Of the specific respondents: 72 (68 %) confirmed their boat was treated with AFP.
3. All the boats were over 3 m long and most were kept permanently moored during the season.
4. Most of the AFP coatings appeared to be at least 6 months old; most Sailing Club members renewed annually, which was more often than Watersports Centre users.
5. Most Sailing Club members said they intended to renew the coating within 6 months, and most normally did so every year. The Watersports Centre members seemed to have a 2-year renewal cycle.
6. There was much uncertainty about the quantities used, but the most common estimate of usage per application was 1 – 3 l.
7. A majority of the users carried out most work involving AFPs on a DIY basis, with the club site being the most prominent workplace.
8. A large proportion of respondents: 47 (80 %) said they did not know about local regulations regarding disposal of paint scrapings.

The Norfolk Broads

Between the 5 locations investigated in the Norfolk Broads, there were 295 respondents. The number of returned questionnaires was approximately 2.5 % of the local total Norfolk Broads boating population, including boats based on the brackish areas, on the basis of Norfolk Broads Authority figures obtained.

1. Of the total respondents 272 (92 %) confirmed their boat was treated with AFP. Ten did not know whether their boat had AFP.
2. The majority (99 %) of respondents had boats that were over 3 m long and 255 (91 %) of respondents kept their boats permanently moored during the season.
3. Most (60 %) specific respondents said that their AFP had to be 6 - 12 months old, with 32 (13 %) less than 6 months old and 34 (14 %) 12 – 24 months old.
4. Respondents based on Wroxham and Barton Turf said they intended to renew the AFP coating within 6 months and most normally did so every year.
5. As elsewhere, there was much uncertainty about quantities used. The average estimate of usage per application was 2.61 l and 51 % of specific respondents used AFP each year.
6. Although DIY activity did feature quite strongly, the majority of the users relied on boatyards and contractors for renewing AFP coatings.
7. A large proportion of respondents, 176 (83 %) said they did not know about local regulations regarding disposal of paint scrapings and 9 (4 %) thought there weren't any.
8. The information gathered indicated that boat users on the Broads had high levels of movement between the Broads and venues on the east and south coast, passing through seawater.

Conclusion for The Norfolk Broads

The high usage of AFPs suggests that there may be up to 8,000 treated private boats using the Broads. Taking the high level of annual renewal into account, the usage could reach approximately 16,000 – 20,000 l of AFP each year. This estimate includes the consideration that the surveyed sites are likely to have lower usage than more coastal areas. However, it does not include a consideration of the contribution of commercial/hire craft.

APPENDIX

Summary tables for Coniston

1. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
41	8

2. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered Sailing	Motor
32	9	

3. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
1	32	8	

4. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	1	January	
February		February	
March	24	March	
April	15	April	
May	1	May	
June		June	
July		July	
August		August	
September		September	4
October		October	27
November		November	7
December		December	3

5. During the sailing season is your boat moored?

Permanently	Occasionally	Never
39	2	

6. During the season, do you regularly take your boat to sail in other locations?

Yes	No

1	40
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7. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	1
6 – 12 months ago	9
12 – 24 months ago	9
> 2 years ago	12
Don't know	10

8. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	19
Next 6 – 12 months	4
Next 12 – 24 months	6
More than 24 months	2
Never	6
Don't know	2
No answer	2

9. Is it normally renewed:

Frequency	Responses
Every year?	9
Every two years?	9
Less often than every two years	12
Will not renew	6
Don't know	2
No answer	3

10. How much antifouling is needed for each application?

No. of litres	Responses
< 1	1
1 – 3	17
3 – 5	3
5 – 7½	3
7½ – 10	1
Don't know	15
No answer	1

11. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard	No answer
36	1	4

12. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know	No answer
20		5	8	5	3

13. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
4	7	23	7

APPENDIX

Summary tables for Derwentwater

1. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
15	4

2. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered Sailing	Motor
7	8	

3. What length is it?

Under 3 metres	3-7.5 metres	7.6-10 metres	Over 10 metres
	12	3	

4. In which months does your sailing season start and finish?

Starts:		Finishes:	
January		January	
February		February	
March	3	March	
April	12	April	
May		May	
June		June	
July		July	
August		August	
September		September	1
October		October	10
November		November	4
December		December	

5. During the sailing season is your boat moored?

Permanently	Occasionally	Never
15		

6. During the season, do you regularly take your boat to sail in other locations?

Yes	No
	15

7. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	
6 – 12 months ago	3
12 – 24 months ago	7
> 2 years ago	3
Don't know	2

8. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	10
Next 6 – 12 months	1
Next 12 – 24 months	3
More than 24 months	
Don't know	1

9. Is it normally renewed:

Frequency	Responses
Every year?	1
Every two years?	6
Less often than every two years	8

10. How much antifouling is needed for each application?

No. of litres	Responses
< 1	2
1 – 3	3
3 – 5	1
5 – 7½	
7½ – 10	
Don't know	6
No answer	3

11. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
9	6

12. Where was the work done last time?

Club site	Marina	Boat-yard	Home
	11		4

13. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
1	2	10	2

APPENDIX

Summary of tables for Ullswater

1. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
59	1

2. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor	No answer
47	11		1

3. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
	51	8	

4. In which months does your sailing season start and finish?

Starts:		Finishes:	
January		January	
February		February	
March	10	March	
April	47	April	
May	2	May	
June		June	
July		July	
August		August	
September		September	10
October		October	45
November		November	4
December		December	

5. During the sailing season is your boat moored?

Permanently	Occasionally	Never
59		

6. During the season, do you regularly take your boat to sail in other locations?

Yes	No

4	55
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7. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	
6 – 12 months ago	25
12 – 24 months ago	14
> 2 years ago	16
Don't know	4

8. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	35
Next 6 – 12 months	3
Next 12 – 24 months	7
More than 24 months	3
Never	4
Don't know	4
No answer	3

9. Is it normally renewed:

Frequency	Responses
Every year?	20
Every two years?	20
Less often than every two years	16
Don't know	2
No answer	1

10. How much antifouling is needed for each application?

No. of litres	Responses
< 1	24
1 - 3	14
3 - 5	3
5 -7½	
7½ -10	1
Don't know	14
No answer	3

11. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
49	14

12. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Barn	Don't know
31	1	3	22	1	1

13. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know
11		46

APPENDIX

Summary tables for Windermere

1. Do you use a boat that has been treated with an antifouling paint product?

Yes	No	Don't know
169	269	30*

* All these completed the questionnaire

2. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered Sailing	Motor
77	43	79

3. What length is it?

Under 3 m	3 - 7.5 m	7.6 – 10 m	Over 10 m
3	125	64	7

4. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	37	January	1
February		February	1
March	67	March	1
April	73	April	1
May	18	May	
June	1	June	
July		July	1
August		August	2
September	1	September	19
October	2	October	94
November		November	41
December		December	38

5. During the sailing season is your boat moored?

Permanently	Occasionally	Never
161	14	24

6. During the season, do you regularly take your boat to sail in other locations?

Yes	No	No answer
24	174	1

7. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	14
6 – 12 months ago	65
12 – 24 months ago	34
> 2 years ago	34
Don't know	41
No answer	11

8. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	74
Next 6 – 12 months	23
Next 12 – 24 months	36
More than 24 months	14
Don't know	22
No answer	30

9. Is it normally renewed:

Frequency	Responses
Every year?	41
Every two years?	63
Less often than every two years	63
Don't know	18
No answer	14

10. How much antifouling is needed for each application?

No. of litres	Responses
< 1	9
1 – 3	58
3 – 5	9
5 – 7½	14
7½ -10	7
> 10	1
Don't know	90
No answer	11

11. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard	No answer
121	71	7

12. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know	No answer
5	20	80	49	19	26

13. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't	No
24	4	114	53

APPENDIX

Summary tables for Grafham Water

1. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
2	2

2. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
2		

3. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
	1	1	

4. In which months does your sailing season start and finish?

Starts:		Finishes:	
January		January	
February		February	
March		March	
April	1	April	
May	1	May	
June		June	
July		July	
August		August	
September		September	
October		October	2
November		November	
December		December	

5. During the sailing season is your boat moored?

Permanently	Occasionally	Never
2		

6. During the season, do you regularly take your boat to sail in other locations?

Yes	No

1	1
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7. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	
6 – 12 months ago	1
12 – 24 months ago	
> 2 years ago	
No answer	1

8. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	2
Next 6 – 12 months	
Next 12 – 24 months	
More than 24 months	

9. Is it normally renewed:

Frequency	Responses
Every year?	1
Every two years?	
Less often than every two years	
No answer	1

10. How much antifouling is needed for each application?

No. of litres	Responses
< 1	
2 – 3	1
3 – 5	
5 – 7½	
7½ - 10	
Don't know	1

11. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
-----	----------------------------

2	
---	--

12. Where was the work done last time?

Club site	Marina	Boat-yard	Home
2			

13. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No
2	

APPENDIX

1. Summary tables for Rutland Sailing Club
2. Summary tables for Rutland Water Sports Centre

Summary tables for Rutland Sailing Club

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared	No
77		

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No	Don't know
62	14	1*

* This respondent completed the questionnaire

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
58	4	1

4. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m	No answer
3	55	4		1

5. In which months does your sailing season start and finish?

Starts:		Finishes:		No answer
January	2	January		1
February		February		
March	10	March		
April	46	April		
May	5	May		
June		June		
July		July		
August		August		
September		September		
October		October	15	
November		November	15	

December		December	33	
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6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
51	5	7

7. During the season, do you regularly take your boat to sail in other locations?

Yes	No	No answer
15	47	1

8. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	6
6 – 12 months ago	39
12 – 24 months ago	6
> 2 years ago	6
Don't know	6

9. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	43
Next 6 – 12 months	6
Next 12 – 24 months	8
More than 24 months	
Never	4
No answer	2

10. Is it normally renewed:

Frequency	Responses
Every year?	40
Every two years?	11
Less often than every two years	9
No answer	3

11. How much antifouling is needed for each application?

No. of litres	Responses
< 1	11
1 – 3	29

3 – 5	3
5 – 7½	2
7½ – 10	
Don't know	14
No answer	4

12. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard	No answer
52	10	1

13. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know
34	8	17	3	2

14. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
9	2	42	8

Summary tables for Rutland Water Sports Centre

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared	No
31		2

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No	Don't know
10	20	1 *

* This respondent completed the questionnaire

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
9	2	

4. What length is it?

Under 3 metres	3-7.5 metres	7.6-10 metres	over 10 metres
	10	1	

5. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	2	January	
February		February	
March	5	March	
April	3	April	
May	1	May	
June		June	
July		July	
August		August	
September		September	1
October		October	5
November		November	1
December		December	4

6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
2	4	5

7. During the season, do you regularly take your boat to sail in other locations?

Yes	No
2	9

8. When was the antifouling coating applied or last renewed?

Time	Responses
never applied	1
< 6 months ago	
6 – 12 months ago	1
12 – 24 months ago	2
> 2 years ago	4
Don't know	3

9. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	
Next 6 – 12 months	
Next 12 – 24 months	1
More than 24 months	1
Never	2
Don't know	4
No answer	3

10. Is it normally renewed:

Time frame	Responses
Every year?	
Every two years?	
Less often than every two years	6
Don't know	1
No answer	4

11. How much antifouling is needed for each application?

No. of Litres	Responses
< 1 litre	1
2 – 5 litres	3
5 – 7½ litres	
7½ – 10 litres	
Don't know	6
No answer	1

12. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
11	

13. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know	Boatpark
			7	3	1

14. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
1		5	4

APPENDIX

Brundall

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared	No
37		4

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
35	2

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
	9	26

4. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
	10	13	12

5. In which months does your sailing season start and finish?

Starts:		Finishes:		No answer
January	11	January		1
February		February		
March	12	March		
April	12	April		
May		May		
June		June		
July		July		
August		August		
September		September	2	
October		October	13	
November		November	8	
December		December	12	

6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
31	4	

7. During the season, do you regularly take your boat to sail in other locations?

Yes	No
18	17

8. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	3
6 – 12 months ago	18
12 – 24 months ago	7
> 2 years ago	5
Don't know	2

9. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	16
Next 6 – 12 months	2
Next 12 – 24 months	15
More than 24 months	1
Don't know	1

10. Is it normally renewed:

Frequency	Responses
Every year?	9
Every two years?	18
Less often than every two years	8

11. How much antifouling is needed for each application?

No. of litres	Responses
< 1	2
1 – 3	10
3 – 5	5
5 – 7½	4
7½ – 10	2
Don't know	11
No answer	1

12. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
22	13

13. Where was the work done last time?

Club site	Marina	Boat-yard	Home
1	8	24	2

14. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
5	1	23	6

APPENDIX

Barton Turf

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared	No
69		5

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No	Don't know
57	9	3*

* These 3 don't knows did not complete the questionnaire

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
24	13	20

4. What length is it?

Under 3 m	3-5 m	5-7.5 m	7.6-10 m	Over 10 m	No answer
2	2	39	11	2	1

5. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	7	January	
February		February	
March	1 7	March	
April	3 0	April	
May	3	May	
June		June	
July		July	
August		August	
September		September	
October		October	35
November		November	14

December		December	8
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6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
53	3	1

7. At which location is your boat usually kept?

Location	Responses
Barton Turf	16
Barton Broad	13
Cox's Yard, Barton Turf	12
Norfolk Broads	7
Home	2
Horning	1
Marina – Middle level	1
Neatishead	1
Norfolk Broads Marina	1
Ranworth Broad	1
Womack Water	1
Wroxham	1

8. During the season, do you regularly take your boat to sail in other locations?

Yes	No
14	43

9. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	3
6 – 12 months ago	33
12 – 24 months ago	6
> 2 years ago	5
Don't know	10

10. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	40
Next 6 – 12 months	8
Next 12 – 24 months	8
More than 24 months	
Never	1

11. Is it normally renewed:

Frequency	Responses
Every year?	32
Every two years?	21
Less often than every two years	2
Don't know	1
No answer	1

12. How much antifouling is needed for each application?

No. of litres	Responses
< 1	2
1 – 3	12
3 – 5	3
5 – 7½	2
7½ – 10	
Don't know	36
No answer	2

13. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
14	48

14. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Barn	Don't know
	2	47	7	1	3

15. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
2	2	35	8

APPENDIX

Summary tables for Carsington Water

1. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
9	3

2. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
9		

3. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
	9		

4. In which months does your sailing season start and finish?

Starts:		Finishes:	
January		January	
February	4	February	
March	3	March	
April	2	April	
May		May	
June		June	
July		July	
August		August	
September		September	1
October		October	1
November		November	1
December		December	6

5. During the sailing season is your boat moored?

Permanently	Occasionally	Never
5	2	2

6. During the season, do you regularly take your boat to sail in other locations?

Yes	No
3	6

7. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	
6 – 12 months ago	2
12 – 24 months ago	1
> 2 years ago	2
Don't know	4

8. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	5
Next 6 – 12 months	1
Next 12 – 24 months	
More than 24 months	
Don't know	3

9. Is it normally renewed:

Frequency	Responses
Every year?	1
Every two years?	4
Less often than every two years	1
Don't know	3

10. How much antifouling is needed for each application?

No. of litres	Number
< 1	1
1 –3	2
3 –5	
5 –7½	1
7½ –10	
Don't know	5

11. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or Boatyard	No answer
7	1	1

12. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know
3		1	3	2

13. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
1		2	1

APPENDIX

Horning

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared	No
40		8

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No	Don't know
36		4*

* All these completed the questionnaire

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
7	2	31

4. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
	13	21	6

5. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	7	January	
February		February	
March	20	March	2
April	11	April	1
May	1	May	
June		June	
July		July	
August		August	
September		September	
October	1	October	16
November		November	13
December		December	8

6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
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38	1	1
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7. During the season, do you regularly take your boat to sail in other locations?

Yes	No
12	28

8. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	4
6 – 12 months ago	11
12 – 24 months ago	13
> 2 years ago	4
Don't know	8

9. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	16
Next 6 – 12 months	7
Next 12 – 24 months	10
More than 24 months	3
Never	1
Don't know	1
No answer	2

10. Is it normally renewed:

Frequency	Responses
Every year?	11
Every two years?	16
Less often than every two years	9
Don't know	2
No answer	2

11. How much antifouling is needed for each application?

No. of litres	Responses
< 1	2
1 – 3	5
3 – 5	3
5 – 7½	
7½ – 10	
Don't know	29

No answer	1
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12. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard	No answer
10	30	2

13. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know	No answer
	5	28	4	3	1

14. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
3		27	8

APPENDIX

Potter Heigham

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared *	No
48	1	1

* Shared boat omitted from analysis

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No	Don't know*
43	2	3

* All these completed the questionnaire

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
1	7	38

4. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m
	23	17	6

5. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	7	January	1
February	2	February	
March	1 4	March	
April	1 9	April	
May	2	May	
June	2	June	
July		July	
August		August	

September		September	1
October		October	31
November		November	5
December		December	8

6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
42	5	

7. At which location is your boat usually kept?

Location	Responses
Potter Heigham, Norfolk	24
Herbert Woods, Potter Heigham, Norfolk	16
Norfolk Broads	2
Brundall Bay Marina, Norfolk	1
Stalham	1
Strawberry Island, Doncaster	1
Thurne Dyke, Norfolk	1

8. During the season, do you regularly take your boat to sail in other locations?

Yes	No
12	34

9. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months	5
6 – 12 months	15
12 – 24 months	4
> 2 years	11
Don't know	11

10. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	9
Next 6 – 12 months	11
Next 12 – 24 months	8
More than 24 months	7
Don't know	8
No answer	3

11. Is it normally renewed:

Frequency	Responses
Every year?	4
Every two years?	14
Less often than every two years	21
Don't know	5
No answer	2

12. How much antifouling is needed for each application?

No. of litres	Responses
< 1	3
2	2
3 – 5	3
5 – 7½	2
7½ - 10	1
20	1
Don't know	34

13. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard
13	33

14. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Don't know	No answer
1	5	29	4	6	1

15. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
6		30	5

APPENDIX

Wroxham

1. Are you the owner or main user of a boat used mainly on freshwater?

Yes	Shared	No
101		6

2. Do you use a boat that has been treated with an antifouling paint product?

Yes	No
101	0

3. Is the boat a sailing craft, powered sailing craft or a motor boat?

Sailing	Powered sailing	Motor
65	7	29

4. What length is it?

Under 3 m	3-7.5 m	7.6-10 m	Over 10 m	No answer
	61	28	10	2

5. In which months does your sailing season start and finish?

Starts:		Finishes:	
January	6	January	
February		February	
March	17	March	
April	59	April	
May	18	May	
June	1	June	
July		July	
August		August	
September		September	1
October		October	64
November		November	26
December		December	10

6. During the sailing season is your boat moored?

Permanently	Occasionally	Never
91	10	

7. At which location is your boat usually kept?

Location	Responses
Wroxham Broad	47
Norfolk Broads YC, Wroxham	23
Norfolk Broads	15
Horning Broad (home)	2
Surlingham, River Yare, Norfolk	2
Yacht Club on the Broads	2
Barton Broad, Norfolk	1
Broom Boats, Brundall, Norfolk	1
Home	1
Horning Sailing Club pen	1
Lowestoft	1
Norfolk Broads, River Bure	1
Pleasure Boat Inn, Hickling	1
Ranworth Broad, Norfolk	1
River Ant, Norfolk Broads	1
Waveney River	1

8. During the season, do you regularly take your boat to sail in other locations?

Yes	No
41	60

9. When was the antifouling coating applied or last renewed?

Time	Responses
< 6 months ago	17
6 – 12 months ago	70
12 – 24 months ago	4
> 2 years ago	6
Don't know	4
No answer	

10. When do you intend the coating will be renewed again?

Time	Responses
In next 6 months	82
Next 6 – 12 months	8
Next 12 – 24 months	2
More than 24 months	4
Don't know	1

No answer	4
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11. Is it normally renewed:

Frequency	Responses
Twice a year	5
Every year?	73
Every two years?	15
Less often than every two years	6
Don't know	1
No answer	1

12. How much antifouling is needed for each application?

No. of litres	Responses
< 1	18
1 – 3	29
3 – 5	8
5 – 7½	
7½ – 10	
15	1
Don't know	41
No answer	4

13. Do you carry out the cleaning / scraping / pressure hosing and painting on a DIY basis or do you employ a contractor?

DIY	Contractor or boat-yard	No answer
43	40	19

14. Where was the work done last time?

Club site	Marina	Boat-yard	Home	Barn	Don't know
5	1	66	25	1	3

15. If the work was done at a sailing club or similar waterside location, are there local regulations about the disposal of paint scrapings to prevent them being dumped back in the lake?

Yes	No	Don't know	No answer
10	6	61	22

