

**WELLAND
AND
NENE
RIVER
AUTHORITY**

**EIGHTH
ANNUAL
REPORT
1972-1973**



WELLAND AND NENE RIVER AUTHORITY

EIGHTH
ANNUAL REPORT
1972-1973

Chairman

T. R. PICK, Esq., O.B.E.

Vice Chairman

ALDERMAN T. H. COCKERILL

OUNDE
Peterborough

D. S. AKROYD
Clerk of the Authority

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PREFACE

This Report is published as required by section 110 of the Water Resources Act 1963, and is in the form and contains particulars as directed by the Minister of Agriculture, Fisheries and Food and the Minister of Housing and Local Government.

The Welland and Nene River Authority were constituted by the Welland and Nene River Authority Constitution Order 1964 (S.I. No. 1030) made by the Minister of Housing and Local Government and the Minister of Agriculture, Fisheries and Food in exercise of the powers conferred on them by sections 3, 7 and 134 of the Water Resources Act, 1963.

The Minister of Agriculture, Fisheries and Food in accordance with the provision of section 6(3) of the Water Resources Act, 1963 made five appointments of persons qualified in respect of land drainage, two appointments of persons qualified in respect of fisheries, and two appointments of persons qualified in respect of agriculture.

The Minister of Housing and Local Government in accordance with the provisions of that section made two appointments of persons qualified in respect of public water supply and two appointments of persons qualified in respect of industry other than agriculture.

When it was decided to raise a drainage charge in the year commencing 1st April 1971 the Minister of Agriculture, Fisheries and Food appointed one additional member "from amongst persons appearing to him to represent occupiers of chargeable hereditaments", and in consequence the Minister and the Secretary of State for the Environment gave a direction that the additional local authority member to be appointed under section 8(5) should be appointed by the County Borough of Northampton.

The number of local authority members at the present time and so long as a drainage charge is levied is therefore:

<i>County</i>							<i>No. of Members</i>
Bedford	..	..	..	..	..	..	None
Buckingham	..	..	..	..	..	..	None
Cambridgeshire and Isle of Ely	..	..	..	..	..	..	One
Huntingdon and Peterborough	..	..	..	..	..	..	Two
Leicester, Rutland	..	..	..	..	..	..	One jointly
Lincoln, Parts of Holland	..	..	..	..	..	..	One
Lincoln, Parts of Kesteven	..	..	..	..	..	..	One
Norfolk	..	..	..	..	..	..	None
Northampton	..	..	..	..	..	..	Six
<i>County Borough</i>							
Northampton	..	..	..	..	..	..	Three

One of the two members appointed by Huntingdon and Peterborough County Council shall be from among persons nominated by Peterborough Municipal Borough Council.

One of the six members appointed by Northampton County Council shall be from among persons nominated by Corby Urban District Council.

The River Authority came into existence on the 15th October, 1964 (S.I. No. 1267) and took over the functions assigned to them on the 1st April, 1965. The first meeting was held at Peterborough on the 17th November, 1964. The second re-constitution took place on the 1st November, 1970, and the present appointments are due to expire on the 31st October, 1973.

The Area comprises 1,547 square miles, of which 934 square miles are in the Nene Hydro-metric area and 613 square miles are in the Welland Hydrometric area. The total length of main

river on the 31st March 1973 was 635 miles, the length of the River Nene and tributaries being 340 miles, and the length of the River Welland and tributaries being 295 miles. The estimated penny rate product for 1972-73 was £360,348. The precept of the County and County Borough Councils for the year ended 31st March 1973 was 1.2 pence, and produced £432,417. The contribution required of internal drainage boards amounted to £82,131. Annual loan charges amounted to £150,672.

MEMBERSHIP

1. MEMBERSHIP OF THE AUTHORITY

CHAIRMAN OF THE AUTHORITY

T. R. Pick Esq., O.B.E.

VICE CHAIRMAN OF THE AUTHORITY

Alderman T. H. Cockerill

MEMBERS AND APPOINTING AUTHORITIES

Appointed by Cambridgeshire and Isle of Ely County Council

County Councillor M. H. T. Carter

Appointed by Huntingdon and Peterborough County Council

County Alderman Lt. Col. the Hon. P. E. Brassey, J.P., D.L.

Alderman G. A. Foster (*appointed on the nomination of Peterborough Municipal Borough Council*)

Appointed by Leicester and Rutland County Councils, jointly

The Rt. Hon. the Earl of Gainsborough

Appointed by Lincoln (Parts of Holland) County Council

County Alderman H. Waltham

Appointed by Lincoln (Parts of Kesteven) County Council

County Alderman J. H. Lewis

Appointed by Northampton County Council

County Councillor J. R. Carr (*appointed on the nomination of Corby Urban District Council*)

County Councillor R. Cross (*from 16th November 1972*)

Alderman C. E. Goode (*to 30th June 1972*)

County Councillor W. D. Morton

County Alderman Mrs. D. P. Oxenham, C.B.E., J.P.

County Councillor R. E. Sutton

County Alderman E. E. Wright, M.B.E.

Appointed by Northampton County Borough Council

Alderman T. H. Cockerill

Alderman J. B. Corrin (*to 17th January 1973*)

Councillor G. J. Onn

Appointed by the Minister of Agriculture, Fisheries and Food as being qualified in respect of Land Drainage

R. J. Berry, Esq.

G. H. Hoyles, Esq.

Major J. E. Piccaver, J.P.

T. R. Pick, Esq., O.B.E.

A. C. Pyrah, Esq., J.P.

Appointed by the Minister of Agriculture, Fisheries and Food as being qualified in respect of Fishery Interests

R. Edgley, Esq.

P. H. Tombleson, Esq., F.Z.S.

Appointed by the Minister of Agriculture, Fisheries and Food as being qualified in respect of Agriculture

H. J. T. Carter, Esq.

D. L. Parker, Esq.

Appointed by the Minister of Agriculture, Fisheries and Food as being qualified to represent occupiers of chargeable hereditaments

A. T. C. Haywood, Esq.

Appointed by the Secretary of State for the Environment as being qualified in respect of Public Water Supply

Councillor C. S. Bowering

L. H. Brown, Esq., B.Sc., F.I.C.E., M.I.W.E.

Appointed by the Secretary of State for the Environment as being qualified in respect of Industry other than Agriculture

N. A. Pearce, Esq., B.E.M.

A. J. W. Scopes, Esq.

2. MEMBERSHIP OF STATUTORY AND STANDING COMMITTEES

Finance and General Purposes Committee

T. R. Pick, Esq., Chairman
Alderman T. H. Cockerill, Vice-Chairman

R. J. Berry, Esq.
Lt. Col. the Hon P. E. Brassey
County Councillor J. R. Carr
H. J. T. Carter, Esq.
Alderman J. B. Corrin
(to 17th January 1973)
Alderman G. A. Foster

G. H. Hoyles, Esq.
County Alderman Mrs. D. P. Oxenham
N. A. Pearce, Esq.
P. H. Tombleson, Esq.
County Alderman H. Waltham
County Alderman E. E. Wright

Land Drainage Committee

H. J. T. Carter, Esq., Chairman
R. J. Berry, Esq., Vice Chairman

County Councillor M. H. T. Carter
Alderman T. H. Cockerill
The Rt. Hon the Earl of Gainsborough
A. T. C. Haywood, Esq.
G. H. Hoyles, Esq.
County Alderman J. H. Lewis

County Councillor W. D. Morton
D. L. Parker, Esq.
Major J. E. Piccaver
T. R. Pick, Esq.
A. C. Pyrah, Esq.
County Alderman H. Waltham

Fisheries and Pollution Prevention Committee

Alderman G. A. Foster, Chairman
P. H. Tombleson, Esq., Vice-Chairman

Councillor C. S. Bowering
County Councillor J. R. Carr
Alderman T. H. Cockerill
Alderman J. B. Corrin
(to 17th January 1973)
County Councillor R. Cross
(from 29th November 1972)
R. Edgley, Esq.

Alderman C. E. Goode
(to 30th June 1972)
Councillor G. J. Onn
N. A. Pearce, Esq.
T. R. Pick, Esq.
A. C. Pyrah, Esq.
A. J. W. Scopes, Esq.
County Councillor R. E. Sutton

Water Conservation Committee

Lt. Col. the Hon P. E. Brassey, Chairman
County Alderman E. E. Wright, Vice Chairman

Councillor C. S. Bowering
L. H. Brown, Esq.
County Councillor J. R. Carr
County Councillor M. H. T. Carter
Alderman T. H. Cockerill
County Councillor R. Cross
(from 29th November 1972)
R. Edgley, Esq.

Alderman G. A. Foster
Alderman C. E. Goode
(to 30th June 1972)
County Alderman Mrs. D. P. Oxenham
D. L. Parker, Esq.
T. R. Pick, Esq.
A. J. W. Scopes, Esq.

Empingham Reservoir Committee

Lt. Col. the Hon. P. E. Brassey, Chairman
L. H. Brown, Esq., Vice-Chairman

R. J. Berry, Esq.
Councillor C. S. Bowering
(from 28th February 1973)
County Councillor J. R. Carr
(from 28th February 1973)
County Councillor M. H. T. Carter
(from 28th February 1973)
Alderman T. H. Cockerill
Alderman G. A. Foster

The Rt. Hon. the Earl of Gainsborough
D. L. Parker, Esq.
(from 28th February 1973)
T. R. Pick, Esq.
A. J. W. Scopes, Esq.
(from 28th February 1973)
County Alderman H. Waltham
County Alderman E. E. Wright

STAFF

1. PRINCIPAL OFFICERS

Office	Name
Clerk of the Authority	D. S. Akroyd, LL.B., Solicitor
Chief Engineer	G. E. Bowyer, B.Sc., F.I.C.E., F.I.W.E.
Deputy Engineer	P. R. Langford, B.Sc., C.Eng., M.I.C.E., M.I.W.E.
Treasurer	A. E. Lane
Deputy Treasurer	J. A. Tindall, A.I.M.T.A., A.M.B.I.M.
Chief Fisheries and Pollution Prevention Officer	R. E. Field, A.M.Inst.W.P.C.

2. OTHER OFFICERS (as at 31st March, 1973)

Clerk's Department and General Administration

Chief Assistant	Principal Officer 1
Administrative Assistant	AP 3
Clerical Assistant	Clerical 1
Field Officers (2)	Misc. 6/8
Secretary	Senior Scale B
Typists (9)	Scale as appropriate
Telephonist	Scale as appropriate

Chief Engineer's Department

Senior Engineers (4)	Principal Officer 1
Area Engineers (3)	Principal Officer 1
Senior Assistant Engineers (2)	Senior Officer
Assistant Area Engineers (3)	AP 5
Assistant Hydrologist	AP 3/4
District Engineers (4)	T 6
Chief Draughtsman	T 7
Works Study Officer	Senior Officer
Water Conservation Engineer	AP 5/Senior Officer
Plant Superintendents (2)	T 7
Chief Clerk	AP 3
Assistant Engineers and Technical Assistants (25)	SO 1 or T 1/7 as appropriate
Secretary	Senior Scale B
Clerks and Machine Operators (6)	Clerical 1
Typists/General Clerk (3)	Scale as appropriate

Treasurer's Department

Senior Assistants (2)	AP 3/4
Clerical Assistants (9)	Clerical 1/3 or AP 3 as appropriate

Fisheries and Pollution Prevention Department

Chemist	Senior Officer
Assistant Chemist	AP 4
Senior Assistant Inspector	Senior Officer
Assistant Inspectors (2)	T 3/5 as appropriate
Laboratory Assistant (3)	T 1/2 as appropriate
Shorthand Typist	Scale as appropriate

Non-established appointments

Chief Engineer's Department

Design Engineers (2)	Senior Officer
Assistant Engineers/Technical Assistants (4)	AP 3/5 as appropriate
Draughtsmen (3)	T 5/7 as appropriate
Junior Assistants (8)	T 1

Treasurer's Department

Clerical Assistant (1)	Scale as appropriate
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3. WATER BAILIFFS

Water Bailiffs (2)	Misc. 4/5
Honorary Water Bailiffs (44)	

4. LABOUR FORCE (as at 31st March, 1973)

Tradesmen	19
Foremen and Under Foremen	28
Plant Drivers	49
Storekeepers, Sluicekeepers, Tollkeepers, etc.	8
Labourers	86
	<hr/>
	190

WATER RESOURCES

1. GENERAL REVIEW

Empingham Reservoir still continued to dominate the work of the Department, and will be referred to more fully below.

The investigation of the potential of the Lincolnshire Limestone aquifer continued. The First Progress Report for 1971 including contributions from the Water Resources Board and the Lincolnshire River Authority, was published in November and the Second Progress Report for 1972 was nearing completion.

Involvement also continued in the Feasibility Study for the Wash Estuarial Storage Scheme, and Officers served on Engineering and Water Quality Working Parties.

2. PERIODIC SURVEY

At the time of writing, printing of the updated First Periodic Survey is in hand. Although the delay in publication is regretted, the data has been available in so far as it has been an integral part of the appreciation and planning culminating in the construction of Empingham Reservoir.

3. HYDROMETRIC SCHEME

Expenditure on the Second Hydrometric Scheme amounted only to £3,334, and included completion of Manthorpe Gauging Station on the River West Glen, minor works to complete the new gauging stations at Holywell Brook and Easton Wood, and the purchase of a number of new raingauges to improve the network.

Only one new raingauge was sited during the year. Magnetic tape recording raingauges and translation facilities are to be installed, but the purchase was postponed pending improvements found necessary as a result of tests carried out by the Water Resources Board.

Improvement work at Tallington Gauging Station estimated to cost £6,000 was also postponed. Over a short period in mid-summer the station, which comprises three separate weirs, was affected by high tail-water as a result of prolific weed growth downstream. Subsequent and closer investigations shewed that timely weed clearance was likely to eliminate this difficulty, but it is hoped to confirm this during the coming summer.

4. INVESTIGATION OF WATER IN UNDERGROUND STRATA

(a) Lincolnshire Limestone

The investigation outlined in the more urgent recommendations in the Water Resources Board's Report on the Groundwater Hydrology of the Lincolnshire Limestone continued. Regular monthly observations of groundwater levels and chemical analyses were made, and the comprehensive run-off data increasingly available from the several river-flow gauging stations operating in the outcrop area was collected and analysed. These observations have now been made for two complete years, and are providing basic data essential to a more thorough understanding of the hydrological characteristics of the area. A digital model of the aquifer is to be computerised and work will begin in the ensuing year. The Department of Civil Engineering of the University of Birmingham at the instigation of the Water Resources Board constructed an

electrical analogue model of the aquifer which proved valuable, but it did not produce all the data necessary to make a full appreciation of the problems.

In addition to work directly undertaken, contract work on the construction of additional observation boreholes continued. Ten such boreholes have been drilled, five being sited on the outcrop and five sited deep in the confined area, that is where the easterly dipping limestone is overlain by relatively impermeable strata and the head of water in the aquifer is sufficient to raise the level above the base of the overlying bed. One remains to be drilled in the confined area near Crowland. A pumping test was successfully completed in November at Tallington Pumping Station, one of the principal sources operated by the South Lincolnshire Water Board. Four observation bores additional to the first two were drilled. The test was completed in 10 days, and provided valuable information on the characteristics of the aquifer. The Water Board gave considerable assistance, which was greatly appreciated. The First Progress Report (1971) on the Investigation was published in September.

(b) River Gravels

No tests were carried out on the River Gravels.

5. MINIMUM ACCEPTABLE FLOW

In view of the recognised difficulties no statutory minimum acceptable flow has been prescribed in accordance with section 19 of the Water Resources Act 1963, but a working "MAF" is adopted as necessary.

6. RESEARCH AND EXPERIMENTAL WORK

Research and experimental work proceeding or in preparation is referred to under the appropriate heading.

7. LICENCES

(a) Abstraction Licences

The table on page 14 records the Licences of Right (with some variations) extant at 31st March.

Seventeen Licences of Right, four being for spray irrigation, were revoked at the request of the Licence Holders. This is again a reduction on the figure of the previous year. It would appear that the Charging Scheme has now had the effect of reducing the number of spray irrigation licences and the extent of the authorised abstractions to realistic figures, as those who sought only to obtain a Licence of Right or to secure an excessive authorised quantity immediately prior to 1965 have surrendered their licences or reduced their authorisation.

Three Licences were reduced in quantity on further reorganisation by Statutory Water Undertakers of their sources of supply, but the decreases were again not significant.

Licence Holders who wish to surrender their Licences or to reduce their authorised quantities were again reminded that they cannot obtain a new licence nor revert to the previous higher quantity without complying with the statutory procedure, which inevitably leads to delay even if their application can be granted.

Four Licences of Right lapsed, and twenty-six licences were transferred to new occupiers.

Eleven applications for new Licences were received, and ten licences were granted in appropriate terms. In one case, a draft licence was agreed and will be issued when a new factory on the Woodston Industrial Estate, Peterborough comes into operation.

Two of the licences granted related to impounding works to form lakes for wildlife conservation.

LICENCES OF RIGHT
extant at 31st March, 1973

Area	Agriculture (other than spray irrigation)		Agriculture and Domestic		Agricultural and Horticultural Spray Irrigation		Industrial (other than water cooling abstractions)		Industrial Cooling (C.E.G.B.)		Domestic (not exempt)		Public Supply		Miscellaneous		Totals	
	No. abstraction	Authorised annual No. abstraction	No. abstraction	Authorised annual No. abstraction	Summer	All Year	No. abstraction	Authorised annual No. abstraction	No. abstraction	Authorised annual No. abstraction	No. abstraction	Authorised annual No. abstraction	No. abstraction	Authorised annual No. abstraction	No. abstraction	Authorised annual No. abstraction	No. abstraction	Authorised annual No. abstraction
31/1	4	1,146	3	1,052	1	450	4	490,200					1	290,000	1	1,000	4	1,146
2	4	1,936				806	2	44,074									14	784,638
3	7	1,060															11	45,940
4	4	1,355	2	605													6	1,960
5	5	1,755	2	7,700	1												8	9,480
6	5	1,709	5	4,887													10	6,596
7	7	1,117	6	2,240													14	2,003,357
8	9	4,755	11	5,845		325	1	2,000,000			1	150					25	271,075
9	23	3,746	9	2,240	2	2,330	2	260,000					4	380,600			45	541,000
10	11	2,509	12	6,159	3	7,230	3	143,235					3	331,000			32	371,139
11	9	1,651	15	8,400	1	500	3	21,500					1	4,380			51	156,293
12	8	2,916	8	10,047	4	7,800	11	113,450					2	1,217,640			24	33,006
13	9	1,332	1	300	25	51,588	12	933,065					4	2,880,800			48	2,203,925
14	16	197,125	19	4,332	41	99,870	12	915,197									105	4,132,780
TOTAL	121	224,112	93	61,657	97	199,939	40	4,920,721			4	985	15	5,104,420	4	4,936	397	10,562,335
32/1	7	1,328	7	3,215	1	3,200	2	12,115					2	6,476,500			14	4,543
2	12	6,157	11	4,087		23,150	6	506,000									26	25,559
3	11	2,328	15	6,017	5	3,000	2	15,900					2	8,480,000	3	9,800	49	7,029,660
4	5	3,620	4	1,653	1	2,475	9	218,085					3	400,000	1	250	13	8,504,423
5	6	859	4	5,000	3	11,000	6	216,500					*	585,000	2	110	30	15,636,066
6	12	6,332	3	3,655	3	11,000	2	1,120,000									27	822,687
7	4	583	7	9,757	1	700	2	1,542,982									13	11,117
8	6	2,530	4	8,235	4	3,005	24	1,542,982					8	751,000	1	2,095	16	1,134,295
9	43	14,137	10	7,370	16	34,691	1	2,500					2	182,400			111	2,359,882
10	8	2,440	2	201	7	27,812	10	674,535									23	216,998
11	8	1,438	1	1,200	23	33,064	10	674,535									47	9,720,477
TOTAL	122	41,752	67	50,390	64	142,097	62	4,308,617			3	8,802	15	16,874,900	7	12,255	369	45,465,707
TOTAL 31 & 32	243	265,864	160	112,047	161	342,036	102	9,229,338			7	9,787	30	21,979,320	11	17,191	766	56,028,042

*Part of one licence (Mid-Northamptonshire W.B.)

(Quantities in 1000 gallons)

LICENCES NOT OF RIGHT
issued during year

Agriculture (other than spray irrigation)	Agriculture and Horticultural Spray irrigation	Industrial Uses Significant losses	Industrial Uses Water cooling Sand and gravel Other minimum losses	Domestic (not exempt)	Public Supply	Miscellaneous	Totals
Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction
Nene Hydrometric area							
2	1,123	1	5,200			1 *	6 176,523
Welland Hydrometric area							
1	455				†1 2,190,000	1 *	4 2,241,455
3	1,578	1	5,200	1	51,000	2 *	10 2,417,978

(Quantities in 1000 gallons)

*impounding only

† This abstraction was included in the Tables for previous years as a Licence of Right, although a variation subject to annual extension had been made. The licence, as varied, lapsed, and a new licence was consequently issued. The abstraction has therefore been transferred from the Licence of Right Table to the Licence Not of Right Table, there being no increase in the overall abstraction.

LICENCES NOT OF RIGHT
extant at 31st March 1973

Agriculture (other than spray irrigation)	Agriculture and Horticultural Spray irrigation	Industrial Uses Significant losses	Industrial Uses Water cooling Sand and gravel Other minimum losses	Domestic (not exempt)	Public Supply	Miscellaneous	Totals
Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction	Authorised annual No. abstraction
Nene Hydrometric area							
8	7,010	13	32,235	8	586,270	11	1,939,300
Welland Hydrometric area							
6	1,334	7	10,503	6	333,660	4	350,940
14	8,344	20	42,738	14	919,930	15	2,290,240

(Quantities in 1000 gallons)

*impounding only

Three applications for variations of licences other than in respect of the authorised quantity were granted.

The net effect of revocations, variations, and new licences is a decrease in the aggregate abstraction of 3,185,364 thousand gallons per annum.

The table above shews the Licences not of Right issued during the year and those extant at 31st March.