DEVON AREA REPORT

RIVER ERME FISHERIES SURVEY 1994

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RIVER ERME FISHERIES SURVEY 1994

Introduction

A survey of the distribution of freshwater fish was conducted throughout the R.Erme catchment during the period of June to September 1994. The survey was undertaken as part of a triennial programme to monitor fish stocks in the R.Erme. The aim of the survey was to assess the distribution and abundance of freshwater fish and to compare with results of previous surveys where possible.

A comprehensive survey of the Erme system was been carried out in 1991 (Not reported). Limited quantitative surveys were carried out in 1965 (Nott & Bielby) and 1971 (Nott).

For a description of the catchment see Nott & Bielby (1965).

Methods

A total of twenty five sites were selected throughout the catchment. Twenty three sites were quantitative, the remaining two were semi-quantitative. Site selection was based upon physical accessibility and geographical distribution. No account was taken of habitat characteristics. Site distribution and locations are given in Figure 1. Site details are given in Table 1.

a) Quantitative Surveys.

Standard NRA electric fishing procedures were followed using a combination of single and triple shock sites. All sites were between 50 and 100 metres in length isolated by stop nets. All salmonids were measured and identified by species. The number of other species were noted and the following abundance indicator was applied :-

Present	-	1-10
Common	-	11-100
Abundant	-	>100

b) Semi-quantitative Surveys.

Semi-quantitative sites were fished for a defined period of twenty minutes. Species were handled in the same way as for quantitative sites.

Fish population estimates for triple shock sites were obtained according to methods described by Heathwood and Newton (1980). Population estimates for single shock sites were made using the multiplication factor (N/C1) derived from the appropriate triple shock site associated with that cluster.

RESULTS AND DISCUSSION

The results are given in the form of population densities ($N/100m^2$) in Table 2. Data for salmonid species are split into densities for fry (0+) and combined for age groups of older fish (1++). Historic salmonid data is presented in Tables 3 and 4 to allow comparison with data collected in this survey. The presence or absence of non-salmonid species are recorded in Table 2.

Salmon (Salmo salar.L.)

Historically the R.Erme has not supported a large population of salmon. Some parts of the catchment are either inaccessible or beyond the "normal range" of upstream adult penetration, ie upstream of Stowford Weir (site 5). The majority of spawning activity appears to take place in the lower reaches of the main river, between Stowford weir (site 5) and Fawns Bridge (site 10). This is demonstrated by the salmon fry densities (range 1.98 - 15.5) and parr densities (range 2.69 - 9.95) that were recorded in this stretch.

Salmon fry densities in the main river are similar to those noted during the 1991 survey, there has been no significant change. Parr densities are also broadly similar to those noted in the 1991 survey, although numbers have decreased slightly in the middle reaches of the main river (sites 7 & 8). This may be a result of poor spawning in 1993 or changes in the distribution of 1++ fish. It is notable that some of the highest densities for both parr and fry were recorded at these sites, which are situated upstream and downstream of Ivybridge STW. Consequently, there is the

possibility that this discharge is actually enhancing fish populations. There is certainly no evidence to suggest a detrimental affect.

Salmon parr and fry were absent from several tributaries in the catchment, namely the Butterbrook, Yardsworthy, Modbury and Shearlangstone streams. This is consistent with data collected in the 1991 survey. As these tributaries had not been surveyed prior to 1991 it is not possible to say whether this has always been the case. The lack of spawning in these streams maybe attributable to a number of causes, ie lack of suitable physical habitat, poor water quality or low accessibility.

Salmon parr and fry were present in poor densities in the Ugbrook, Ludbrook and Brownstone streams. Comparison with historic data indicates that there has been some decline in densities. This maybe credited to low spawning success in 1993 and/or poor water quality. Production in these streams has been greater, consequently they may be failing to meet there production potential.

Trout (Salmo trutta,L.)

The data for both fry and parr populations in the main river are generally comparable to those encountered in historic surveys. There are some obvious variations between this years data and that collected in 1991, these variations are broadly consistent to those which would be found in any trout population.

Trout populations in the main river appear to have undergone very little change between 1991 and 1994. Fry densities in the tributaries have declined slightly, but not alarmingly so. Parr densities have remained virtually static.

The R.Erme does support a healthy sea trout run. This tends to be a complication as it is not possible to distinguish between juvenile resident trout and juvenile migratory trout. It is likely that a good proportion of fry and parr recorded in the tributaries and upper reaches of the main river are sea trout progeny.

CONCLUSIONS

i) Salmon populations in the middle to lower reaches of the main river are consistent with previous data and can therefore be considered stable.

ii) Salmon maybe encouraged to spawn in the upper reaches of the main river if migration over Stowford weir is made possible.

iii) Salmon production in many of the tributaries is non-existent and is failing to meet its full potential.

iv) There has been no significant variation in the trout fry and parr production throughout the catchment.

RECOMMENDATIONS

i) A survey of spawning and nursery habitats should be carried out in order to ascertain the availability and condition.

ii) Further investigative work should be considered to identify the causes of poor distribution and low abundance of juvenile salmon in all tributaries.

REFERENCES

HEATHWOOD, A.W; NEWTON, C.M; 1980. Data handling by Fisheries Biologist. Internal Report, South West Water Authority, Directorate of Fisheries and Recreation.

NOTT, F.J; & BIELBY, G.H; 1965. River Erme Fisheries Survey.

NOTT, F.J; 1971. River Erme Fisheries Survey.

APPENDIX A.

TABLE 1 - SITE DETAIL SHEET

TABLE 2 - SUMMARY SHEET

TABLE 3 - ALL SURVEYS 1965-1994 SALMON DENSITIES

TABLE 4 - ALL SURVEYS 1965-1994 TROUT DENSITIES

FIGURE 1 - SITE DISTRIBUTION MAP

TABLE 1

RIVER ERME FISH SURVEY - 1994 SITE DETAIL SHEET

RIVER	SITE No.	SITE NAME	N.G.R.	CLUSTER
ERME	1	Erme Pound	SX 637 656	a
	2	Tinners Hut	SX 641 629	a
	3	Lower Piles	SX 640 610	A
	4	Harford Bridge	SX 636 596	a
	5	Stowford Weir	SX 636 570	b
	6	Ivybridge Leisure	SX 635 560	B
	7	U/S Ivybridge STW	SX 632 556	b
	8	D/S Ivybridge STW	SX 632 555	C
	9	Keaton Weir	SX 640 545	c
	10	Fawns Bridge	SX 641 531	*
	11	Ermington STW	SX 634 524	*
BUTTERBROOK	12	D/S Butterbrook Br.	SX 635 594	d
YARDSWORTHY S	13	D/s Hall Cross	SX 627 598	d
LUDBROOK	14	Bittaford Hospital	SX 664 577	d
	15	Peakmill	SX 660 559	D
	16	Ludbrook	SX 658 542	e
	17	Fawns	SX 641 531	e
UGBROOK	18	U/s Ugborough	SX 680 558	e
	19	Ludbrook	SX 660 544	E
BROWNSTONE	20	Spriddlescombe	SX 680 535	f
	21	Sheepham	SX 655 527	f
	22	Goutsford Bridge	SX 637 516	F
MODBURY	23	Stoliford	SX 664 509	g
	24	Ashridge	SX 638 504	g
SHEARLANGSTON	25	Tor Rock	SX 637 495	G

* = DIP SITE

TABLE 2

RIVER ERME FISH SURVEY 1994 - SUMMARY SHEET

RIVER	SITE NO.	SITE NAME		N.G.R.
ERME	1	Erme Pound	S	637 656
	2	Tinners Hut	S	641 629
	3	Lower Piles	S	640 610
	4	Harford Bridge	S	636 596
	5	Stowford Weir	S	636 570
	6	Ivybridge Leisure	S	635 560
	7	U/s Ivybridge STW	S	632 556
	8	D/s Ivybridge STW	S	632 555
	9	Keaton Weir	S	640 545
	10	Fawns Bridge	S	641 531
	11	Ermington STW	S	634 524
BUTTERBROOK	12	D/S Butterbrook Br.	S	635 594
YADSWORTHY STR	13	D/s Hall Cross	S	627 598
LUDBROOK	14	Bittaford Hospital	S	664 577
	15	Peakmill	S	660 559
	16	Ludbrook	S	658 542
	17	Fawns Bridge	S	641 531
UGBROOK	18	U/s Ugborough	S	660 558
	19	Ludbrook	S	660 544
BROWNSTONE	20	Spriddlescombe	S	680 535
	21	Sheepham	S	655 527
	22	Goutsford Bridge	S	637 516
MODBURY	23	Stoliford	S	664 509
	24	Ashridge	S	638 504
SHEARLANGSTON	25	Tor Rock	S	637 495

key
B = Bullhead
E = Eel
F = Flounder
M = Minnow
SL = Stone loach
ST = Sea Trout
RT = Rainbow Trout
@ = Species Absent
# = Salmonid Present

SALMON DENSITY (100m2)		TROUT DENSITY (100m2)		OTHER
FRY	PARR	FRY	PARR	SPECIES
0.00	0.00	8.34	13.80	@
0.00	0.00	5.24	10.44	ST
0.00	0.00	9.88	4.85	ST
0.00	0.00	8.82	6.45	E,ST
2.35	5.89	8.99	8.10	E,ST
1.98	2.69	2.51	15.4	B,E,ST
5.00	9.02	2.89	10.23	ST
13.22	9.95	10.11	20.90	E,ST
15.50	8.17	4.67	5.33	B,E,
#	#	#	#	B,E,M,SL,ST,
#	@	#	#	B,E,M,SL,ST,
0.00	0.00	35.27	14.34	@
0.00	0.00	70.98	6.48	@
0.00	0.00	0.00	8.47	@
4.98	0.38	16.86	23.75	B,E
3.70	2.31	8.29	15.04	B,E,ST
1.21	3.21	5.54	4.98	B,SL,E
0.00	0.00	0.00	0.00	@
1.01	1.51	9.07	15.6	B,E
0.00	0.90	0.65	19.54	B,E
0.00	0.00	0.00	14.98	B,E,SL
1.66	0.83	4.15	3.32	B,E,M,F
0.00	0.00	3.32	14.71	B,E,SL
0.00	0.00	0.00	0.08	E,SL
0.00	0.00	9.64	5.26	E

TABLE 3

RIVER ERME - ALL SURVEYS 1965 - 1994 SALMON DENSITIES (100m2)

RIVER	SITE NAME	SALMON FRY (0+)			
		1965	1971	1988	1991
ERME	Erme Pound	-	-	-	0.00
	Tinners Hut	-	-	-	0.00
	Lower Piles	-	-	-	0.00
	Harford Bridge	-	-	-	0.00
	Pit Hill wood	-	-	-	-
	Stowford Weir	-	-	-	3.48
	Ivybridge Weir	-	-	-	-
	Ivybridge leisure centre	-	-	0.58	5.67
	Factory Bridge	-	-	-	-
	U/S Ivybridge STW	-	-	3.17	1.60
	D/S Ivybridge STW	-	-	10.04	8.12
	Cleeve Bridge	-	-	-	-
	Keaton Weir	-	-	-	18.81
	Thornham Bridge	-	-	-	
	Fawns Bridge	-	-	-	4.14
	Ermington STW	-	-	-	8.02
BUTTERBROOK	D/S Butterbrook Br.	-	-	-	0.00
YADSWORTHY STR	D/s Hall Cross	-	-	-	-
LUDBROOK	Bittaford Hospital	-	-	-	-
	Peakmill	-	-	-	0.00
	Ludbrook	-	-	-	21.97
	Fawns Bridge	-	-	-	1.27
UGBROOK	U/s Ugborough	-	-	-	-
	Ludbrook	-	-	-	12.19
BROWNSTONE	Spriddlescombe	-	-	-	0.00
	Sheepham	-	-	-	0.00
	Goutsford Bridge	-	-	-	22.41
MODBURY	Stoliford	-	-	-	0.00
	Ashridge	-	-	-	0.00
SHEARLANGSTON	Tor Rock	-	-	-	0.00

KEY

= Species Present

@ = Species Absent

SALMON PARR (1++)

1994	1965	1971	1988	1991	1994
0.00	0.00	0.00	-	0.00	0.00
0.00	0.00	0.00	-	0.21	0.00
0.00	0.00	0.00	-	0.00	0.00
0.00	0.00	0.00	-	0.00	0.00
-	0.00	0.10	-	-	-
2.35	0.00	0.90	-	2.32	5.89
-	0.00	0.00	-	-	-
1.98	-	-	9.75	5.89	2.69
-	0.00	0.40	-	-	-
5.00	-	-	25.17	16.05	9.02
13.22	-	-	12.47	19.44	9.95
-	0.18	0.30	-	-	-
15.50	0.32	1.50	-	2.58	8.17
-	12.75	6.50	-	-	-
#	3.61	0.90	-	1.87	#
#	0.92	1.60	-	1.97	@
0.00	-	-	-	0.00	0.00
0.00	-	-	-	-	0.00
0.00	-	-	-	-	0.00
4.98	-	-	-	0.00	0.38
3.70	-	-	-	6.86	2.31
1.21	-	-	-	5.93	3.21
0.00	-	-	-	-	0.00
1.01	-	-	-	3.05	1.51
0.00	-	-	-	0.00	0.90
0.00	-	-	-	0.00	0.00
1.66	-	-	-	0.00	0.83
0.00	-	-	-	0.00	0.00
0.00	-	-	-	0.00	0.00
0.00	-	-	-	0.00	0.00

TABLE 4

RIVER ERME - ALLSURVEYS 1965 - 1994 TROUT DENSITIES(100m2)

RIVER	SITE NAME	TROUT FRY (0+) 1965	1971	1988	1991
ERME	Erme Pound	-	-	-	7.05
	Tinners Hut	-	-	-	11.88
	Lower Piles	-	-	-	9.76
	Harford Bridge	-	-	-	2.72
	Pit Hill Wood	-	-	-	-
	Stowford Weir	-	-	-	4.93
	Ivybridge Weir	-	-	-	-
	Ivybridge leisure Centre	-	-	0.00	2.94
	Factory Bridge	-	-	-	-
	U/s Ivybridge STW	-	-	2.18	2.52
	D/s Ivybridge STW	-	-	4.23	3.20
	Cleeve Bridge	-	-	-	-
	Keaton Weir	-	-	-	6.27
	Thornham Bridge	-	-	-	-
	Fawns Bridge	-	-	-	3.74
	Ermington STW	-	-	-	9.08
BUTTERBROOK	D/S Butterbrook Br.	-	-	-	101.23
YADSWORTHY STR	D/s Hall Cross	-	-	-	-
LUDBROOK	Bittaford Hospital	-	-	-	-
	Peakmill	-	-	-	12.58
	Ludbrook	-	-	-	37.54
	Fawns Bridge	-	-	-	5.51
UGBROOK	U/s Ugborough	-	-	-	-
	Ludbrook	-	-	-	26.82
BROWNSTONE	Spriddlescombe	-	-	-	8.39
	Sheepham	-	-	-	1.18
	Goutsford Bridge	-	-	-	11.86
MODBURY	Stoliford	-	-	-	1.18
	Ashridge	-	-	-	0.00
SHEARLANGSTON	Tor Rock	-	-	-	10.52

KEY
= Species Present
@ = Species Absent

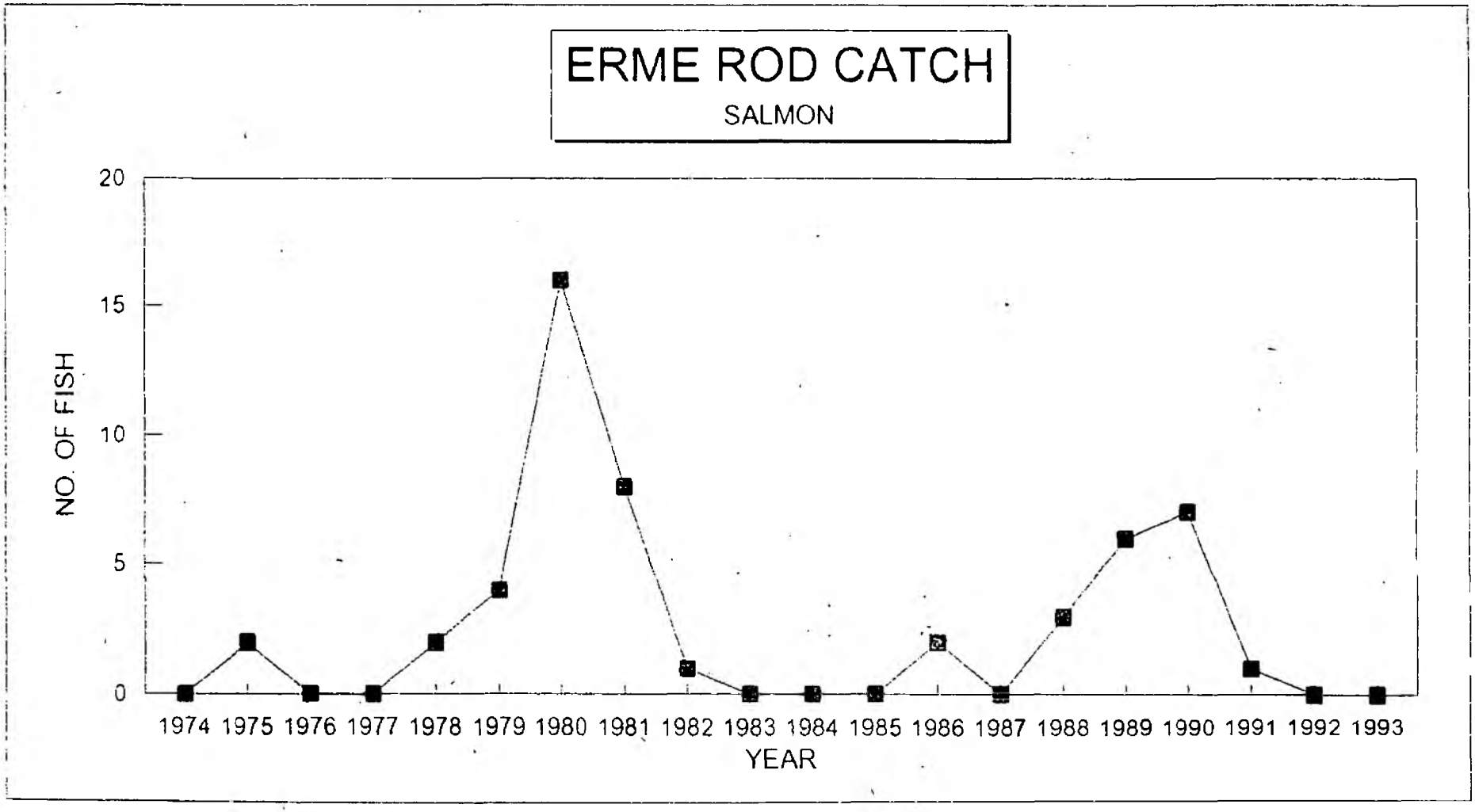
PARR (1+) AND OLDER

1994	1965	1971	1988	1991	1994
8.34	9.37	20.00	-	12.93	13.80
5.24	9.44	11.9	-	16.89	10.44
9.88	7.83	15.1	-	21.59	4.85
8.82	6.40	12.00	-	9.07	6.45
-	9.61	17.60	-	-	-
8.99	14.76	8.60	-	9.86	8.10
-	4.23	19.60	-	-	-
2.51	-	-	30.54	34.46	15.4
-	9.63	9.10	-	-	-
2.89	-	-	27.03	11.46	10.23
10.11	-	-	36.17	10.25	20.90
-	14.35	10.00	-	-	-
4.67	7.82	7.00	-	9.77	5.33
-	9.36	8.20	-	-	-
#	10.84	8.70	-	5.34	#
#	4.46	7.90	-	3.28	#
35.27	-	-	-	21.78	14.34
70.98	-	-	-	-	6.48
0.00	-	-	-	-	8.47
16.86	-	-	-	21.43	23.75
8.29	-	-	-	27.01	15.04
5.54	-	-	-	6.36	4.98
0.00	-	-	-	-	0.00
9.07	-	-	-	10.37	15.6
0.65	-	-	-	8.88	19.54
0.00	-	-	-	2.36	14.98
4.15	-	-	-	1.98	3.32
3.32	-	-	-	10.10	14.71
0.00	-	-	-	5.64	0.08
9.64	-	-	-	17.54	5.26


RIVER ERME SURVEY SITES1994
Figure 1
1
2
ERME
3
BUTTERBROOK
13
4
12
14
5
6
15
18
7
LUDBROOK
8
16
19
UGBROOK
9
10
20
11
17
21
BROWNSTONE
22
23
24
MODBURY
25
SHEARLANGSTON
N
km
0
1
2
3
4
5
scale
Key
QUANTITATIVE SITE
SEMI-QUANTITATIVE SITE

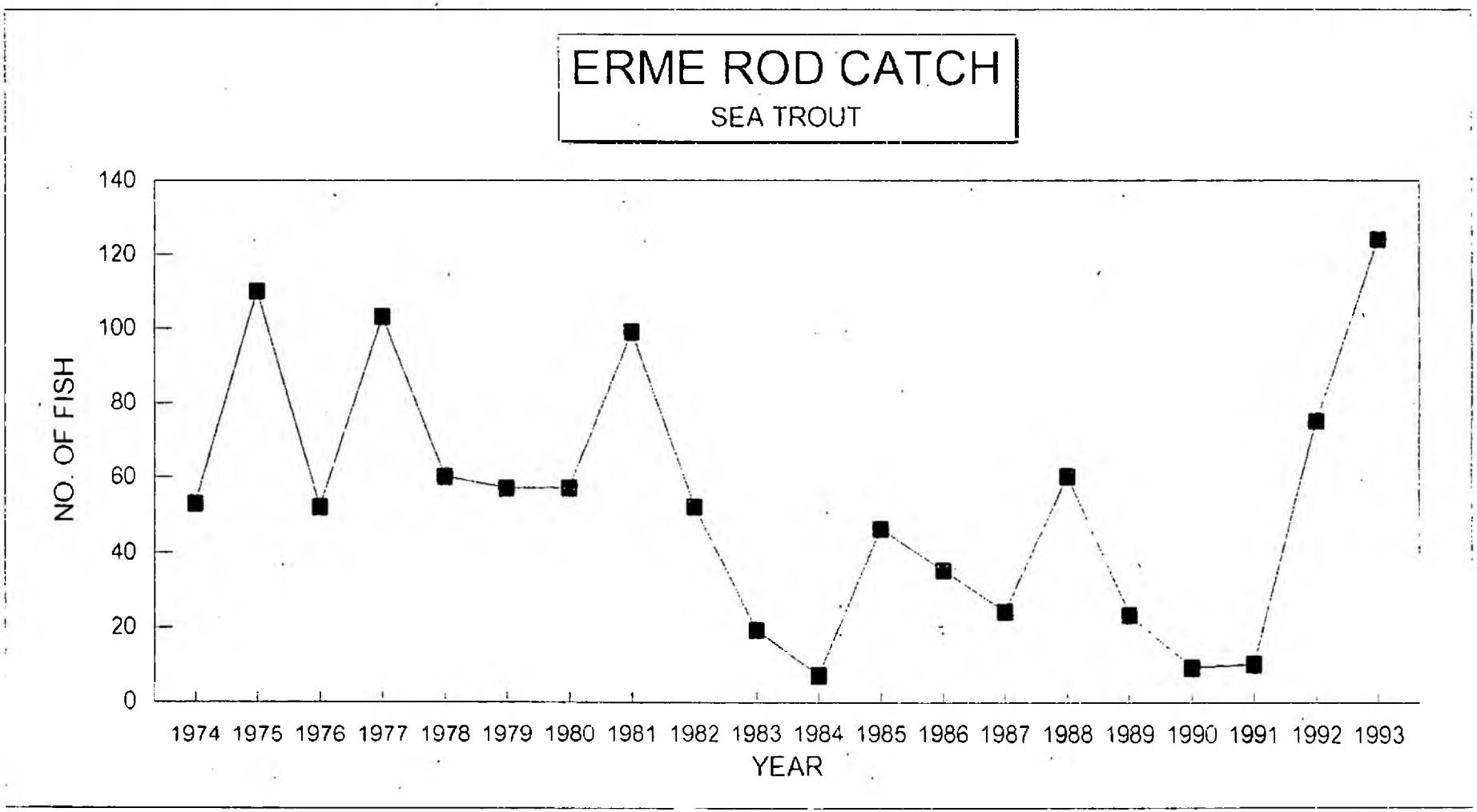
APPENDIX B

SALMON ROD CATCH 1974-1993


ERME ROD CATCH
SALMON
NO. OF FISH
20
15
10
5
0
1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993
YEAR

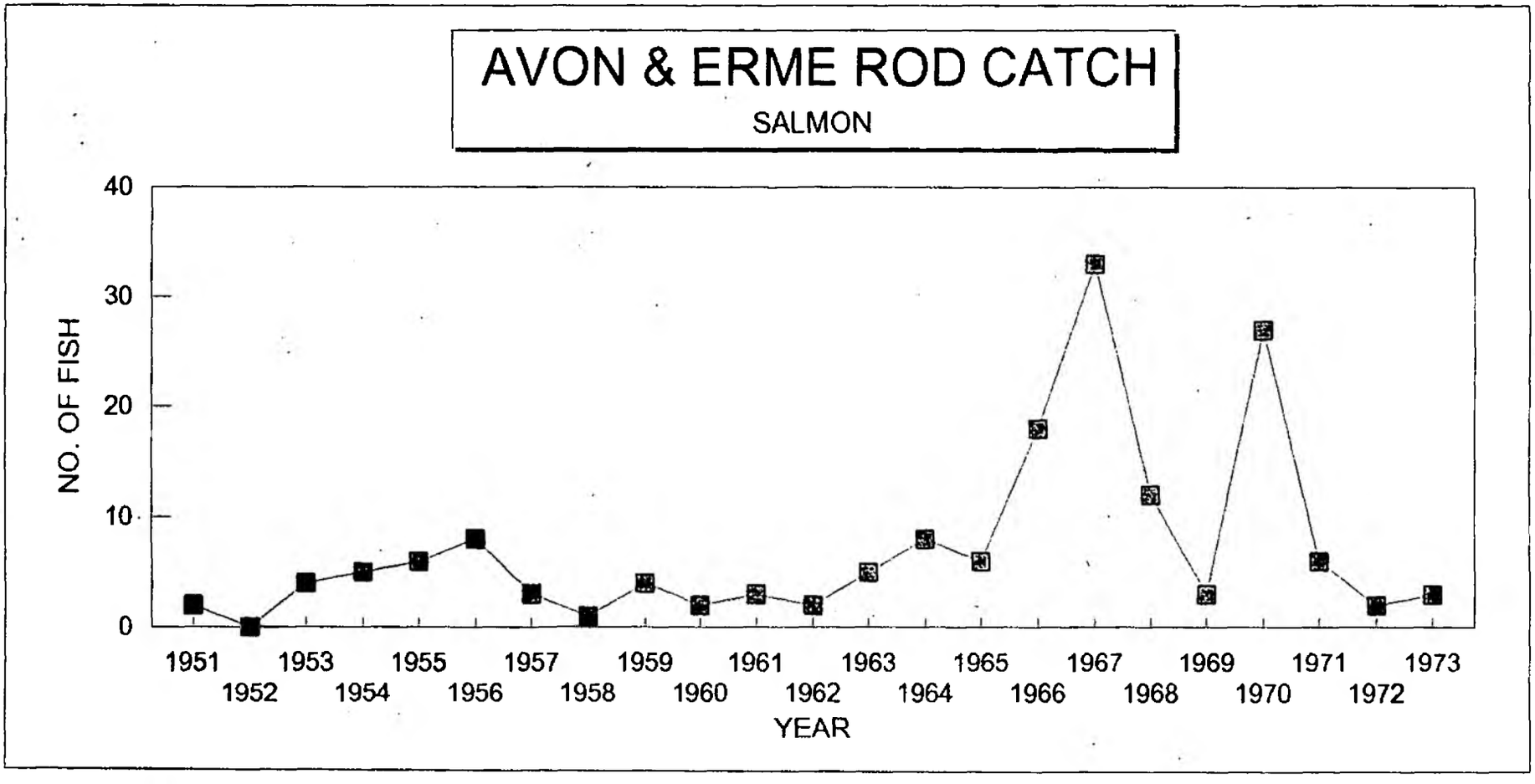
APPENDIX C

SEA TROUT ROD CATCH 1974-1993


ERME ROD CATCH
SEA TROUT
NO. OF FISH
0
20
40
60
80
100
120
140
1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993
YEAR

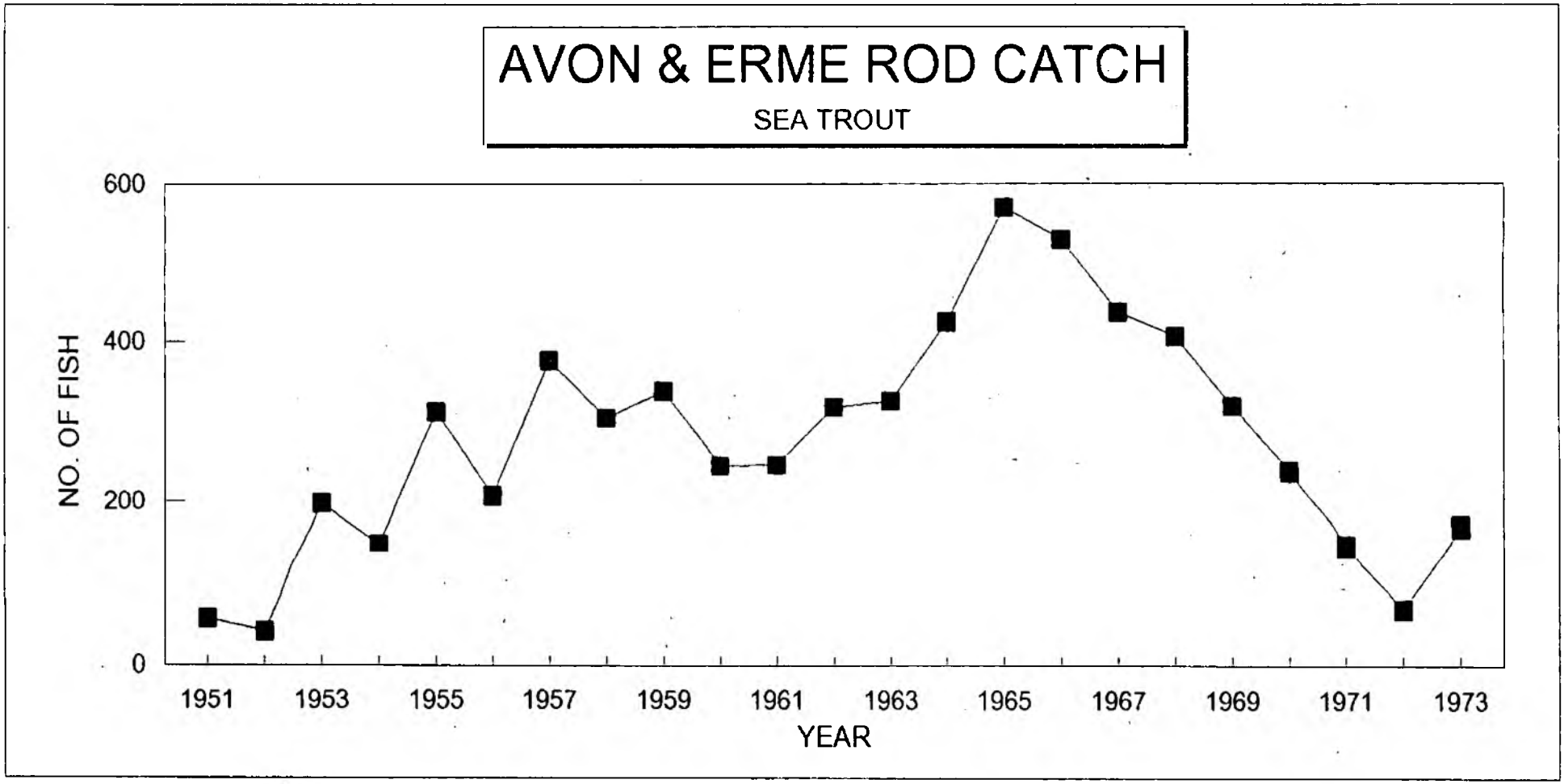
APPENDIX D

SALMON ROD CATCH (AVON & ERME) 1951-1973


AVON & ERME ROD CATCH
SALMON
NO. OF FISH
40
30
20
10
0
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
YEAR

APPENDIX E

SEA TROUT ROD CATCH (AVON & ERME) 1951-1973


AVON & ERME ROD CATCH
SEA TROUT
NO. OF FISH
600
400
200
0
1951
1953
1955
1957
1959
1961
1963
1965
1967
1969
1971
1973
YEAR