CHAPTER FOUR

PARTICULARS OF THE WATERWAYS

Section		*Page*
4.1	General Introduction to Waterway Descriptions and Maps contained in Volumes 2 & 3 respectively	24
Table 4.1	List of Commercial Waterways	26
Table 4.2	List of Cruising Waterways	27
Table 4.3	List of Remainder Waterways	29
Table 4.4	Particulars of Waterways	30

Chapter 4:

Particulars of the Waterways

4.1 *Introduction*

4.1.1 General and detailed descriptions of all the waterways of the BWB system, called for by paragraph 11 of the Terms of Reference, are contained in Volume 2 of this Report, supplemented by a series of maps to a scale of 1:63,360 (1" to 1 mile) in Volume 3. A key map of the whole system to a scale of approximately 1:900,000 (14 miles to 1") on one sheet is included at the end of this Volume.

4.1.2 As explained in the opening chapters of this Report, the Board's waterways vary widely in character, size and importance. The extents to which they are used for different purposes, required to be examined under sub-headings (a) – (n) of paragraph 11 of the Terms of Reference, are dealt with separately in Chapters 5 to 9 inclusive. For ready reference, and for identification of the salient characteristics of each waterway, summaries are given in Tables 4.1 to 4.4 at the end of this Chapter.

4.1.3 The Tables comprehend all the waterways now owned and controlled by the Board but do not generally include any sections of waterway that have been disposed of since the Board was established in 1963. The references in the Tables to ownership before nationalisation in 1948 and to cases where waterways have been legally closed to navigation are necessarily brief; further particulars are given in Volume 2.

4.1.4 The Reference Numbers in the Tables provide identification with the sections into which the Board's system has been broken down in compiling the descriptions comprised in Volume 2. In most cases they correspond with individual waterways as existing before integration into the Board's system but some waterways have been divided into smaller components, or combined with others, where it seemed convenient to do so for geographical or other reasons.

4.1.5 The sequence of treatment, and of the reference numbering adopted, has no significance beyond allowing for the waterways being dealt with, as far as practicable, in a more or less continuous progression. Starting with the waterways in the London area, attention is then given in turn to the south midlands, the south west, the Birmingham area, the north west, Wales and the Trent network. After taking in the waterways of the north east and north of England the final sections deal with the Scottish waterways.

4.1.6 In addition to these descriptions of the component waterways, it is convenient at this point to include an outline of the Board's organisation, illustrated in Fig. 4.1. This Study is not concerned with the general administration of the Board's activities except insofar as they may impinge on the operational and maintenance functions, which are the responsibility of the Chief Engineer. These functions are described in Chapter 11, together with a more detailed review of the departmental organisation concerned therewith. Figure 4.1 indicates also the levels at which salary and other costs are separated, for purposes of allocation to operation, maintenance and other headings.

CENTRAL STAFF
DEPARTMENTAL ADMINISTRATION
MAINTENANCE OF BUILDINGS & STRUCTURES
CHAIRMAN & BOARD
GENERAL MANAGER
CHIEF ENGINEER
DEPUTY CHIEF ENGINEER
FINANCE DEPARTMENT
SECRETARY & Staff
CHIEF ESTATES OFFICER
DIRECTOR AMENITY DEVELOPMENT
SOLICITOR
MANAGER FREIGHT SERVICES
Staff
Staff
Staff
Staff
Staff
PRINCIPAL BRIDGE ENGINEER Assistant Engineers & Staff
MINING ENGINEER Assistant & Staff
ADMINISTRATIVE OFFICER & Staff
PRINCIPAL WATER ENGINEER Assistant Engineers & Staff
PRINCIPAL ENGINEER SERVICES Engineers, Assistants & Staff
Assistant to Chief Engineer
Engineer Operations
PRINCIPAL ENGINEER SOUTH Engineers, Assistants & Staff
ENGINEER SCOTLAND Assistant Engineer & Staff
PRINCIPAL ENGINEER NORTH Engineers, Assistants & Staff
Area Engineers Assistants, Area Inspectors & Staff
Senior Inspector
Canal Inspectors
Area Engineers Assistants, Area Inspectors & Staff
Section Inspectors
Section Inspectors
BOARDS ORGANISATION — Departments & managerial

Fig. 4.1.

Table 4.1

LIST OF COMMERCIAL WATERWAYS

(Transport Act 1968 Schedule 12 Part 1)

NAME AND EXTENT	REF NO. VOL.2.	PLATE NO. VOL.3.
Aire and Calder Navigation		
Leeds – Goole	35a	33
Wakefield – Castleford	35b	33
Knottingley – Selby	35c	33
Calder and Hebble Navigation		
Greenwood Lock – Wakefield	36	34
Caledonian Canal	47	43
Crinan Canal	48	44
Sheffield and South Yorkshire Navigation		
Tinsley – Keadby	34a	32
New Junction Canal	34b	32
Trent Navigation		
Meadow Lane Lock, Nottingham – Gainsborough	28	27
Weaver Navigation and Weston Canal	22	22
River Severn, Stourport – Gloucester	16	14
Gloucester and Sharpness Canal	15	14
River Lee Navigation	1a	1

Table 4.2

LIST OF CRUISING WATERWAYS

(Transport Act 1968 Schedule 12 Part II)

NAME AND EXTENT	REF NO. VOL.2.	PLATE NO. VOL.3.
Ashby Canal	9	7
Birmingham Canals		
Birmingham to Aldersley and Black Delph	20a	16
Birmingham and Fazeley Canal	20b	16
Calder and Hebble Navigation		
Sowerby Bridge – Greenwood Lock	36	34
Huddersfield Broad Canal	37	34
Chesterfield Canal, Worksop – R. Trent	31	30
Coventry Canal	8	8
Erewash Canal		
Tamworth Road Bridge – R. Trent	26	25
Fossdyke Navigation	30	29
Grand Union Canal		
Birmingham – Napton	6	6
Napton – Brentford	3	2 – 5
Southall – Paddington	2c	2
Paddington – Regents Canal Dock	2a	2
Northampton Branch	4c	4
Aylesbury Branch	4b	3
Hertford Union Canal	2b	2
Leicester – Market Harborough	27a	5 & 26
Foxton – Norton Junction	5	5
Kennet and Avon Canal		
Reading – Tyle Mill Lock, Bull's Lock – Hamstead Lock and Hanham Lock – Bath	12	10 – 11
Lancaster Canal and Glasson branch	46	42
Leeds and Liverpool Canal		
Aintree – Leeds; Tarleton and Leigh branches	45	38 – 41
Macclesfield Canal	41	35
Oxford Canal		
(N) Hawkesbury – Braunston	10	7
(S) Napton – Oxford	11	9

(Continued on next page)

Table 4.2 Continued

NAME AND EXTENT	REF. NO. VOL.2.	PLATE NO. VOL.3.
Peak Forest Canal, Marple – Whaley Bridge	40	35
Ripon Canal; R. Ure – Littlethorpe Lock	33a	31
Shropshire Union Canal		
(S) Autherley – Nantwich	21a	18 – 19
(N) Nantwich – Ellesmere Port and R. Dee	21b	19
Middlewich Branch	21c	22
Hurleston Junction – Llantisilio	21d	20
Staffordshire and Worcestershire Canal	18	17
River Soar Navigation; Leicester – R. Trent	27b	26
River Stort Navigation	1b	1
Stourbridge Canal; Black Delph – Stourton	19	16
Stratford-on-Avon Canal; Kings Norton – Kingswood	7	6
Trent and Mersey Canal		
(W) Preston Brook – Burton-on-Trent	23a	22 – 24
(E) Burton-on-Trent – Shardlow	23b	24
Trent Navigation; Shardlow – Nottingham including Beeston Canal etc.	28	27
River Ure Navigation	33b	31
Witham Navigation	30	29
Worcester and Birmingham Canal	17	15

Table 4.3

LIST OF REMAINDER WATERWAYS

NAME AND EXTENT	REF. NO. VOL.2.	PLATE NO. VOL.3.
Ashton Canal	39	34
Birmingham Canals (other than Main Line and Birmingham and Fazeley Canal)	20c	16
Bridgwater and Taunton Canal	13	12
Calder and Hebble Navigation, Dewsbury and Halifax Branches	36	34
Caldon Canal and Leek Branch	42	36
Chesterfield Canal, West of Worksop	31	30
Cromford Canal	24	25
Grand Union Canal		
Paddington Basin	2c	2
Wendover and Old Stratford Arms	3	3
Slough Arm	4a	2
Welford Arm	5	5
Erewash Canal, north of Tamworth Road Bridge	26	25
Grantham Canal	29	28
Huddersfield Narrow Canal	38	34
Kennet and Avon Canal, non-Cruising lengths	12	10 – 11
Lancaster Canal, North of Tewitfield	46	42
Leeds and Liverpool Canal: Liverpool – Aintree, Walton Summit and Springs Branches	45	38
Manchester, Bolton and Bury Canal	43	37
Monmouthshire and Brecon Canal	14a	13
Nottingham Canal	25	25
Oxford Canal (N), old loops and branches	10	7
Peak Forest Canal; Marple – Dukinfield	40	35
Pocklington Canal	32	31
Ripon Canal; Ripon – Littlethorpe lock	33a	31
St. Helens Canal	44	37
Sheffield and South Yorkshire Navigation:		
Tinsley – Sheffield; Dearne and Dove Branch	34a	32
Shropshire Union Canal		
Prees Branch (Llangollen Branch)	21d	20
Montgomery Canal	21e	21
Newport Trench and Shrewsbury Branches	21f	21
Staffordshire and Worcestershire Canal; Hatherton Branch	18	17
Stourbridge Canal; Stourbridge and Fens branch	19	16
Swansea Canal	14b	13
Scottish Canals		
Forth and Clyde Canal	49a	45 – 46
Monkland Canal	49b	45
Union Canal	50	46
Weaver Navigation; Frodsham Cut	22	22

Table 4.4

PARTICULARS OF WATERWAYS

RN River Navigation; CR Canalised River; W Wide Canal; V Narrow Canal; LC Legally closed to navigation

Ref. No. Vol. 2	Profile No. Vol. 2	Plate No. Vol. 3	Waterway	Extent	Type	Length – Km			Ownership Before 1948	Remarks
						Com.	Cru.	Rem.		
1a	1	1	R. Lee Navigation	Hertford – Limehouse and Bow Locks	CR	49.5			Independent	
1b	1	1	R. Stort Navigation	Bishops Stortford – Feildes Weir	CR		22		"	
			GRAND UNION CANAL							
2a	1	2	Regents Canal	Limehouse – Paddington	W		14	0.5	Independent	
2b	1	2	Hertford Union Canal	Old Ford (Regents – Lee)	W		2		"	
2c	1	2	Paddington Arm	Paddington – Southall	W		21	0.5	"	
3	2-3	2-5	Main Line(S) (including Wendover and Old Stratford Arms)	Brentford – Napton	W		159	13	"	8 km Braunston – Napton formerly Oxford Canal
4a	–	2	Slough Arm	Cowley Peachey – Slough	W			8	"	
4b	2	3	Aylesbury Arm	Marsworth – Aylesbury	V		10		"	
4c	2	4	Northampton Arm	Blisworth – Northampton	V		8		"	
5	4	5	Leicester Section (S)	Norton Junction – Foxton and Welford Arm	V		37.5	3	"	See also No. 27(a)
6	3	6	Main Line (N)	Napton – Birmingham	V		63	1	"	Locks Napton – Knowle are 4.5 m wide
7	3	6	Stratford-on-Avon Canal	Kings Norton – Kingswood	V		20		GWR	
8	5	8	Coventry Canal	Coventry – Fradley Junction	V		61		Independent	9 km Fazeley Junction to Whittington Brook formerly Birmingham and Fazeley Canal
9	–	7	Ashby Canal	Snarestone – Marston Junction	V		34		MR-LMSR	
10	6	7	Oxford Canal (N)	Hawkesbury Junction – Braunston	V		38.5	7	Independent	See No. 3 for length Braunston – Napton
11	6	9	Oxford Canal (S)	Napton – Oxford	V		80.5		"	
12	7	10-11	Kennet and Avon Canal	Reading – Hanham	CR W RN		39.5	99.5	GWR	
13	8	12	Bridgwater and Taunton Canal	Bridgwater – Taunton	W			23	GWR	

(Continued on next page)

Table 4.4 Continued

Ref. No. Vol. 2	Profile No. Vol. 2	Plate No. Vol. 3	Waterway	Extent	Type	Length – Km			Ownership Before 1948	Remarks
						Com.	Cru.	Rem.		
14a	8	13	Monmouthshire and Brecon Canal	Brecon – Cwmbran	V			56	GWR	
14b	–	13	Swansea Canal	Remaining lengths	V			6	GWR	L.C. Various Acts 1928 - 57 & BTC 1962
15	9	14	Gloucester and Sharpness Canal	Gloucester – Sharpness	W	27		0.5	Independent	
16	9	14	R. Severn Navigation	Gloucester – Stourport	RN	69			"	
17	10	15	Worcester and Birmingham Canal	Worcester – Birmingham	V		48		Gloucester and Sharpness Canal	
18	10	17	Staffordshire and Worcestershire Canal	Stourport – Great Haywood	V		75.5	2.5	Independent	
19	13	16	Stourbridge Canal	Stourton – Black Delph	V		8.5	3.5	"	
	11		BIRMINGHAM CANALS							
20a	12-13	16	Main Lines (i)	Aldersley Junction – Worcester Bar	V		25		LNWR – LMSR	
			(ii)	and Delph – Dudley Port Junction	V		12		"	
20b	15	16	Birmingham and Fazeley Canal	Farmers Bridge Junction – Fazeley Junction	V		24		"	See No. 8 for length Fazeley Junction – Whittington Brook
20c	14	16	Other lines and branches	Birmingham – Walsall – Wolverhampton	V			123	"	
			SHROPSHIRE UNION CANAL							
21a	16	18-19	Main Line (S)	Autherley Junction – Nantwich	V		62.5		LNWR – LMSR	
21b	16	19	Main Line (N)	Nantwich – Ellesmere Port and R. Dee	W		45.5		"	
21c	16	22	Middlewich Branch	Barbridge Junction – Middlewich	V		16		"	
21d	17	20	Llangollen Branch (including Prees branch)	Hurleston Junction – Llantisilio	V		75	5.5	"	
21e	17	21	Montgomery Branch	Frankton Junction – Newtown	V			58	"	L.C. LMS 1944
21f	–	21	Newport Branch (including Trench and Shrewsbury branches)	Remaining lengths	V			3.5	"	L.C. LMS 1944
22	18	22	Weaver Navigation	Winsford – Weston Point	RN	32		1	Independent	
23a	18	22-24	Trent and Mersey Canal (W)	Preston Brook – Burton-on-Trent	V		122		N. Staffs R.-LMSR	
23b	18	24	Trent and Mersey Canal (E)	Burton-on-Trent – Shardlow	W		26.5		"	

(Continued on next page)

Table 4.4 Continued

Ref. No. Vol. 2	Profile No. Vol. 2	Plate No. Vol. 3	Waterway	Extent	Type	Length – Km			Ownership Before 1948	Remarks
						Com.	Cru.	Rem.		
24	19	25	Cromford Canal	Remaining lengths	W			4.5	MR-LMSR	L.C. LMS 1944 BTC 1962
25	–	25	Nottingham Canal	Remaining lengths	W			8	GNR-LNER	L.C. LNER 1937
			GRAND UNION CANAL							
26	19	25	Erewash Canal	Langley Mill – R. Trent	W		1.5	17	Independent	L.C. Langley Mill – Ilkeston BTC 1962 See also No. 5
27a	4	5,26	Leicester Section (N)	Market Harborough – Leicester	W		37		"	
27b	4	26	R. Soar Navigation	Leicester – R. Trent	CR		41.5		"	
28	20	27	Trent Navigation	Shardlow – Gainsborough	RN	88	21.5		Independent	Includes a short length of the former Nottingham Canal in Nottingham
29	19	28	Grantham Canal	Nottingham – Grantham	W			52.5	GNR-LNER	L.C. LNER (Gen Powers) Act 1936
30a	19	29	Fossdyke Navigation	Torksey – Lincoln	W		18		GNR/GER – LNER	
30b	19	29	Witham Navigation	Lincoln – Boston	RN		53		GNR – LNER	
31	19	30	Chesterfield Canal	West Stockwith – Chesterfield	V		41	25	GCR – LNER	Closed to navigation west of Worksop. Relief in BTC Act 1962
32	21	31	Pocklington Canal	East Cottingwith – Pocklington	W			15	NER – LNER	
33a	21	31	Ripon Canal	Ripon – Oxclose Lock	W		2	1.5	NER – LNER	L.C. Ripon to Littlethorpe Lock BTC 1955
33b	21	31	R. Ure Navigation	Oxclose Lock – Swale Nab	CR		13		"	
34a	22	32	Sheffield and South Yorkshire Navigation (including Dearne and Dove Canal)	Sheffield – Keadby	W/CR	62.5		6.5	Independent	GCR/LNER financial interest
34b	22	32	New Junction Canal	Bramwith – Sykehouse	W	9			Owned jointly by S & SYN and Aire and Calder Navigation	
			AIRE AND CALDER NAVIGATION							
35a	23	33	Main Line	Leeds – Goole	W/CR	54.5			Independent	
35b	23	33	Wakefield Branch	Wakefield – Castleford	W/CR	12			"	
35c	23	33	R. Aire and Selby Canal	Knottingley – Selby		19			"	

(Continued on next page)

Table 4.4 Continued

Ref. No. Vol. 2	Profile No. Vol. 2	Plate No. Vol. 3	Waterway	Extent	Type	Length – Km			Ownership Before 1948	Remarks
						Com.	Cru.	Rem.		
36	24	34	Calder and Hebble Navigation (including Dewsbury and Halifax Branches)	Wakefield – Sowerby Bridge	CR/W	15	20	1.5	Independent	
37	24	24	Huddersfield Broad Canal	Cooper Bridge – Huddersfield	W		6		Calder & Hebble Nav'n.	LNWR – LMSR until 1943
38	25	34	Huddersfield Narrow Canal	Huddersfield – Ashton Junction	V			27	LNWR – LMSR	L.C. LMS 1944
39	25	34	Ashton Canal (including sundry branches)	Dukinfield – Manchester	V			13	GCR – LNER	
40	26	35	Peak Forest Canal	Whaley Bridge – Dukinfield and Bugsworth Branch	V		10.5	14	GCR – LNER	
41	26	35	Macclesfield Canal	Hardings Wood Junction – Marple	V		44		GCR – LNER	
42	18	36	Caldon Canal	Etruria – Leek and Froghall	V			33	N. Staffs R – LMSR	
43	–	37	Manchester, Bolton and Bury Canal	Remaining lengths	W			14	LYR – LMSR	L.C. LMS 1941 (8 miles) BTC 1961
44	–	37	St. Helens Canal	Remaining lengths	W			23.5	LNWR – LMSR	L.C. BWB 1963
45	27	38 - 41	Leeds and Liverpool Canal	Liverpool – Leeds with Rufford and Leigh Branches	W		215	16.5	Independent	
46	28	42	Lancaster Canal	Preston – Tewitfield and Glasson Branch	W		68.5		LNWR – LMSR	
				Tewitfield – Sedgwick	W			14	"	L.C. BWB Act 1965
47	29	43	Caledonian Canal	Fort William – Inverness	W	96.5			Ministry of Transport	Taken over from the Commissioners 1920
48	29	44	Crinan Canal	Ardrishaig – Crinan	W	14.5			Ministry of Transport	Taken over from the Commisioners 1920
49a	30	45 - 46	Forth and Clyde Canal	Bowling – Falkirk and Glasgow Branch	W			58	CR – LMSR	L.C. Extinguishments of Rights Acts 1962
49b	30	45	Monkland Canal	Coatbridge – Glasgow	–			5	"	L.C. Warrant of Abandonment & Order 1950
50	–	46	Union Canal	Falkirk – Edinburgh	W			48.5	NBR – LNER	L.C. Order made c 1963 under Scottish Act of 1936
				TOTALS		548.5	1743	815	3106.5	

CHAPTER FIVE

EXTENT OF USE

Section		*Page*
5.1	Introduction	36
5.2	Commercial Freight Carrying	36
5.3	Commercial, other than Freight Carrying	39
5.4	Cruising	41
5.5	Amenity	42
5.6	Reception of Effluents	45
5.7	Water Sales to Industry	45
5.8	Public Water Supply	47
5.9	Remainder Waterways	47
5.10	Private Investment	49

Chapter 5:

Extent of Use

5.1 *Introduction*

5.1.1 This chapter sets out the extent to which the several waterways of the BWB system are used at the present time for various purposes. General descriptions of all the waterways are given in Volume 2 of this Report; attention is drawn in Chapters 6 to 9 of this Volume to certain specialised aspects which call for more detailed treatment.

5.1.2 The total lengths of waterways in the three categories, as listed in Table 4.4, are:–

Commercial	548.5 km
Cruising	1743 km
Remainder	815 km
Total	3106.5 km

With the exception of some lengths of Remainder waterway all these are in regular use for one or more of the following purposes, as will be detailed under the respective numbered sections of this chapter:–

5.2 Commercial freight carrying
5.3 Commercial uses other than freight carrying
5.4 Cruising
5.5 Amenity (e.g., angling, environmental and naturalists' studies)
5.6 Reception of surface water, sewage and industrial effluents
5.7 Supplying industrial water
5.8 Abstractions for public water supply
5.9 Remainder waterways under agreement with local authorities
5.10 Waterway-related private investment

5.2 *Commercial Freight Carrying*

5.2.1 The total amount of freight carried on the BWB Waterways in 1974 was 3,867,511 tonnes. Of this total approximately 97%, 3,733,249 tonnes, were carried on the Commercial waterways and the balance on Cruising and Remainder waterways.

(a) *On Commercial Waterways*

5.2.2 The stretches of Commercial waterway that are used for freight carrying, and the type and carrying capacity of the craft employed, are set out in Table 5.1. The principal classes of freight carried are coal, coke and patent fuels, oil products and liquids in bulk, and general cargo. It should be observed that freight carrying barges, tankers etc., using Commercial waterways pay tolls and it is from the BWB toll offices that statistics of traffic are compiled. There is, however, a short section of the River Lee Navigation that is toll-free, a statutory provision that is still operative. Narrow boats used for freight carrying do not pay tolls but are covered by the licensing arrangements (referred to in Chapter 3) that enable them to use the entire network.

Table 5.1

Craft using Commercial Waterways

Waterway Ref. No.	Waterway	Use between	Type of Craft	Capacity Tonnes
1a	R. Lee Navigation	R. Thames – Enfield	Dumb barges	150
15	Gloucester and Sharpness Canal	Gloucester – Sharpness	Tankers	1000
			Coasters	750
			Barges	400
16	River Severn	Gloucester – Worcester	Barges	400
		Worcester – Stourport	Barges	100
22	Weaver Navigation	Weston Point – Anderton	Coasters	650
			Barges	350
		Anderton – Winsford	Barges	350
28	Trent Navigation	Gainsborough – Newark	Barges	400
		Newark – Nottingham	Barges	300
34a	Sheffield and South Yorkshire Navigation	Goole – Doncaster	Barges	500
		Doncaster – Rotherham	Barges	90
34b	New Junction Canal	Rotherham – Tinsley	Barges	80
35a	Aire and Calder Navigation	Goole – Knostrop	Barges	500
35b	"	Castleford – Wakefield	Barges	250
35c	"	Selby – Knottingley	Barges	100
36	Calder and Hebble Navigation	Wakefield – Greenwood Lock	Barges	70
47	Caledonian Canal	Fort William – Inverness	Coasters and Fishing boats	500
48	Crinan Canal	Ardrishaig – Crinan	"	200

Notes: (i) Barges using the River Lee Navigation are unpowered and are moved by tugs.

(ii) Craft navigating the Aire and Calder Navigation, New Junction Canal and the Sheffield and South Yorkshire Navigation include unpowered craft towed or pushed in trains by powered units.

(iii) On the Crinan Canal freight traffic enters Ardrishaig Harbour but does not traverse the canal.

5.2.3 For each Commercial waterway summaries of freight traffic, broken down under three cargo headings, are given in Table 5.2 (tonnes carried) and Table 5.3 (tonnes-kilometres):-

Table 5.2

Tonnes carried during year ending 31st December 1974

Waterway Ref. No.	Waterway	Coke, Coal and Patent Fuel	Liquids in Bulk	General Merchandise	TOTAL
1a	Lee Navigation	–	360,134	201,741	561,875
15	Gloucester & Sharpness Canal	–	246,520	52,138	298,658
16	River Severn	–	–	15,526	15,526
22	Weaver Navigation	–	62,518	443,995	506,513
28	Trent Navigation	–	15,481	418,197	433,678
34	Sheffield & South Yorkshire Navigation (incl. New Junction Canal)	330,672	–	86,383	417,055
35	Aire & Calder Navigation (incl. Wakefield & Selby branches)	1,023,639	415,498	159,645	1,598,782
36	Calder & Hebble Navigation	118,138	–	1,025	119,163
47	Caledonian Canal	–	–	49,064	49,064
48	Crinan Canal	484	11,110	–	11,594
	Duplicated Tonnes	(216,520)	–	(62,139)	(278,659)
	TOTALS	1,256,413	1,111,261	1,365,575	3,733,249

Table 5.3

Tonne-Kilometres of traffic during year ending 31st December 1974

Waterway Ref. No.	Waterway	Kilometres	Coke, Coal and Patent Fuel	Liquids in Bulk	General Merchandise	TOTAL
1a	Lee Navigation	49.5	–	576,214	1,823,955	2,400,169
15	Gloucester & Sharpness	27	–	5,143,942	1,156,281	6,300,223
16	River Severn	69	–	–	324,807	324,807
22	Weaver Navigation	32	–	539,970	3,660,730	4,200,700
28	Trent Navigation	88	–	742,886	12,813,226	13,556,112
34	Sheffield and South Yorkshire Navigation (incl. New Junction Canal)	71.5	5,485,665	–	2,714,765	8,200,430
35	Aire & Calder Navigation (incl. Wakefield and branches)	85.5	11,242,782	20,333,109	4,785,442	36,361,333
36	Calder & Hebble Navigation	15	949,831	–	1,651	951,482
47	Caledonian Canal	96.5	–	–	246,949	246,949
48	Crinan Canal	14.5	–	–	–	–
	TOTALS	548.5	17,678,278	27,366,121	27,527,806	72,542,205

5.2.4 Most freight traffic does not utilise the full length of the waterway and it is pertinent to assess, from Tables 5.2 and 5.3, the average length of journey and the proportion of the individual waterways so used. These particulars, and the sections of waterway identified in the course of our study as being in more regular use, are set out in Table 5.4.

Table 5.4

Proportion of use of Commercial Waterways for Freight Carrying

Waterway Ref. No.	Waterway	Length Km.	Average Journey Km	% Use	Sections in more regular use
1a	Lee Navigation	49.5	4.3	8.7	R. Thames – Enfield
15	Gloucester & Sharpness Canal	27.0	21.1	78.0	Whole length
16	River Severn	69.0	20.9	30.3	Gloucester – Tewkesbury
22	Weaver Navigation	32.0	8.3	25.9	No regular traffic above Anderton
28	Trent Navigation	88.0	31.4	35.7	Newark – Gainsborough
34	Sheffield and South Yorkshire Navigation (incl. New Junction Canal)	71.5	19.7	27.6	Conisborough – Goole
35	Aire and Calder Navigation (incl. Wakefield and Selby branches)	85.5	22.7	26.6	Whole length
36	Calder and Hebble Navigation	15.0	8.0	53.3	Horbury – Thornhill
47	Caledonian Canal	96.5	5.0	5.2	Occasional freight only
48	Crinan Canal	14.5	Nil	0.0	No through freight
	TOTALS	548.5	141.4	25.8	

5.2.5 The BWB have obtained parliamentary powers, in the British Waterways Act 1974, to reconstruct locks on the Sheffield and South Yorkshire Navigation between Doncaster and Rotherham so as to enable larger craft and trains of craft to navigate this waterway and single commercial craft of approximately 500 tonnes capacity to reach Rotherham.

The immediate benefit of the lock reconstruction would, however, be to enable three 140 ton BACAT craft, with a push-tow tug, to navigate freely as a unit without uncoupling. This would appear to provide scope for a considerable increase of freight-carrying capacity.

(b) *On Cruising and Remainder Waterways*

5.2.6 The 134,262 tonnes carried on these waterways is minute compared with Commercial waterways, and most of it is in London and Birmingham. As at 13.11.74, 59 craft (narrow boats) held current commercial carrying licenses (see note in paragraph 5.2.2); under the terms of licence these craft are free to work throughout the BWB system and do not necessarily operate on the canals on which they are based. The narrow craft licensed to operate on the waterways are based as shown in the adjacent table.

Waterway Ref. No.	Waterway	No. of Craft based thereon
3	Grand Union Canal (Norton-Brentford)	7
6	Grand Union Canal (North of Norton Junction)	5
10	Oxford Canal (North)	4
16	Severn Navigation	1
18	Staffs & Worcester Canal	4
20	Birmingham Canal Navigations	25
21	Shropshire Union Canal	3
23	Trent & Mersey Canal	3
34	Sheffield & S. Yorkshire Navigation	1
36	Calder & Hebble Navigation	1
41	Macclesfield Canal	2
45	Leeds & Liverpool Canal	3
	TOTAL	59

5.2.7 Although freight carriers on Cruising and Remainder waterways are obliged to notify the Board and provide details of all trips and cargoes there is no guarantee that this requirement is always observed. Table 5.5 below, giving tonnages carried and tonne-kilometres of traffic for the year ending 31st December 1974 is based on carriers' declarations and may not therefore include all traffic.

Table 5.5

Tonnes and Tonne-Kilometres of freight carried on Cruising and Remainder Waterways during 1974.

Waterway Ref. No.	Waterway	Tonnage	Tonne-Kilometres	Average Journey Length – Km.
2b	Hertford Union Canal	5,348	25,831	4.8
3	Grand Union Canal, Brentford	86,008	140,363	1.6
20	Birmingham Canal Navigations	29,637	293,715	9.9
31	Chesterfield Canal	7,701	12,399	1.6
33	Ure Navigation	2,840	18,289	6.4
42	Caldon Canal	2,728	13,176	4.8
	TOTALS	134,262	503,773	3.8

5.3 *Commercial, other than Freight Carrying*

5.3.1 This category includes:–

(a) Hire Cruisers

(b) Trip or Day Hire Boats

(c) Hotel Boats

(d) Restaurant Boats

i.e., pleasure craft available for hire, and Table 5.6 below lists the allocation to the different waterways, according to their nominal bases, though hire cruisers and hotel boats do not always remain on one canal throughout a hire period.

Table 5.6

Pleasure Craft available for Hire 31.12.74

Waterway Ref. No.	Waterway	No. of Firms	Hire Cruisers	Boats or Day-Hire	Hotel Boats	Restaurant Boats	TOTAL BOATS
1	Lee & Stort Navigations	9	7	56	–	–	63
2/6	G.U. Canal (to Market Harborough)	42	163	9	5	–	177
7	Stratford on Avon Canal	2	1	3	–	–	4
8/9	Ashby & Coventry Canals	8	32	7	2	–	41
10	Oxford Canal North	13	73	14	4	2	93
11	Oxford Canal South	12	48	–	1	1	50
12	Kennet & Avon Canal	8	8	23	1	1	33
13	Bridgwater & Taunton Canal	–	–	–	–	–	–
14	Monmouthshire and Brecon and Swansea Canals	9	23	9	–	–	–
15	Gloucester and Sharpness Canal	–	–	–	–	–	–
16	River Severn Navigation	12	26	45	–	–	71
17	Worcester & Birmingham Canal	12	39	–	–	–	39
18	Staffs. & Worcs. Canal	18	84	14	1	–	99
19	Stourbridge Canal	–	–	–	–	–	–
20	Birmingham Canals (incl. Birmingham & Fazeley Canal)	5	13	–	–	–	13
21	Shropshire Union Canal (incl. Llangollen & Montgomery Branches)	23	132	29	2	–	163

(Continued on next page)

Table 5.6 Continued

Waterway Ref. No.	Waterway	No. of Firms	Hire Cruisers	Boats or Day-Hire	Hotel Boats	Restaurant Boats	TOTAL BOATS
22	Weaver Navigation	–	–	–	–	1	1
23	Trent & Mersey Canal	24	87	13	12	–	112
24/25	Cromford & Nottingham Canals	–	–	–	–	–	–
26	Erewash Canal	–	–	–	–	–	–
27	Grand Union (from Mkt. Harborough & R. Soar)	16	99	3	–	–	102
28	Trent Navigation	4	–	8	–	–	8
29	Grantham Canal	–	–	–	–	–	–
30	Fossdyke & Witham Navigations	1	–	25	–	–	25
31	Chesterfield Canal	1	–	1	–	–	1
32	Pocklington Canal	–	–	–	–	–	–
33	Ripon Canal & Ure Navigation	–	–	–	–	–	–
34	Sheffield & S. Yorks Navigation	2	–	9	1	–	10
35	Aire & Calder Navigation	2	9	–	–	–	9
36	Calder & Hebble Navigation						
37/38	Huddersfield Canals	–	–	–	–	–	–
39	Ashton Canal	–	–	–	–	–	–
40	Peak Forest Canal	5	8	5	–	–	13
41	Macclesfield Canal						
42	Caldon Canal	–	–	–	–	–	–
43	Manchester, Bolton & Bury Canal	–	–	–	–	–	–
44	St. Helens Canal	–	–	–	–	–	–
45	Leeds & Liverpool Canal	15	20	12	–	–	62
46	Lancaster Canal	8	28	1	–	–	30
47	Caledonian Canal	8	21	14	2	–	37
48	Crinan Canal	–	–	–	–	–	–
49	Forth and Clyde & Monkland Canals	–	–	–	–	–	–
50	Union Canal	–	–	–	–	1	1
	TOTALS	259	952	300	31	6	1289

5.3.2 *Hire Cruisers* generally start from and return to base and are available for weekly hire or longer. Turn-round generally is on Fridays and Saturdays, though operators are now tending to extend turn round to ease congestion and to allow permanent turn-round staff to be employed. Hire cruisers are also included in Table 5.7 for ready comparison with the one day count.

Trip-boats (Day/Hourly hire) – operate to a specific timetable or are available for charter for private parties. They carry from twelve to a hundred or more passengers. There are seven horse-drawn commercial hire craft operating on the Kennet and Avon, Shropshire Union and Llangollen Canals.

Hotel boats – are mostly converted traditional narrow boats operating in pairs, staffed by a crew looking after steering, cooking and the passengers' needs (up to twelve persons per week). Hotel boats usually work to an itinerary picking up passengers at points agreed with the BWB, and return to base only at the end of the season. Camping boats usually work from base and are available only for charter by parties of up to twelve people; they are often steered by a helmsman, who looks after the boat and engine – passengers cope with locks and catering.

Restaurant Boats – many of these give a short cruise during meals but some are static and are connected to services ashore.

5.3.3 The BWB themselves own trip boats for hire, including one each in London, the North East and Inverness, and two fleets of hire cruisers in

Hillmorton (Rugby) – 11 craft and
Nantwich – 12 craft

They also have four water buses on the Regent Canal in London.

5.4 *Cruising*

5.4.1 Private cruising, whether on privately owned or with hired craft, is a major source of revenue to the Board. As explained in Chapter 3, craft using the river navigations, where there may be a "custom and usage" right of navigation, are required to be registered. Craft using any of the other waterways must be licensed; in the case of those boats which have no permanent moorings the revenue from the licence is credited to the waterway nearest to the licence holder's address and not to that where the craft may actually operate. In any case a licence permits the holder to make use of the whole system.

5.4.2 The numbers of craft licensed and registered during 1974 were as follows:—

Licensed	—	powered	14,249
Licensed	—	unpowered	6,021
Registered	—	powered	3,793
Registered	—	unpowered	1,128
		Total	25,191

5.4.3 The total number of licences and registrations issued during 1974 for powered and unpowered craft was 26,233. There were also 3,057 mooring permits. In 1974 it was possible to take out a licence for a period of only 7 days (which accounts for apparent discrepancies in the foregoing numbers), but in 1975 the minimum period was increased to three months; river registrations must be for at least twelve months.

5.4.4 The allocation of craft licensed as on the 6th July 1974 to individual waterways is given in Table 5.7, together with a corresponding list of craft actually observed to be on the system on the 13th August 1974. It should be noted, when making comparison between the two sets of figures, that the licence record was early in July, some weeks before the peak of the holiday period on which the one day count took place. Also, the one day count took note of boats ashore, or in private arms or basins, where a licence is not required.

Table 5.7

Craft licensed and registered at 6.7.74
Mooring permits issued 6.7.74
One day count of craft 13.8.74

Waterway Ref. No.	Waterway	Craft licensed etc. 6.7.74					Mooring Permits 6.7.74	One Day Count 13.8.74
		Powered	Un-powered	Hire Cruisers	House Boats	Total		
1	Lee & Stort Navigations	614	208	67	2	891	76	1161
2-6	Grand Union Canal (London-Birmingham and Foxton)	2157	461	204	79	2901	510	2661
7	Stratford-on-Avon Canal	93	2	14	–	109	3	285
8	Coventry Canal	193	53	19	–	265	9	293
9	Ashby Canal	32	5	4	–	41	4	86
10	Oxford Canal (N)	160	31	89	1	281	17	350
11	Oxford Canal (S)	237	42	55	2	336	36	581
12	Kennet & Avon Canal	572	308	16	1	897	103	652
13	Bridgwater & Taunton Canal	7	2	–	–	9	–	16
14	Monmouthshire & Brecon and Swansea Canals	238	92	31	–	361	64	372
15	Gloucester & Sharpness Canal	192	36	2	–	230	59	232
16	R. Severn Navigation	800	108	69	2	979	65	1244
17	Worcester and Birmingham Canals	214	19	15	8	256	51	465
18	Staffs. & Worcs. Canal	450	125	82	1	658	35	834
19	Stourbridge Canal	1	–	–	–	1	1	21
20	Birmingham Canals	346	135	26	7	514	69	440
21	Shropshire Union Canal	872	105	154	2	1133	57	2108
22	Weaver Navigation	98	8	4	–	110	4	116
23	Trent & Mersey Canal	488	239	54	5	786	77	966
24/25	Cromford and Nottingham Canals	–	–	–	–	–	–	–
26	Erewash Canal	29	1	2	2	34	2	163
27	Grand Union Canal Mkt. Harborough to Leicester and R. Soar Navigation	597	136	19	6	758	30	795
28	R. Trent Navigation	1367	246	42	13	1668	196	1841
29	Grantham Canal	–	–	–	–	–	–	–

(Continued on next page)

Table 5.7. Continued

Waterway Ref. No.	Waterway	Craft licensed etc. 6.7.74					Mooring Permits 6.7.74	One Day Count 13.8.74
		Powered	Un-powered	Hire Cruisers	House Boats	Total		
30	Fossdyke and Witham Navigation	357	54	12	–	423	47	857
31	Chesterfield Canal	152	35	1	–	188	13	253
32	Pocklington Canal	–	–	–	–	–	–	1
33	Ripon Canal and R. Ure Navigation	93	1	1	–	95	—	279
34	Sheffield and South Yorkshire Navigation (incl. New Junction Canal)	352	56	4	–	412	18	377
35	Aire and Calder Navigation	255	39	2	–	296	27	221
36	Calder and Hebble Navigation	19	1	6	1	27	3	218
37/38	Huddersfield Canals	88	23	4	–	115	15	28
39	Ashton Canal	–	–	–	–	–	–	10
40	Peak Forest Canal	63	20	2	–	85	1	119
41	Macclesfield Canal	438	128	6	–	572	50	517
42	Caldon Canal	–	–	–	–	–	–	60
43	Manchester, Bolton & Bury Canal	1	–	–	–	1	–	–
44	St. Helens Canal	–	–	–	–	–	–	–
45	Leeds and Liverpool Canal	647	168	69	3	887	100	1074
46	Lancaster Canal	573	105	37	–	715	120	1125
47	Caledonian Canal	N.B. Licence figures for Scotland omitted as permits are issued only for individual passages (Total passages 2748 and 3012 for the Caledonian and Crinan Canals respectively.)						211
48	Crinan Canal							89
49	Forth & Clyde and Monkland Canals							61
50	Union Canal							18
	TOTALS	12795	2992	1112	135	17034	1862	21200

5.4.5 A complete survey of mooring berths has recently been carried out by BWB but the results have not yet been analysed. Preliminary conclusions indicate that the whole system (i.e., including Remainder waterways) provides for some 1700 BWB owned and 8000 privately owned individual berths, together with some 18,000m of BWB owned and 50,000m of privately owned linear berthage. This would give totals of 9,700 individual berths and 68,000m of linear berthage. Narrow boats, usually between 12m and 14m long, would require on the average a berth of say 14m in length; the more popular smaller glass-reinforced plastic types (between 6m and 11m long) would require say 9m per berth on average. Taking an overall average of 10m per berth the 68,000m of linear berthage would provide some 6,800 berths, or a grand total of say 16,500.

5.4.6 Mooring permits for BWB sites at the 6th July 1974 numbered 1862 (including 103 on Remainder waterways). The total equivalent number of BWB berths available, from the last paragraph, would be some 3500 so that about 53% would have been occupied. In practice they are known to have been fully occupied, even before the peak of the cruising season; it is possible that some boats use the moorings without permits but the BWB is not presently able to undertake a full check of the situation. It is however evident that the total number of moorings available is considerably less than would be required to accommodate all craft currently licensed and registered. Additional accommodation could be provided by the development of marinas off the main channels, either in basins, unused branches or specially constructed facilities. The BWB in the course of their survey have earmarked a number of sites that would be suitable for such purposes and it is undertstood that private developers are already considering schemes of development in some cases. Further reference to this point is made in paragraph 5.10.8.

5.5 *Amenity uses*

5.5.1 The BWB waterways and their reservoirs offer wide scope for activities and interests of amenity value. The principal forms of such amenity uses and the main considerations affecting their application to the BWB system, with trends, are described in more detail in Chapter 8. This section summarises the extent of use for angling, towpath walking, etc., on the waterways in Table 5.8 and the similar use of some reservoirs in Table 5.9.

5.5.2 In addition to these main uses mention may be made of the many associations and clubs taking advantage of the amenity potential of the waterways and reservoirs for such avocations as –

Photography
Archaeology (including industrial)

Canal Societies
Sailing
Kayaks and Canoes
School Boat Clubs
Works and Local Authority Clubs
Rowing Clubs,

apart from numerous boating, sailing and cruising clubs. There are also water-ski clubs from Mansfield and Nottingham and two from Sheffield that operate on the River Trent.

5.5.3 The great interest taken by anglers and towpath walkers in particular has caused local authorities to enter into agreements with the BWB for the improvement of towing paths in some areas and to contribute towards the restoration or improvement of Remainder waterways. This last feature is dealt with more fully in Chapter 15 but the current extent of their scope is summarised in section 5.9.

Table 5.8

Angling and Towpath Users, 1974

Waterway Ref. No.	Waterway	Number of Angling Clubs and Associations	BWB One Day Count 14.7.74	
			Anglers	Towpath Users
1	Lee & Stort Navigations	9	1688	421
2/6	Grand Union Canal (London to Birmingham and Foxton)	36	2877	941
7	Stratford-on-Avon Canal	1	96	73
8	Coventry Canal	3	162	145
9	Ashby Canal	4	167	25
10	Oxford Canal (N)	10	294	196
11	Oxford Canal (S)	3	486	206
12	Kennet & Avon Canal	13	1126	726
13	Bridgwater & Taunton Canal	2	36	26
14	Monmouthshire and Brecon and Swansea Canal	4	24	158
15	Gloucester and Sharpness Canal	2	402	106
16	River Severn Navigation	8	2155	–
17	Worcester & Birmingham Canal	2	783	193
18	Staffs. & Worcs Canal	10	617	160
19	Stourbridge Canal	4	18	52
20	Birmingham Canals	13	444	821
21	Shropshire Union Canal	16	1360	358
22	Weaver Navigation	4	90	45
23	Trent & Mersey Canal	17	606	356
24/25	Cromford & Nottingham Canals	3	–	–
26	Erewash Canal	6	250	185
27	Grand Union Canal, (Market Harborough to Leicester and R. Soar Navigation)	4	159	227
28	Trent Navigation	3	4876	1331
29	Grantham Canal	2	264	146
30	Fossdyke & Witham Navigations	1	3652	510
31	Chesterfield Canal	7	306	129
32	Pocklington Canal	1	35	30
33	Ripon Canal and R. Ure Navigation	3	159	51
34	Sheffield & South Yorkshire Navigation (incl. New Junction Canal)	1	50	47
35	Aire & Calder Navigation	1	5	163
36	Calder & Hebble Navigation	6	46	27
37/38	Huddersfield Canals	3	20	43
39	Ashton Canal	1	3	46
40	Peak Forest Canal	2	16	166
41	Macclesfield Canal	5	111	168

(Continued on next page)

Table 5.8 Continued

Waterway Ref. No.	Waterway	Number of Angling Clubs and Associations	BWB One Day Count 14.7.74	
			Anglers	Towpath Users
42	Caldon Canal	4	64	76
43	Manchester, Bolton & Bury Canal	2	49	20
44	St. Helens Canal	1	7	30
45	Leeds & Liverpool Canal	10	810	494
46	Lancaster Canal	1	557	309
47	Caledonian Canal	–	71	172
48	Crinan Canal	–	9	143
49	Forth & Clyde & Monkland Canals	1	135	213
50	Union Canal	–	41	59
	TOTALS	229	25126	9793

Table 5.9

Amenity Uses of Reservoirs 1974

Waterway Ref. No.	Reservoirs On	Angling Associations	One Day Count Anglers	One Day Count Walkers	Boating Clubs	Boating One Day Count
2/6	Grand Union Canal	9	130	121	5	618
11	Oxford Canal (S)	1	103	76	1	82
17	Worcester & Birmingham Canal	1	17	4	–	139
18	Staffs. & Worcs. Canal	1	117	15	1	162
20	Birmingham Canals	1	–	–	–	–
21	Shropshire Union Canal	1	27	6	–	–
23	Trent & Mersey Canal	1	341	153	5	272
24	Cromford Canal	1	78	22	1	16
29	Grantham Canal	1	–	–	–	–
31	Chesterfield Canal	1	2	–	2	62
35	Aire & Calder Navigation	1	4	–	1	188
38	Huddersfield Narrow Canal	2	44	12	3	48
40	Peak Forest Canal	1	–	–	2	78
41	Macclesfield Canal	–	–	–	1	46
43	Manchester, Bolton & Bury Canal	1	140	2	1	136
45	Leeds & Liverpool Canal	2	7	–	2	68
46	Lancashire Canal	–	–	–	1	48
	TOTALS	25	1010	411	26	1963

Scottish reservoirs are not included as BWB do not own fishing rights thereon.

5.6 *Reception of Surface Water and Effluents*

5.6.1 The ways in which the BWB system is used for the reception of surface water, drainage, storm water, sewage and other effluents are very numerous, making it impossible to present a clear and complete picture with any pretence to quantitative accuracy. It is an undoubted fact that over the two hundred years and more that many of the waterways have been in existence they have become part of the country's drainage system; a considerable number of outfalls are covered by agreements (determination of which would present practical difficulties in many cases) but many others are firmly established by custom and usage.

5.6.2 These discharges may conveniently be classified under broad headings as follows:—

(i) Surface (rain and storm) water discharged into the waterways by rivers, streams, ditches, etc. Most of such watercourses have been connected to the waterway from its original construction (clearly so in the case of canalised rivers, for example) and others added later have, in many cases, the sanction of long established custom. There is no means of recording the amounts of water so received, nor is there any general register of the outfalls and their capacity. In size they may range from a small river down to a minor land drain; their number in total probably amounts to several thousand.

(ii) Surface water received from private lands under voluntary agreement, which would usually specify the size (and perhaps the capacity) of the outfall, the need to comply with purity standards, and any consequential storm relief works that the BWB might consider necessary. The agreement would provide for termination, or review of the terms of payment, after an initial period. It might be possible to prepare a comprehensive schedule of such discharges but it would not be feasible to assess the probable rates of discharge in normal and storm conditions.

(iii) Surface water discharged by highway authorities by virtue of their powers under Section 22 of the Highways Act 1971, as described in Chapter 3. Agreements may be entered into by the BWB and the authority where weirs or sluices for the relief of storm water are necessary but the Board cannot in general resist the obligation to accept the discharge. With the rapid and widespread extension in recent years of motorway and highway developments this type of use will inevitably continue to increase.

(iv) Local authorities find it useful in many cases to make, by agreement with the BWB, arrangements for storm water and sewage overflows into waterways from their sewers. Relief weirs discharging into natural water-courses may have to be constructed or extended in consequence, as in (iii) above.

(v) Effluent from local authorities' sewage works is discharged into a waterway in some cases, prior treatment to a suitable standard of purity being a condition of agreement by the BWB. Two important instances are on the Staffordshire and Worcestershire Canal at Barnhurst, and on the Grand Union Canal at Whilton in substitution for a reduced supply from Daventry reservoir; in these cases the effluents provide regular and useful components of the canals' water supplies. There are large discharges at Feilde's Weir on the River Lee, at Maple Cross on the Grand Union Canal, and at a number of other points on a smaller scale.

5.6.3 Although we have found it impracticable to make quantitative assessments of use under the foregoing headings it seems clear that the BWB have no reason to welcome any extension of their service to the community in these ways. With few exceptions drainage is required to be taken into the waterways when they least need it; the smaller outfalls may become sources of pollution and the larger ones will necessitate the provision of relief works at other points on the waterway. Nevertheless the total existing and inescapable obligation is a considerable one, and it is likely to increase with the general development of highway drainages.

5.7 *Water Sales to Industry*

5.7.1 Many of the BWB waterways make available to industry supplies of water surplus to requirements, in larger or smaller quantities, as described in Chapter 9.1.5. Table 5.10 sets out the quantities abstracted from and returned to each waterway in the year 1974, together with the number of customers and the number of large users. The figures are exclusive of quantities transported in bulk for public water supply, these being given in section 5.8. All these abstractions are the subject of licences under Sections 114 and 131 of the Water Resources Act 1963, as mentioned later in paragraph 9.3.3.

Table 5.10

Water Abstractions and Returns 1974

Waterway Ref. No.	Waterway	Water Abstracted Ml	Water Returned Ml	No. of Customers		Large user Customers (over £5000 p.a.)
				Rent Roll	Meter	
1	Lee & Stort Navigations	75889	74173	35	8	2
2/6	Grand Union Canal, London to Birmingham and Foxton	2479	1202	82	20	4
7	Stratford on Avon Canal	1132	1131	1	–	–
8	Coventry Canal	862	862	15	–	–
9	Ashby Canal	226	–	1	1	1
10	Oxford Canal (N)	406	248	3	4	1
11	Oxford Canal (S)	607	606	1	1	1
12	Kennet & Avon Canal	63	63	4	–	–
13	Bridgwater & Taunton Canal	18	7	–	2	1
14	Monmouthshire and Brecon and Swansea Canals	3937	165	4	2	1
15	Gloucester & Sharpness Canal	141	73	5	1	1
16	R. Severn Navigation	–	–	3	–	–
17	Worcester & Birmingham Canal	22	11	9	1	–
18	Staffs. & Worcs. Canal	623	–	9	2	1
19	Stourbridge Canal	4	1	4	1	–
20	Birmingham Canals	30129	24949	83	26	9
21	Shropshire Union Canal	1501	1054	10	6	2
22	Weaver Navigation	8201	8192	4	–	–
23	Trent & Mersey Canal	8101	4558	16	10	3
24/25	Cromford & Nottingham Canals	–	–	–	–	–
26	Erewash Canal	3179	2934	5	–	1
27	Grand Union Canal – (Mkt. Harborough to Leicester and R. Soar Navigation)	included in 2/6 above				
28	Trent Navigation	13728	13675	2	1	1
29	Grantham Canal	109	–	3	1	–
30	Fossdyke & Witham Navigation	359	359	3	2	1
31	Chesterfield Canal	1417	1052	9	2	–
32	Pocklington Canal	–	–	–	–	–
33	Ripon Canal and R. Ure Navigation	–	–	1	–	–
34	Sheffield & South Yorkshire Navigation (incl. New Junction Canal)	8209	1092	18	8	4
35	Aire & Calder Navigation	3429	2941	14	5	—
36	Calder & Hebble Navigation	22	9	4	1	–
37	Huddersfield Broad Canal	846	473	8	3	–
38	Huddersfield Narrow Canal	3319	2913	15	4	1
39	Ashton Canal	1670	370	12	3	1
40	Peak Forest Canal	553	113	8	5	1
41	Macclesfield Canal	565	–	5	2	2
42	Caldon Canal	164	2	8	3	–
43	Manchester, Bolton & Bury Canal	1093	–	–	2	2
44	St. Helens Canal	5615	4684	5	2	2
45	Leeds & Liverpool Canal	6271	4273	62	26	1
46	Lancaster Canal	2398	201	5	2	2
47	Caledonian Canal	618	355	2	–	–
48	Crinan Canal	–	–	–	1	–
49	Forth and Clyde & Monkland Canals	27051	26251	3	10	3
50	Union Canal	2853	277	2	4	1
	TOTALS	217809	179285	485	172	50

5.7.2 It will be observed that no less than 82.5% of the water abstracted is returned to the waterways. Many of the older agreements provide for a fixed payment for water taken and some of them are for a long term. As opportunity arises, however, agreements are renegotiated on a metered supply basis; all new arrangements provide for metering subject to specified minimum payments. Meanwhile the quantities recorded above for abstractions and returns that are not actually metered have been taken from the information given to the licensing authority in accordance with Section 114 of the Water Resources Act 1963.

5.8 *Public Water Supply*

5.8.1 In addition to affording supplies of water to industry, most of which is returned to the system, the BWB provides considerable quantities of water for consumption by public water supply undertakings. In some instances the waterway channel is made use of for transporting the water in bulk; in other cases supplies are taken direct from reservoirs, feeders or river navigations where the transport capacity of the channel is not affected.

5.8.2 Where bulk transportation of the water is effected by means of the waterway channel there is obviously a saving in the cost of pipe lines, but against this must be placed the risks of freezing in cold winters, of interruption of flow from operational or accident causes, and of pollution. Too high a velocity of flow tends to impede waterway traffic and may also involve, in a pound of any considerable length, an unacceptable loss of head. These factors have militated against a wider adoption of this method of transportation but there are a few cases on the BWB system where it is in regular use.

5.8.3 (i) *Gloucester and Sharpness Canal (Ref. No. 15)*
Water is pumped from the River Severn into the canal at Gloucester and conveyed 22½ km to Purton, where it is abstracted by the Bristol Water Company for onward transmission to Bristol by pipeline. 36609 Ml were conveyed in 1974, the maximum rate of abstraction being about 115 Mld, but it is expected that the demand will increase substantially in the future.

(ii) *Shropshire Union Canal, Llangollen Branch (Ref. No. 21d)*
Water is taken by gravity from the River Dee at Llantisilio and conveyed along the full length of the branch, discharging over a weir into Hurleston reservoir for the benefit of the North West Water Authority.

The rate of flow is normally about 45 Mld and a total of 15779 M1 was conveyed in 1973.

(iii) *Bridgwater and Taunton Canal (Ref. No. 13)*
Water is taken from the River Tone at Taunton and conveyed to Bridgwater for abstraction there by the Wessex Water Authority. 936 Ml were conveyed in 1974.

5.8.4 A scheme has recently been completed, but not yet brought into operation, for making use of the Fossdyke and Witham Navigations (as far as Bardney). Water will be pumped from the River Trent at Torksey and conveyed to a pumping intake feeding a pipe line to the River Ancholme for distribution in South Humberside. The designed rate of flow in the Witham is about 115 Mld, calling for a maximum pumping rate at Torksey of 180 Mld.

5.8.5 Consideration was given a short time ago to making use of the Lancaster Canal for conveying water in bulk from near Kendal to the vicinity of Preston. An acceptable loss of head on the 65 Km long pound between Tewitfield and Preston would however have limited the flow to about 90 Mld, which was considered to be uneconomically low in relation to the capital cost of the scheme.

5.8.6 Having regard to the foregoing it is considered unlikely that any other scheme will be brought forward for making use of any part of the BWB system on a large scale for bulk public supply purposes. It is, however, possible that schemes might be devised for the joint benefit of the BWB and a public water supply undertaking; an example will be given in paragraph 9.4.5 of such a redeployment in recent times of resources originally provided for other purposes. Proposals of this kind would require approval by the Regional Water Authority concerned, but there would seem to be no reason to suppose that consent would be withheld if mutual benefit could be established.

5.8.7 As mentioned in paragraph 5.8.1 there are other instances, not affecting the use of the navigation channels, where water is made available for public supply purposes. These include small supplies given from reservoirs on the Grand Union Canal, the St. Helens Canal and the Union Canal (Scotland). The group of reservoirs feeding the summit level of the Huddersfield Narrow Canal, now unnavigable, is used at present to give a supply to the Yorkshire Water Authority subject to a total reservation of 1273 Mla which is passed into the Huddersfield Broad Canal for the benefit of the BWB.

5.8.8 There is also the special case of the River Lee, from which large supplies of water are taken by the Thames Water Authority through the New River at Ware and intermittently to the reservoirs in the lower Lee Valley. The arrangements are governed by statutory provisions of long standing, with safeguards for the navigational needs of the River.

5.9 *Remainder Waterways*

5.9.1 The subject of Remainder waterways is discussed in detail in Chapter 15. This section is concerned only to put on record the extent of the uses made of those Remainder waterways that are the subject of existing or prospective agreements, for cruising or local amenities, with local authorities as called for in paragraph 11j of the Terms of Reference. The required particulars are set out in Table 5.11. Information as to the specific interests of individual towpath walkers is not available.

Table 5.11

Extent of Use of Remainder Waterways subject to agreements with local authorities

Waterway Ref. No.	Waterway	Total Length Km	Agreement Length Km	Local Authorities (as at date of Agreement)	Agreement position	No. of users on one day count		
						Cruising Craft	Anglers	Towpath Walkers
4a	Slough Arm, G.U.C.	8	8	Greater London C. Hillingdon (L.B.) Slough B. Berks C.C. Eton R.D.C.	A	67	200	18
13	Bridgwater and Taunton Canal	23	22	Somerset C.C.	E	16	36	16
14a	Monmouthshire	56	52	Brecknock-shire C.C. Monmouth-shire C.C.	A	357	24	133
20c	Birmingham Canals	123						
	Dudley No. 1		4	Dudley MB	D	–	–	–
	Titford Canal		3)	Sandwell MB	C	3	1	64
	Dudley No. 2		3)					
26	Erewash Canal	17	17	Nottingham-shire C.C. Derbyshire C.C.	A	21	62	77
32	Pocklington Canal	15	12	Humberside C.C.	D))	1	35	30
			3	North Wolds D.C.	F))			
39	Ashton Canal	15	10))	Greater Manchester C.		(10 (	3	46
40	Lower Peak Forest	14	13))))	Manchester City Tameside MD Stockport MD	B	(5	11	127
42	Caldon Canal	33	28	Staffordshire C.C. Stoke on Trent C.B.	A	60	64	76
				TOTALS		540	436	587

Agreement Positions

A For maintenance to Cruising standard – executed

B For maintenance to Cruising standard – draft submitted and restoration agreement executed

C For maintenance to Cruising standard – draft submitted

D For maintenance to Cruising standard – draft to be submitted

E For maintenance to an improved standard for light craft – draft to be submitted

F For maintenance to an improved standard for leisure activities – draft to be submitted

5.9.2 The following waterways are currently the subject of preliminary discussions but negotiations are not yet sufficiently advanced for an agreement to be in prospect:–

24. Cromford Canal
29. Grantham Canal
31. Chesterfield Canal
49. Forth and Clyde Canal
50. Union Canal

5.9.3 Negotiations are also pending between the BWB and bodies not being local authorities in the following cases:–

12. Kennet and Avon Canal – Kennet and Avon Canal Trust
21e. Montgomery Branch (Shropshire Union Canal) – Prince of Wales Committee

5.10 *Waterway-related Private Investment*

5.10.1 In former times there was extensive investment of private capital in commercial enterprises making use of the waterway system. To the extent that many such enterprises have ceased to be active there is virtually no value in any remaining investment, but continuing commercial operations do involve installations that have some capital value, for example in freight-carrying craft and tugs, private wharves and warehouses and cargo-handling appliances.

5.10.2 The Board's docks and the various commercial centres are excluded from the scope of our Study, so that a rather artificial limit is set to the extent of private investment that ought to be taken into account in the commercial field. Furthermore, much of the continuing investment was made many years ago and may be regarded as being fully depreciated or nearly so. Nevertheless there are several recent cases of installations in regular use which represent a considerable level of investment, particularly the following:–

(a) The BACAT carriership and barges, estimated to cost £4 million.

(b) ESSO barges on the Hull – Leeds fuel link which may have cost £½ million.

(c) Coal bulk handling appliances at Ferrybridge power station and other similar installations, costing probably £5 million.

(d) The new I.C.I. quay on the River Weaver at Anderton estimated to cost £½ million.

It is not possible to make a close estimate of the total value of all existing installations (which could mean attempting to distinguish between components of a large industrial complex for example), but an 'order of cost that could be said to represent the book value of water-related elements would comprise:–

	£M
Wharves, warehouses, etc.	14
Cargo handling appliances	4
Barges and carrying craft	8
Total	26

5.10.3 We have, however, made a more detailed appraisal of private investments associated with cruising activities, as these are more readily identified and in the main are of comparatively recent installation. The rate of growth of such investment is remarkable as not only are private individuals investing and continuing to invest in boats but boat building firms and boat hiring companies are continuing to invest in marinas, showrooms etc. with, apparently, the confident backing of hire-purchase and credit-instalment institutions.

5.10.4 The nature and extent of this kind of investment is summarised in relation to the individual waterways in Table 5.12. The information has been assembled from various sources, including a comprehensive survey carried out recently by the BWB, and is we believe reasonably complete. A more difficult task has been to make assessments of the value of these investments, some of which are known only to the owners. In the case of developments on or closely connected with BWB lands, however, the relevant agreements usually provide for a minimum expenditure by the other party within a stated term of years, so that a probable lower limit is at least indicated. It is also possible to make an approximate estimate of the cost of civil engineering works, buildings and equipment by visual inspection in typical cases. In this way we have built up assessments of the value of private investment in fixed installations which in total amount to some £9 million.

5.10.5 There is also the investment in floating craft to be considered. Knowing the numbers of boats licensed year by year, and the relative proportion of different types supplied by builders and hirers, we have arrived at an estimate of the total number of craft and their value. After making allowance for annual depreciation we consider that the aggregate value at the end of 1974 was approximately £60 million.

5.10.6 It should be observed that the value of investment in cruising craft is to a large extent independent of the availability of any particular waterway for their accommodation. In practice, however, an appreciable loss of value could result for locally owned craft from the closing of a waterway to navigation.

5.10.7 On the basis of a total investment in fixed installations of £9 million and a total of approximately 24,500 boats now in use, the average per boat is £370. This compares very well with an estimate given to us by a firm of hire cruiser operators that new investment is now running at from £500 to £600 per berth.

5.10.8 The BWB consider that, except for overnight use, linear moorings should be phased out; by the eventual provision of marinas and off stream facilities the present average of about 6 - 7 boats per km. could be doubled and even trebled. Recently expansion in the numbers of boats has been at some 10% per annum and, over the past five years, new boatyards have been appearing at the rate of more than one a month. There does not appear to be any indication of a slackening in demand or in the willingness of private investors to meet it.

5.10.9 Other categories of private investment would include:–

(a) plant and equipment installed for the purpose of abstracting, treating, using and returning water supplied from and discharged into waterways by industry,

(b) boat building and servicing industries not located on

BWB waterways but whose markets include users of those waterways.

It has not been possible to form any reliable estimate of capital invested under these headings.

Table 5.12

Private Investment

Waterway Ref. No.	Waterway	Narrow Boat Builders	Boatyards, Marinas & Services	Shops		Car Parks	Slip Ways
				Provisions	Other		
1	Lee & Stort Navigations	1	6	1	3	12	8
2/6	G.U. Canal London to Birmingham and Foxton	15	54	5	7	28	20
7	Stratford-on-Avon Canal	1	5	–	–	2	1
8	Coventry Canal	1	–	–	–	1	1
9	Ashby Canal	–	10	1	–	3	2
10/11	Oxford Canal	3	21	2	5	11	5
12	Kennet & Avon Canal	–	9	1	2	6	5
13	Bridgwater & Taunton Canal	–	–	–	–	–	–
14	Monmouthshire and Brecon & Swansea Canals	–	9	–	–	1	2
15	Gloucester & Sharpness Canal	–	2	–	–	–	–
16	R. Severn Navigation	–	10	1	1	5	2
17	Worcester & Birmingham Canal	–	13	–	2	4	1
18	Staffs. & Worcs Canal	5	16	4	5	10	5
19	Stourbridge Canal	–	–	–	1	1	1
20	Birmingham Canals (incl. Birmingham & Fazeley)	7	15	–	–	4	3
21	Shropshire Union Canal (incl. Llangollen & Montgomery Branches)	5	27	4	15	28	20
22	Weaver Navigation	1	–	–	–	1	2
23	Trent & Mersey Canal	4	20	2	3	17	9
24/25	Cromford & Nottingham Canals	–	–	—	1	3	1
26	Erewash Canal	1	4	–	–	3	2
27	Grand Union Canal (Mkt. Harborough to Leicester & R. Soar Navigation)	–	5	1	–	12	10
28	Trent Navigation	–	19	2	1	13	12
29	Grantham Canal	–	–	–	–	–	–
30	Fossdyke & Witham Navigations	–	3	7	1	12	7
31	Chesterfield Canal	1	4	–	–	6	5
32	Pocklington Canal	–	–	–	–	–	–
33	Ripon Canal & Ure Navigation	–	1	–	1	2	3
34	Sheffield & South Yorkshire Navigation	–	4	–	–	3	2
35	Aire & Calder Navigation	–	1	–	–	–	1
36	Calder & Hebble Navigation	–	7	–	–	–	4
37/38	Huddersfield Canals	–	1	–	–	–	–

(Continued on next page)

Table 5.12 Continued

Waterway Ref. No.	Waterway	Narrow Boat Builders	Boatyards, Marinas & Services	Shops		Car Parks	Slip Ways
				Provisions	Other		
39	Ashton Canal	–	–	–	–	–	–
40	Peak Forest Canal	–	1	–	1	4	–
41	Macclesfield Canal	1	5	–	1	3	2
42	Caldon Canal	–	1	–	–	1	–
43	Manchester, Bolton & Bury Canal	–	–	–	–	–	–
44	St. Helens Canal	–	–	–	–	–	–
45	Leeds & Liverpool Canal	3	28	5	3	14	5
46	Lancaster Canal	–	7	4	3	7	7
47/50	Scottish Canals	–	7	–	–	2	2
	TOTALS	49	315	40	56	219	150