

NATIONAL ANGUILLA CLUB BULLETIN



Volume

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EDITORIAL PAGE

Although I contributed to the Bulletin on a reasonably regular basis in the past and have served the National Anguilla Club as Treasurer and Chairman this is my first involvement in production of the Club Bulletin.

Included in this edition is a President's Page from Brian Crawford which very much echoes my feelings about the current state of the Club. I hope that all members of the Club will re-pay Brian's faith by making sure that they provide me sufficient material to make the issue of a Bulletin a regular event, and by this I mean at least every six weeks. Although my circular letter to all members has yet to reveal any articles (excepting Brian's President's Page) a number of members have contacted me on the telephone informing me of changes of address. For your information would you note that Eric Bushell lives in Liverpool 19 and not Liverpool 9 as stated in the Members Directory and his fishing companion Dave Shaw resides at 69 Derwent Road, Warrington, Cheshire.

As members who attended the AGM will be aware, the former Bulletin Editor and ex-member Dave Walker still holds a quantity of unused Bulletin articles. I wrote to him straight after the AGM requesting that he forward this material to me and have sent him a reminder but as to date I have had no response. It is therefore essential that any member who sent material to Dave and has kept a copy forward the copy to me.

Even though I did not receive a complimentary copy of Phil Smith's " Rainbow's End " (I trust this gentle hint will remind the proprietor of Iron Bridge Publications of my worth as a critic in relation to future publications !) I have reviewed the book and have contained my appraisal of it in this Bulletin. I would urge all members to get hold of a copy and make up their own minds, but in my opinion it is both excellent in its content and the quality of its production. Iron Bridge Publications are to be congratulated on the book, as is Phil Smith, for his efforts.

Just to repeat that the Club's Spring Meeting is scheduled for Sunday the 20th March which is the weekend before the National Association of Specialist Anglers Conference which is to be held at Loughborough. I hope we have a full turn out at the Spring Meeting and that the Club is well represented at the NASA Conference, which for many anglers is the highlight of their year.

Following on from the suggestions made at the AGM regarding venues for a Summer Trip I have written to both the North West Water Authority and the Welsh Water Authority making enquiries about fishing in the Lake District and Snowdonia respectively. As yet I have not had a response to my letters but hope to have done so in time for the preparation of an article for the next Bulletin. Both areas have not been visited by the NAC previously although I believe individual members may have fished them. If they can be organised it should provide members with an opportunity of fishing in beautiful surroundings.

Since starting this Editorial I have received the material I had requested from Dave Walker some of which I have included in this Bulletin. I make no apologies for re-printing Dr Terence Coulson's article which I believe originally appeared in the Club Bulletin before being printed in the now defunct " Fishing magazine ". Although Terry Coulson had long since left the Club, I was an avid reader of his articles in various fishing magazines during the 1960's and as an angler and Scientist

I do not think that the thinking behind his article can be faulted even though we are now 20 years on.

The report entitled " The River Severn Eel Fishery" (which I think was provided by Brian Crawford) makes very interesting reading. I have experience of the Severn Trent Water Authority's elver stocking policy when fishing with Dave Holman on the Shropshire Meres. Although I totally agree with the Water Authority's thinking behind stocking elvers in still waters, it had the short term effect of making what had been a very productive mere, in terms of reasonably sized eels, not worth continuing to fish. It seemed impossible to give the larger eels sufficient time to take the bait as a result I have not fished that particular mere since.

I have included in this Bulletin two articles by Dave Taylor concerning the conversion of a certain brand of compact bite indicator together with instructions for the construction of a remote sounder box. In my capacity as Editor I have deleted all references to both the make of the particular bite alarm and the Company that manufactures it. I hope that it will not need the greatest of IQs to work out the bite indicator that is being written about. For those of you that need a little assistance I should make it quite clear that the article is not intended to be used in relation to alarms going under the name of AJS's Heron's BJ'S etc. Could I add as a final note that I felt it more important to get this Bulletin out to members rather than hold it back to await further material I noted in the latest issue of the Angling Times that Brian had inserted a letter to try to recruit new members. It is essential if we are both to recruit and keep members that the Club Bulletin returns to being the magazine that it was in past years. For all of those new members who have not yet contributed to the Bulletin please make some attempt to forward your contributions to me even if they only amount to a letter to me commenting on an article that was included in a Bulletin. There are a number of members who have been in the Club for a good many years who I cannot recollect in recent years providing any material for the Bulletin. I undertook to the 1987 AGM to issue regular Bulletins and this I intend to do. Other than writing the whole magazine myself, I can only do this with your help.

All the best Mark Davies.

PRESIDENT'S PAGE

I have to admit leaving the AGM in November feeling a great deal better than I did travelling there, following the frank discussions and feel of new life in the members present. I was further pleased by the fact that Tony Gilbert (No.132) joined and will be fishing with Dave and Pete. This means that at present we have 18 members and I hope most will renew for next year. You should all have received a current Directory of Members and the Minutes of the AGM. As instructed at the AGM I have prepared and sent out letters to the weeklies and monthlies, informing their readers that we are seeking an increase in membership. Therefore, it is possible we will have several new faces at the Spring General Meeting (SGM). Remember this has been provisionally set for March 20th, the weekend after the season closes and the weekend before the NASA National Angling Show (the new name for the Conference). I would like to see many of you there (it is back at Loughborough). There is a good chance there will be another paper on eels, either Paul Gustafson or Mick Bowles.

Following the AGM, I looked at my old Bulletins and was sad to see that my collection started with number 38 (February 1968) the time I joined the NAC and also the NASG (now NASA of course). Looking through Bulletin No.38, I was once again reminded of the NAC in those 'good old days'. In 1968 there were about 20 members. In 1967 the numbers were substantially fewer and the NAC had actually advertised for members for the first time - an event we have just repeated 20 years later. As I felt Issue 38 was indicative of the NAC at that time, and one of the only Bulletins to be almost written by Terry Coulson - then Chairman, I have passed a copy onto Mark for possible inclusion in a Bulletin today. I hope on reading it it gives you food for thought - and dare I say it - even material worth a comment or two from you.....

Together with issue 38, I have passed onto Mark, copies of the Report on the 1967 Session Reporting Season, also compiled by Terry. I hope he is able to produce a copy of this for you as it illustrates that nothing has really changed in 20 years. Then as now, 4 members made 50% of the total Club effort and another 4 made only 4% of the total Club effort for the 1967 season. This was reflected in the results for 1967 where the 4 most successful members caught 60% of eels and the 4 least successful caught 1.5% of eels.

To also give some idea of who were members in 1966 - 68 and the type of articles appearing in the Bulletin, I have sent Mark a copy of the Indexes for 1966-67 and 1967-68. These Mark may also be able to reproduce for you as they also make interesting titles of what could have been very interesting articles. However, I don't think any present member has the relevant Bulletins. In 1966-67 (Volume 3) there were 10 Bulletins (Nos. 23-32) and 59 Articles and letters including one called "Referendum: The Future of the NAC". Another three articles were about "Double Figure Eels", and members in 1966-67 who were writing articles apart from Terry

Coulson were Jack Bellamy, Ray Brown, Bob Church, Jim Gibbinson, Trevor Housby, Bob Jones, Pete Rayment Arthur Sutton and Peter Wheat.

The Index to the 1967-68 Bulletins (Volume 4) contains details of only 6 Bulletins containing 40 articles and letters, with the above members writing plus Fred Wagstaff and Dave Marlborough plus others.

It is very interesting to go back 20 years or so by looking at these old publications. It brings back pungent memories of Club meetings in the cold upstairs room at the Kings Head, Melton Mowbray. The first NAC meeting I attended was on Sunday, November 7th, 1971 with 17 other members present. I had been elected Membership Secretary at the previous AGM in 1970, where just 11 members were present and 4 other members sent apologies (mine was missed out of the list of apologies but my name was mentioned later in the minutes), so the Club had about 16 members at that time. However as I had just started at Sussex University at Brighton, I was unable to attend but had offered my services to the Club in anyway they could use me. It seems the Club still has a use for my services after 18 years on the Committee. (Interesting to note that we had a member then called Jan Szwechlowicz, which caused a few problems in pronunciation). Only myself and Ernie Orme remain from those early 1970's. It was at that meeting that Terry Coulson stood down as Chairman and was replaced by Alan Hawkins.

Also following the Club's great trip to Castle Howard Lake in the summer of 1969, Arthur Sutton had been forced to resign due to mis-reporting of eels caught. He returned as a provisional member after Terry Coulson stood down as Chairman, causing Terry to resign from the Club altogether.

As I've said before - some things never change do they.

Well it's been interesting looking back in time, on eeling days gone by and of NAC members of that era. Now that it's Winter and I am unable to go eeling due to the weather and pressure of work, I could be persuaded by present members to continue my travels in the past and rambling on about the 'good old days'. It would be nice if some of you could write in to the Editor to encourage me to continue and for you to perhaps comment on the things I've said.

So guys, it's up to you, my typing finger is poised, my large file of past meetings is still open - since that meeting on that cold November afternoon in 1971, where it took me 4 hours to get there and 4 hours to return home, I have never missed a meeting. I nearly did at our last AGM as Gordon (the jinx) can tell you. My car was misbehaving on the way there but gave up the ghost on the M54 going home. We sat for 2 and a half hours in a freezing car with a dead battery and alternator. Life can be fun.

Tight lines

Brian Crawford

When do eels feed most regularly? Dr. TERENCE

COULSON has tried to find the answer, by...

'Clocking-in' for a night's eel fishing

"THE EEL SELDOM STIRS in the day, but then hides himself; and therefore he is usually caught by night." So wrote Izaak Walton. Two hundred and seventy-odd years later, Richard Walker told us how, finding himself beaten by the carp or tench or whatever he was after, he would sometimes "on a blazing hot day . . . turn with an unholy glee to the business of catching a big eel."

Between those dates, and since, all sorts of opinions have been expressed about the probable effects of the amount of light on the eel-fisher's prospects.

In his excellent little book, *Eels: How To Catch Them*, Raymond Perrett concedes that eels feed during the day because quite a fair proportion are taken then, but suggests that the reason is partly that fewer anglers fish at night. Mr. Perrett's own experience was that eels come on feed for the first hour or two from twilight, and again an hour or so before dawn.

Among my many eel-fishing friends, I can find almost every possible shade of opinion on this subject. Some agree with Mr. Perrett's view that the twilight periods are best, and some think there is an additional period around midnight which is also good. Some 'gleefully turn' to eel-fishing on a blazing hot day. And there are some whose experience is that prospects are so poor during daylight that they are little interested in throwing out a bait much before dusk, nor much inclined to stay long at the waterside after dawn.

There are even eel-fishers, whose

opinions I respect, who pay great attention to the phases of the moon and take pains to arrange their eel-fishing holidays around the time of new moon, so that prospects shall not be spoiled by bright moonlight.

It's worth trying to get at the facts of the matter, for few of us have so much time available for fishing that we can afford not to be selective. If eel-fishing has to be combined with, say, re-papering the dining-room, it is important to be able to decide wisely which periods of the day and night are best allotted to each — and, indeed, to know how much, if at all, it matters.

As it is, there's a good deal of uncertainty about it, and difference of opinion. But basically, it is not a matter of opinion; it is a matter of fact, and there's no reason why we should not be able to get a factual answer — one correctly based on reliable observations. When experienced anglers' opinions differ so much, we can be pretty sure that mere subjective impressions will not be enough — and we can take fair warning that even careful observations will need to be spread over a wide range of waters if we are to avoid a misleading result.

Before we start making observations of our own, it's not a bad idea to find out whether any of the careful scientific work carried out by zoologists has any bearing.

There is plenty of scientific evidence that the downstream migration of silver eels takes place mainly at night, reaching peaks of activity



THE WRITER unhooks one of the many small eels he has taken from Loch Dochfour.

during the darkest nights. A starry sky, a full moon, or even fires lit on the bank inhibit the eels' movement.

Dr. Winifred Frost, of the Freshwater Biological Association, has published a record of a whole year's eel catch in comparison with the state of the moon, and no angler could fail to be impressed with the sharp peaking of catches during periods of low moonlight.

However, while there is no doubt that the trapping of silver eels is most productive on the darkest nights, we must remember that the eels we catch by angling are generally not the grown, migrating silvers — but the growing, resident yellows.

Profound changes in behaviour

occur during the metamorphosis of the yellow to the silver eel. We shall thus be on thin ice if we assume that the known inhibiting effect of light on the movement of silver eels necessarily implies an inhibiting effect on the feeding of yellow eels. So, while all this work on silvers gives us useful background, it does not answer the angling question and — so far as I know — we must start from scratch.

Of course, many anglers have attempted to study this question already. Those I know about, though, have made two basic errors. First, they have started off looking at the matter in far too much detail, with measurements of light intensity and heaven knows what, amassing information so complex that it might well defy the efforts of a professional statistician to analyse. It is usually wise to stand back from a problem first, and get the general measure of it, before getting bogged down in fine detail. I don't want to disappoint anyone who has invested in a Weston meter to take light readings, but it is worth remembering that the light on the bank has about as much connection with the light where the fish is (which is what counts) as a bankside thermometer-reading has with the water temperature where the fish is.

The second error is the very common one of preoccupation with the *phase* of the moon. Everyone

knows new moons are dark and full moons bright, but even ignoring the effect of cloud-cover, at least as important as the phase is whether the moon is above or below the horizon. A moon which rises at dawn and sets at dusk will certainly not give a bright night, regardless of its phase.

Of course, it is obvious that a brightly moonlit night must also be a relatively cloudless night, and we know that little or no cloud often means a cold night. As Dr. Frost pointed out in her study of silver eels, there is a danger here of confusing effects due to bright moonlight with those due to low temperatures.



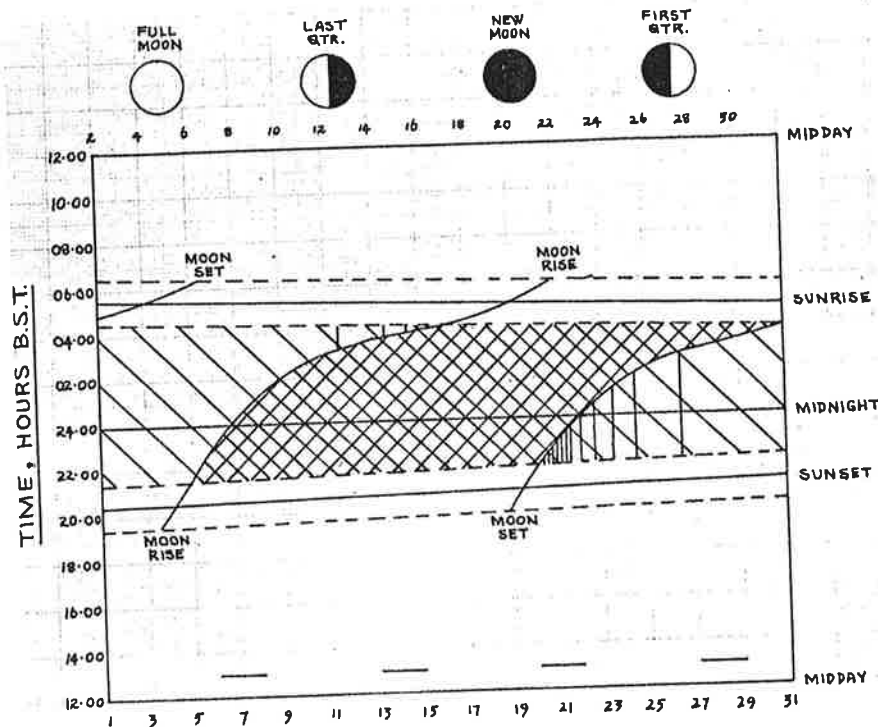
How, then, are we to set about getting our preliminary measure of the question. Plainly, we must keep some records of our eel-fishing during the season — and the simpler they are, the better from every point of view. All we need, I suggest is a note of the times we started and stopped fishing to the nearest half-hour; the date; and the times when the eels were caught — all eels, of course, big and small. If we also want to look for any differences in behaviour between the bigger and the smaller eels, we shall have to weigh them all, too. This is not much of a chore — the majority of serious modern

anglers keep such records, anyway.

At the end of the season, we can occupy our eel-less winter nights by seeing what we can make of these records. The first question, it seems to me, is what our chances of catching eels during day, twilight and night actually turned out to be; never mind about the state of the moon! For this, we need some arbitrary definition of the vague idea of 'twilight'. I have taken it to mean an hour before to an hour after sunrise and sunset.

Now, we add up the total number of hours we spent eel-fishing during day, during twilight and during night. Next, we add up the total numbers of eels caught during these periods. To make a fair comparison, we finally work out the number of hours fishing per eel, for each of the three periods, by dividing the number of hours by the number of eels.

If we now find, for instance, that we caught eels at about the same rate during day, twilight and night, we shall be able to draw a number of obvious inferences which will have immediate effects on our fishing and further study next season. Among these inferences will no doubt be a critical approach to the idea that the moon has much influence in the matter. I am not saying that this is the answer we shall find; I am merely illustrating the wisdom of taking a broad look at the ques-



Explanation of the chart. Each numbered vertical line represents a period of 24 hours. Starting at the extreme bottom left-hand corner, we are at mid-day on May 1. Moving vertically upwards, we pass through the hours of the afternoon and evening of May 1, until we arrive at midnight in the middle of the chart. The date then changes to May 2, and we pass through the hours of the morning of May 2 to mid-day at the top of the chart. We then go to the bottom of the next line, and move up through the hours of the afternoon of May 2, and so on. The times of sunrise and sunset are shown by the solid lines running across the chart, the broken lines on either side marking the 'twilight' period. Night-time is indicated by the diagonal shading. The curved lines show the times of moonrise and moonset, as labelled; the cross-hatching thus marks the periods when the moon is below the horizon, and the nights are dark. The phases of the moon are shown pictorially across the top of the chart, the periods between last quarter and first quarter being indicated by the vertical shading.

tion before bringing that Weston meter into action.

If, on the other hand, we find substantial differences between the three figures, we shall probably want to know more about the effect of moonlight. But let's still keep it broad and simple. I suggest simply comparing the night-time catches in hours per eel during 'bright night periods' and 'dark night periods'. Forget the effects of cloud cover, for the time being. We can be sure that, on average, nights between last quarter and first quarter will have been darker than those between first quarter and last quarter; that nights when the moon was below the horizon were darker, on average, than when it was above; and that any temperature effects during these pairs of periods will — very roughly speaking — cancel out.

I did this exercise with my own eel-fishing last season and the results will serve as an illustration. You can see from the table that I spent a total of 768 hours fishing for 51 eels, or about 15 hours per eel — and if you think I enjoyed some pretty slow sport, you're right, for I spent a lot of time on a water we knew perfectly well contained very few eels! You can see, too, that it took me about two and a half times longer to catch an eel during the day than during the night; and about twice as long during twilight. These results give no support to the idea that twilight is a particularly good period; yet, although the rate was highest at night, they might make you think twice about packing up too soon after dawn.

Still, the differences are big enough to leave us interested in the possible effects of the moon, and the second part of the table shows that while there was not much difference in the rate of catch at night between 'new moon fortnights' and 'full moon fortnights', yet the eels came twice as fast when the moon was below the horizon as when it was above, regardless of phase.

These results, I must stress, are no more than an illustration; we've already said that one angler's results on a limited range of waters do not enable us to draw any general conclusions. But if enough anglers kept this kind of record, and we eventually combined them, we could reasonably expect to get

TABLE OF RESULTS

Number of hours spent fishing			Number of eels caught		
Day	Twilight	Night	Day	Twilight	Night
May 37	15	28	2	0	3
June ... 78	35	52	4	4	2
July 66	26	40	4	1	2
Aug. 61	26	49	1	0	0
Sept. 83	46	106	3	3	22
Oct. 6	4	10	0	0	0
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331	152	285	14	8	29
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Average hours spent per eel caught: Day, 24; twilight, 19; night, 10.

Of the 29 eels caught at night:

State of the moon	No. of eels	Hours spent	Hours/eel
Last qtr.-first qtr. (around new moon)	14	132	9½
First qtr.-last qtr. (around full moon)	15	153	10¼
Moon below horizon	20	142	7
Moon above horizon, regardless of phase	9	143	16

our factual answer. This is a project we have in hand in the National Anguilla Club.

One final point: I found it a great asset to draw up a set of charts like the one illustrated. They are easy and make a useful job for an eel-fisher in winter. Times of sunrise and sunset and phases of the moon may be taken from your *Angling Times* Diary, and the times of moonrise and moonset from an almanac. They are much more informative than anything you can

look up in a diary or newspaper, and give the whole season's picture of night and day at a single glance. What's more, they are an ideal way of keeping the records we've been talking about; you simply mark the periods fished and times of eels caught directly on the chart, which makes the final analysis very easy. And if you want to take your analysis into more detail, there is room across the top to note the waters fished, temperatures, cloud-cover — or even those Weston meter readings!

A NEW TOOL FOR THE ANGLER'S WORKSHOP

IF, LIKE ME, you're rather 'cack-handed' when it comes to doing intricate little jobs such as finishing off a whipping to a rod or float ring, you must often have wished for some means of holding the job firm while you got to work with both hands — a 'third hand', some little vice you could use on the kitchen or dining-room table without risk of a domestic incident. Well, we seem to have got it in the shape of a remarkable little tool being marketed by the Coventry Movement Co. Ltd.

Called the 'Multi-Mini' universal vice and stand (picture), the new device is basically a pin-vice on a stand, but it is so very flexible and adaptable that it can be used for virtually any light holding job — as a fly-tying vice, table-top camera stand, a soldering or gluing clamp.

The jaws of the vice have a maximum capacity of 11/16 in. (17.5 mm) and can be rotated 360 degs.

The Multi-Mini universal vice and stand.



in any plane and lowered or raised in height to obtain exact positioning for the job in hand. A set of self-adhesive hard-rubber jaw liners is supplied for use on delicate surfaces, and the stand has a non-skid rubber base. Screw holes are provided for fixing it to a workbench if need be, but it is, in fact, perfectly stable as a free-standing tool.

All in all it is an extremely versatile and useful little tool, and well worth a place on any anglers' workbench for a wide variety of jobs. It costs 67s. 6d. and can be had from tool-shops and do-it-yourself stores.

R.C.

From Don Evans, J.F.C.

THE RIVER SEVERN EEL FISHERY

1 Introduction

- 1.1 The River Severn supports commercial elver, yellow eel and silver eel fisheries, with additional interest shown in angling for eels.
- 1.2 The alleged over-exploitation of eels and elvers was brought to the notice of the FAC on 17 December 1981 (Minute 396). Following several previous representations, mainly by commercial eel netmen, the Authority had received a petition signed by 300 people and organised by the British Eel Angling Club. It sought to secure controls over elver fishing on the grounds that over-exploitation of the elver was leading to low numbers of adult eels for anglers to catch, with similarly low numbers of silver eels available to migrate to the sea for spawning.
- 1.3 Before the Authority could respond to requests for action, it was necessary to carry out a detailed investigation. The study and control of elver fishing had already begun with the introduction of elver net licensing on 1 January 1980. The second approach was to set up a project entitled "The age structure of the eel, Anguilla anguilla (L) population in the catchment of the river Severn, with relation to elver exploitation." A two year contract, financed from the Authority's Research and Development budget, was awarded to Liverpool University commencing April 1983. The work was carried out by Dr Miran Aprahamian, and his final report has now been received.

2 Background

- 2.1 The elver fishery extends from Sharpness Dock on the east bank and from Lydney Waste Weir on the west bank, upstream to Upper Lode Weir at Tewkesbury. At any time, the zone of elver exploitation is distributed over approximately 10 km and this zone moves progressively up the estuary as the elvers migrate upstream. There are no details on the actual or relative size of the elver recruitment as there is no system for monitoring their migration. Similarly there is no idea of what proportion of the run is removed by the commercial fishery and what remains for recruitment into the yellow and silver eel fisheries.
- 2.2 Although there is no requirement for the elver fishermen to disclose their catches, the annual catches for the years 1978 to 1985 inclusive have been estimated at 20 - 55 tonnes, with a first sale catch value in the region of £300,000.

- 2.3 The different types of yellow eel fishing extend throughout the lowland rivers of the catchment, with high density fisheries in the Lower Severn, Lower Avon, River Frome, River Leadon and River Tern catchments. The main method of fishing for yellow eels has been by putcheons, and in 1977 it was estimated that this fishery, comprising 300 - 350 putcheons, was taking 7 tonnes.
- 2.4 The silver eel fishery is concentrated mainly on the River Leadon and on the main River Severn downstream of Tewkesbury. The main method of fishing is by eel net but there are also a number of fixed eel traps in operation. The total catch of silver eels is probably in the region of 2 - 5 tonnes, representing a yield of 0.005 kg ha⁻¹ for the whole catchment.
- 2.5 Since 1977 the Authority has followed a policy of stocking elvers in certain areas of the catchment.
- 2.6 The aim of this study was to investigate whether the elver fishery was significantly affecting the yellow and silver eel fisheries and, if so, make recommendations for mitigation. It was decided to investigate the year-class strength of the eel population from a number of tributaries situated before, within, and after the zone of elver exploitation, and, if significant differences did exist, assess whether this was related to the elver fishery. As eels are not distributed evenly within a system a number of sites in each tributaries' catchment were investigated.

3 Methodology

- 3.1 Sampling was carried out at 112 sites between the River Little Avon, in the lower estuary, and the River Camlad, in the upper reaches. Eels were caught by electric fishing, except at Berthpool on the River Perry and at Bullo and Framilode on the estuary where fyke nets were used. The sample sites could be divided into 12 zones according to river gradient and degree of elver exploitation as follows, where the figure in parenthesis is the number of sites per river.

Zone 1 is downstream, Zones 2 and 3 within, and Zones 4 - 10 upstream of the major elver exploitation area.

Zone 1 Lower estuary: River Lyd (3), River Little Avon (3).

Zone 2 Lower estuary to Llanthony and Maisemore Weirs at Gloucester: Estuary (2), Blakeney Brook (3), Westbury Brook (3), River Frome (5).

Zone 3 Llanthony and Maisemore weirs at Gloucester to Upper Lode weir at Tewkesbury: River Leadon (5), Ell Brook (2), Glinch Brook (1), River Swilgate (3).

Zone 4 River Avon catchment: Bow Brook (2), Isbourne Brook (2), Badsey Brook (1), River Arrow (1), River Alne (1), Warwickshire Stour (2), Sherbourne Brook (2).

Zone 5 Upper Lode weir at Tewkesbury to Diglis Weir at Worcester: Queenhill Brook (3).

- Zone 6 River Teme catchment: Leigh Brook (2), Sapey Brook (1), Ledwyck Brook (1), Kyre Brook (2), River Rea (1).
- Zone 7 Diglis weir at Worcester to Coalport: Grimley Brook (1), Shrawley Brook (1), Dick Brook (2), Worcestershire Stour (4), Smestow Brook (3), Dowles Brook (2), Borle Brook (3), River Worfe (3).
- Zone 8 Coalport to Welsh Bridge at Shrewsbury: Cound Brook (6), River Tern (3), River Roden (3), River Strine (2), River Meese (3), River Severn (1).
- Zone 9 Welsh Bridge at Shrewsbury to Vyrnwy confluence: River Perry (13).
- Zone 10 Upstream of Vyrnwy confluence: Guilsfield Brook (3), River Morda (3), Afon Cain (2), River Camlad (3).
- 3.2 Sampling was carried out in the River Dee catchment, by way of control, as no commercial elver or eel fishery exists and there had been no programme of elver stocking.
- 3.3 Age determination was made by burnt otoliths and was validated using eels that had been stocked as elvers in areas having low natural populations of eels.

4 Results

- 4.1 From the rate of upstream migration of eels determined for the unexploited system of the River Dee (North Wales) and from the published literature, it is considered that elvers should reach Diglis and Powick Weirs (at Worcester) and an equivalent distance up the River Avon by the end of their first year in freshwater. Upstream of this it is difficult to speculate on their rate of progress because of topographical differences between the river systems.
- 4.2 Male eels spend between 6 - 20 years in freshwater migrating at a size of between 287 - 439 mm. Females emigrate from the catchment after 9 - 27 years and at sizes ranging from 350 - 841 mm.
- 4.3 Analysis of age structure for the catchment as a whole suggests a general trend of increase in eel age with increase in distance upstream, caused by the slow migration and to increasing percentage of the longer lived females. A general, slow migration upstream should result in a strong representation of young eels near the estuary. However, at sites downstream of Tewkesbury (Zones 1 - 3) the expected predominance of younger age groups did not occur and peak numbers of eels were for ages seven and eight. The reason for this could be heavy catches of elvers in the last seven or eight years, but this interpretation is made unlikely by the fact that age frequencies were similar downstream of the catching zone.
- 4.4 In certain areas of the catchment where elver stocking had been carried out, distributions showed that population numbers were considerably larger than they would have been if derived solely from natural immigrants. For example, over 50% of the total survey catches for the R Meese and R Perry had arisen from elver stockings.

- 4.5 With the exception of the stocked tributaries, populations and biomasses showed the expected trend of decreasing with distance upstream. Highest values were obtained from tributaries of the River Severn downstream of Worcester, with sites in the River Avon and Shropshire catchments supporting lower stocks.
- 4.6 Factors affecting upstream migration include the ease with which weirs can be passed. Also the age at which young eels migrate into tributaries may be influenced by density of stock in the main river.

5 Conclusions

- 5.1 The results (paragraph 4.3) suggest that recruitment of eels to the system may have declined. There is no significant evidence to support the view that the alleged decline in eel catches is due to over-exploitation of the elver fishery as a natural fall in the abundance of elvers would show the same effect. Stocking tributaries with elvers can lead to considerable enhancement of adult eels in those tributaries and subsequently in the main river.

6 Recommendations

- 6.1 On the basis that elver stocking has been shown to significantly enhance the numbers of eels on the recipient rivers, it is recommended that elver stocking should be continued. The largest quantity of elvers stocked to date was 405 kg in 1979. It is recommended that 300 kg should be the minimum amount for the stocking programme, for which a budget of £6,000 would be required. This represents a minimal investment in the interim whilst the nature of the eel resource is more fully assessed.
- 6.2 The Aprahamian report has given sound guidelines as to eel densities in the R Severn catchment. However, much of the available information on commercial catches is based on hearsay evidence. The correct management of the eel resource depends on more accurately assessing the degree to which eels and elvers are harvested commercially. It is therefore recommended that a survey is carried out to determine the present level of exploitation of both elvers and adult eels.
- 6.3 Consideration should be given to the proposal for eel fishery catch returns. Such a system would need an order under Schedule 3, Part 1, paragraph 1(c) of the Salmon and Freshwater Fisheries Act 1975.
- 6.4 Consideration of a fixed or flexible close season for elvers should be deferred pending the outcome of the survey recommended in 6.2 (above). However, in view of the potential that such a measure would have, catch limitation by close season may in the long term be an economically viable alternative to stocking.
- 7 The Committee is asked to indicate their view on the above recommendations.

BITE ALARM (REMOTE SOUNDER LOX TYPE)

Extension speaker for use in Eiv with Volume Control.

This conversion is comparatively easy to manufacture and is very useful.

The Parts Needed

1. Post Office 1 type speaker (usually available from a Telecom engineer or from an old telephone)
2. SK Log Potentiometer and knob
3. 2 X 2.5mm jack plug and socket (mono)
4. Desired length of cable for extension.
5. Small box for extension speaker.

Conversion-Sounder Lox

The Sounder Lox is very easy to work on if you follow the steps listed below;-

1. Remove the batteries,
2. Take one lead off the speaker (the longest one). These are not polarised so it will not matter which one.
3. Mount the SK potentiometer and the 2.5 mm jack socket into the box taking care to leave room for the batteries.
4. Connect up as shown in diagram no 1.

Note

The connections to the speaker are much neater if done with a crimper and ring terminals. The SK potentiometer will have three terminals and as long as the middle one is used you will have no problems. Keep joints as neat as possible. A spray with WD 40 would not go amiss.

The Cable

The cable needs to be very flexible two core cable. A multi strand bell wire is ideal. This can be obtained from any electrical shop. The two jack plugs are then soldered to each end. It does not matter which way round they are connected. When the joints are made also fill the plugs with silicon sealant to keep them water tight.

The Extension Box

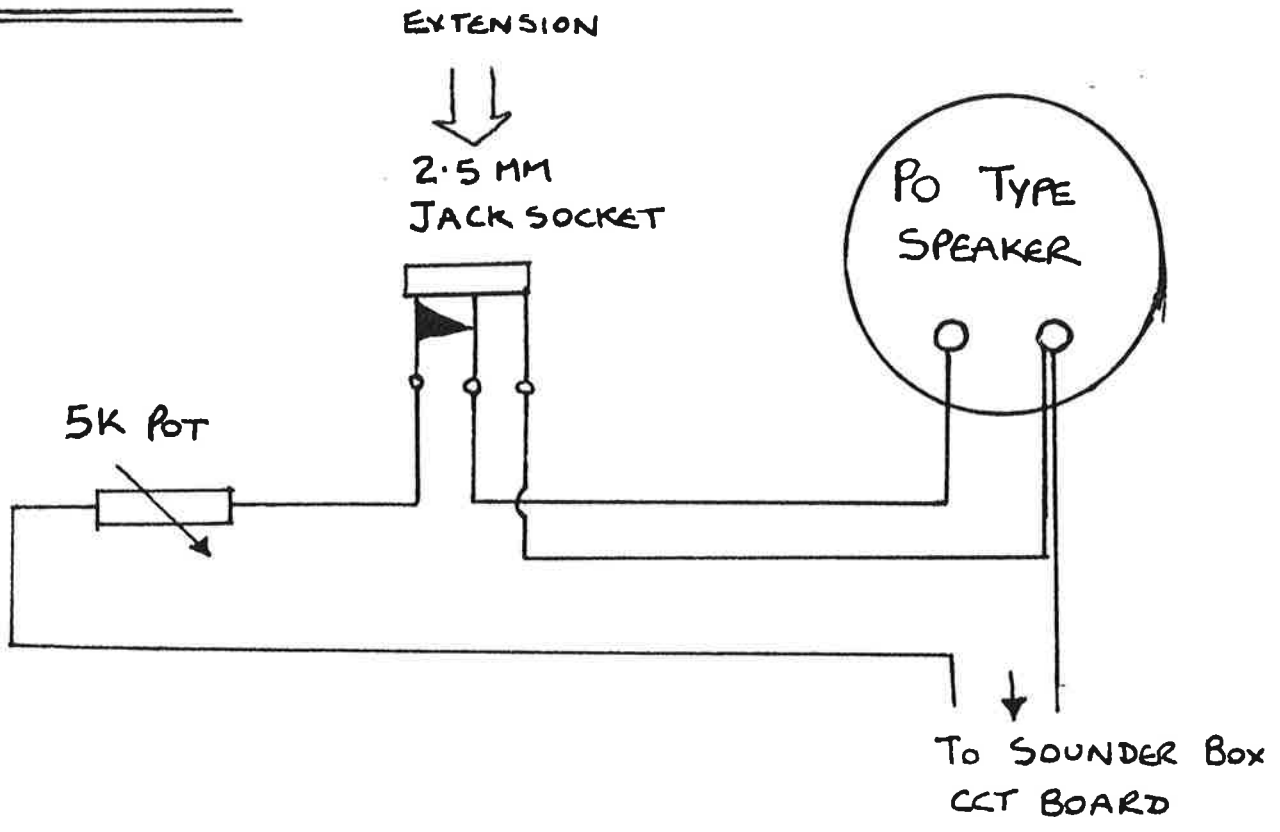
A suitable sized box needs to be obtained and the speaker and the jack socket mounted in it. If you have obtained a PO speaker then a 40mm hole saw cuts the correct hole. It is a simple wiring job to connect the two on the socket to the speaker.

If you have any problems with construction or in obtaining the parts please contact me on (0733)61538

NB, When using the above it is wise to put the extension box under a plastic bag

Dave Taylor,

DIA N° 1



BITE INDICATOR CONVERSION (COMPACT TYPE)

This project is fairly complex and involves a working knowledge of electronics,

Farts Needed

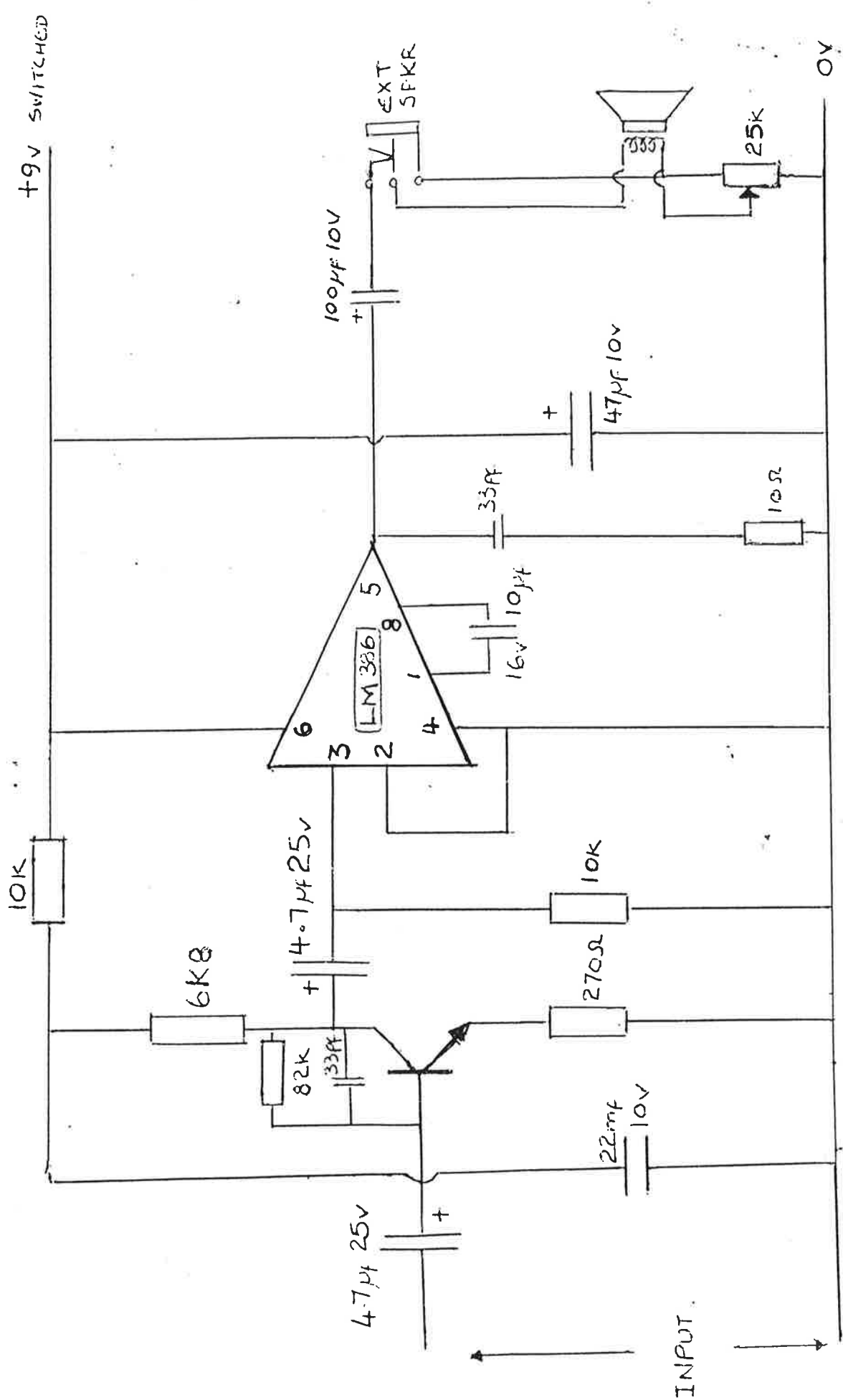
1 PC Type Speaker
1LM 336 amp
1 2.5mm jack socket
1 miniature 5K log potentiometer and knob
Vero board
2 X 10K resistor
1 X 82K "
1 X 6K8 "
1 X 270 "
1 X 10 "
2 X 4.7uf 25 capacitor
1 X 22nf 10v "
2 X 33pf 6v "
1 X 10nf 16v "
1 X 47nf 10v "
1 X 100nf 10v "
1 transistor LC 107(Not critical)

Construction

The components need to be connected on a piece of vero board about 30x20mm. It needs to be compact so that it will fit inside the head. The 5K pot if it is very small will fit in the front of the head, but it is easier to place it in the back or side of the alarm. A 40mm hole will need to be cut in the alarm for the speaker (extreme care needed). The LED will need to be re-positioned somewhere above the speaker. The amplifier cct inputs are connected where the existing piezo speaker is connected. The old speaker can be removed. The power supply from the supply pins on the alarm F, C, E,

If any more information is needed, please do not hesitate to contact me,

Dave Taylor,



NOTABLE EELS OF 1967

CAPTOR	WEIGHT	DATE	TIME	BAIT	LOCATION	SOURCE
S. Penny	7:1	14 Jul	01.15	Roach db	Hollow Pond, Whipps Cross, E.11	AT 27.7.67 p.14
M.J. Pingsstone	6:8	15 Jul	03.30	$\frac{1}{4}$ lb. Rudd db	Newtown Pond, Highbridge, Som.	Bristol S.H.G.
E. Leeming	6:7 $\frac{1}{2}$	25 Jun	12.30	Lobworm	Carlton Min.ott Ponds, Yorks.	AM 7.7.67 p.11
J. Wilson	6:6	20 Jun	04.00	Bleak db	"Wilson's Water", Henlow, Beds.	AT 29.6.67 p.17
G. Morris	6:0				R. Thames, Richmond Lock	Priv. comm.
J. Redman	5:14	27 May	09.00	Worm	Windermere, Westmorland	AT 8.6.67 p. 7
E. Bees	5:13	12 Jul		Roach db	Hunstrete Lake, Som.	AM 11.8.67 p. 1
C. Backhouse	5:12.	19 Aug	01.50	Lobworms	Boatyard Pond, Acaster Mabis, Yorks.	AT 24.8.67 p. 2
						AM 1.9.67 p. 2
F. Wooton	5:10.	18 Oct	22.30	Lobs. + paste	West Hyde Lake, Herts.	AT 26.10.67p. 8
R. E. Nunn	5:8	28 Jul	03.15	Lobworms	Private Lake, Bucks.	AT 10.8.67 p.11
						AM 11.8.67 p. 3
K. Gilbert	5:4	8 Jul	21.30	5" Roach db	Hunstrete Lake, Som.	AM 11.8.67 p. 1
J. Pawley	5:4	Aug	03.00	Small worm	Lake at Shepperton, Middx.	AM 11.8.67 p. 1
M. Palfrey	5:4	6 Aug	23.30	4" Roach db	Swan Pool, Shobden, Herefs.	AT 17.8.67 p. 2
A. Wilkie	5:0	23 Jun	22.00	3-3 $\frac{1}{2}$ " Rudd db	"Wilson's Water", Henlow, Beds.	A. Wilkie
T. Dobson	5:0	Jul	day	Maggots	Neta AS Pit, Shepperton, Middx.	AT 27.7.67 p.14
						AM 28.7.67 p. 2
						AT 31.8.67 p. 8
R. Wright	4:15			Deadbait	Lake, Staffs.	A. Wilkie
A. Wilkie	4:14	24 Jun	01.00	3-3 $\frac{1}{2}$ " Rudd db	"Wilson's Water", Henlow, Beds.	Bristol S.H.G.
K. Gilbert	4:13	9 Jul	02.00	5" Roach db	Hunstrete Lake, Som.	AT 1.6.67 p. 7
D. Dixon	4:12	17 May	12.00	Lobworms	Small pool, Ashton-u-Lyne, Lancs	Bristol S.H.G.
M. J. Pingsstone	4:12	24 Jun	14.00	$\frac{3}{4}$ lb. Rudd db	Apex Pond, Highbridge, Som.	AT 15.6.67 p. 2
R. G. Jones	4:10	5 Jun	20.40	Worms	Hurleston Res., Nantwich, Ches.	Bristol S.H.G.
K. Gilbert	4:10	9 Jul	07.30	Small roach db	Hunstrete Lake, Som.	Bristol S.H.G.
A. Dart	4:8	10 Aug	21.30	Gudgeon db	R. Avon, Newbridge, Som.	Newport & Mon SG
R. G. Jones	4:8	14 Aug	02.20	12 Lobworms	"Greystone Lake", Newport, Mon.	Bristol S.H.G.
M. J. Pingsstone	4:8	29 Aug	16.30	Roach db	Keynsham Wier Hole, Som.	Bristol S.H.G.
	4:3	23 Sep	03.30	Rudd db	Apex Pond, Highbridge, Som.	Bristol S.H.G.
M. J. Pingsstone	4:1	30 Aug	17.30	Roach db	Newtown Pond, Highbridge, Som.	Bristol S.H.G.
J. Gotobed	4:1	22 Jul	12.00	Worm	Gillette's Pit, Haddenham, Cambs	B. T. Knott
R. G. Jones	4:1	28 May	01.10	10 Lobworms	Llangorse Lake, Brecon.	Newport & Mon SG

BIG EEL LIST 1987

	WEIGHT	MONTH	CAPTOR	LOCATION	BAIT	D/N
1	7.14	JULY	M.EELS	SUSSEX WATER	DB	?
2	7.6	JULY	J.SEDDON	LANCS WATER	W	?
3	6.9	SEPT	C.MURDON	CAMBS WATER	DB	?
4	5.10	JULY	D.HOLMAN	SHROPS MERE	W	N
5	5.8	SEPT	T.MAY	LOCK OCHILITREE	DB	D
6	5.7	OCT	P.BOWERING	BRISTOL STILLWATER	LM	N
7	5.7	JUNE	J.SIDLEY	JOHN'S WATER	DB	N
8	5.5	APRIL	J.SIDLEY	WESTWOOD PARK	W	D
9	5.3	AUG	P.GUSTAFSON	OXFORD WATER	DB	N
10	5.2	JULY	K.RICHMOND	SOMERSET WATER	S	N
11	5.2	AUG	R.CLAIRE	SHEPPERTON LAKE	W	?
12	5.0	JULY	A.BARLOW	JOHN'S WATER	DB	N
13	5.0	JULY	?	HAWKE LAKE, SALOP	S	N
14	4.11	JULY	N.CLARKE	JOHN'S WATER	DB	N
15	4.10	JUNE	J.SIDLEY	JOHN'S WATER	DB	N
16	4.10	JULY	J.TOMLINSON	HUMBERSIDE PIT	W	?
17	4.10	SEP	A.MARTIN	BLACKPOOL LAKE	W	D
18	4.9	JUNE	C.MURDON	CAMBS LAKE	W	N
19	4.8	JULY	P.BISSETT	WALTHAMSTOW TROUT RES.	W	D
20	4.6	JUNE	J.SIDLEY	JOHN'S WATER	DB	N
21	4.6	JUNE	C.MURDON	CAMBS WATER	W	N
22	4.6	JULY	N.EVANS	?	DB	N
23	4.5	JULY	N.EVANS	?	DB	N
24	4.5	JULY	J.SIDLEY	JOHN'S WATER	DB	N
25	4.5	JULY	D.HOLMAN	SALOP WATER	W	N
26	4.4	JUNE	J.SIDLEY	JOHN'S WATER	DB	N
27	4.4	SEP	A.MARTIN	BLACKPOOL LAKE	W	D
28	4.4	OCT	K.DAVENPORT	BLACKPOOL LAKE	W	D
29	4.3	JULY	K.RICHMOND	SOMERSET WATER	S	N
30	4.3	SEP	C.MURDON	CAMBS WATER	DB	?
31	4.3	OCT	J.SIDLEY	JOHN'S WATER	DB	D
32	4.2	JUNE	J.SIDLEY	WESTWOOD PARK	W	D
33	4.2	JULY	M.BOWLES	ARDIGLEY RES.	DB	N
34	4.2	AUG	R.LEYLAND	ESSEX WATER	?	?
35	4.1	JUNE	J.SIDLEY	JOHN'S WATER	DB	N
36	4.1	JUNE	J.SIDLEY	JOHN'S WATER	DB	N
37	4.1	AUG	J.SIDLEY	JOHN'S WATER	DB	N
38	4.1	AUG	P.GUSTAFSON	OXFORD WATER	DB	N
39	4.0	JULY	J.SIDLEY	JOHN'S WATER	DB	N
40	4.0	JULY	J.SIDLEY	JOHN'S WATER	DB	N
41	4.0	JULY	?	HAWKE LAKE	S	N
42	4.0	OCT	J.SIDLEY	JOHN'S WATER	DB	N
43	4.0	NOV	J.SIDLEY	JOHN'S WATER	DB	D
44	4.0	NOV	K.RICHMOND	CHEDDER RES.	W	D

KEY

DB = DEADBAIT

W = WORM

LM = LUNCHEON MEAT

S = SPECIAL

Sources - Angling Times, Anglers Mail, John Sidley, NAC.

If any member has any additions, corrections, etc., please let me know asap.

Brian Crawford - December 1987

RAINBOW'S END—The Search For Big Fish
by Phil Smith

Published by Ironbridge Publications
Price £18.95

Specialist anglers have been fortunate in recent years to have number of brave individuals who have been prepared to risk large sums of money in making available publications, which at first sight, one would think had a very limited market to aim at. It has become obvious from the wealth of fine volumes now on the market that the demand for such books is growing and is lucrative.

Rainbow's End is Ironbridge Publications first effort at producing a book of quality both in respect of the content and the production. Although the forerunner of Ironbridge, Big E Publications gave us Successful Eeling by John Sidley and Fishing For Big Eels by Brian Crawford these, in comparison to Phil Smith's book are dull indeed. As Brian Crawford's first attempts in book publication perhaps it was to be expected. In relation to both John and Brian's books the standard of production was poor with the binding being weak resulting in many pages having dropping out. Brian has learnt by his mistakes and has decided in Rainbow's End to market a book at the top of the range in respect of both price, author and content. In my opinion he's taken the correct course. Let me make it clear that I did not receive a complimentary copy from either the publishers or the author! Therefore, I can assure you I will be frank enough to admit that I've wasted my money or acquired a book that will grace my bookshelves for many years to come. Nowadays, I'm sorry to say, fishing and fishing for eels is one of my many interests so if I do find myself with some time to spare at night, during the winter I will often read an angling book.

On the fly sheet of my copy Phil Smith wrote "This is how its done" but as he goes to some length to explain in the introduction Rainbow's End is not a book which describes in great detail Phil's methods, what I think it does most successfully, is to reveal Phil Smith's thinking behind his fishing. His philosophy is clear. Always try to improve your best weights and do not hesitate to travel to those waters where the best specimens are to be caught and give yourself the best chance of catching those specimens by putting in the time on your chosen waters. In one word "dedication" Phil it appears has spent half a lifetime and a good deal of his income on chasing the rainbow's end, his world of specialist angling stretches from tank suits and heron bite Alarms to the present day Thermal suits and latching Optonics. In common language 'he's done the business'. As an innovator Phil clearly doesn't come into the Richard Walker league but there is no doubting he is a practical and effective fisherman. As one would expect from Phil he is generous enough to give due credit to his angling colleagues who have helped him along the way. Fishing with the likes of Mervyn Wilkinson, Tony Miles and Trevor West is superior company indeed and I understand that Ironbridge Publications have signed up at least one of these for its next venture.

I wouldn't like to calculate the time and money that Phil Smith has spent on his fishing. At first sight £18.95 seems a high price but to my mind, this book is very good value. It will not drop to pieces and is written in such a way that you can simply pick it up on any page to read some interesting subject matter.

Phil Smith and Brian Crawford are to be congratulated on Rainbow's End. Remember at the end of the day ~~they~~ both members of the National Anguilla Club and of that fact we should all be very proud.

I await Ironbridge Publications next effort eagerly and perhaps they would bear me in mind for a complimentary copy!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

THE NATIONAL ANGUILLA CLUB

BULLETIN

No. 38

February 1968

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The National Anguilla Club, 1968

EDITORIAL - A MESSAGE FROM THE CHAIRMAN

Gentlemen:

I have taken on the job of producing our Bulletin and the accompanying Newsheet, this month, to give our Editor, Arthur Sutton, a chance to restore himself to health and generally get ready to carry on with the good work.

It is a big job - perhaps bigger than anyone who has not attempted it can realise - but one I undertake with pleasure for several reasons.

By our collective efforts, we have made the National Anguilla Club premier amongst specimen hunters' clubs - in this country and, so far as I know, in the world. Our achievements are not the work of any one individual: they stand to the credit of the Club as a whole.

We have conceived - and, indeed, experienced the labour pains! - what is, in fact, a new kind of angling organisation: the "species club". Superficially similar clubs have been formed in the past - the CCC and the old Tenchfishers come to mind - but the resemblance is only superficial. The whole concept of a club concentrating on a single species, national in scope, organised so as to be able to take in enough members to get the work done, concerned not only with exchanging ideas and "theories" but also with developing and carrying out scientific methods of tackling angling problems, drawing on all possible sources of relevant information including zoological research in the scientific literature, dealing with communications and the flow of information, and overall maintaining the Club's good fellowship: the whole concept would have seemed a mere pipe dream only a few years ago.

It would be impracticable to review our achievements in detail. But take only one small example: our use of the computer to calculate the weight-length regression from our data in 1966. The Club accepted this calmly, as no more than appropriate in this day and age, in the course of work such as we have in hand. It seems to have taken some time for the outside world to take the news aboard! But when our fraternal body, the new Tenchfishers club, let it be known that it, too, was developing computer methods, the notion registered. Since then I, alone, have been asked for interviews which have been written up in the Observer, Angler's Mail, the American magazine Sports Illustrated and (soon to come) Reveille, and even broadcast on the B.B.C's programme "Today". Such publicity is an excellent thing for both Clubs, and is one of the outward and visible signs of successful achievement in which every member may take just pride.

In pioneering a scientific approach to the solution of some of the specimen hunter's problems of methods, tactics and strategy, we have developed methods which Dr. Charles Franklin has described as five years ahead of their time and far in advance of anything previously envisaged for the N.A.S.G., and which form the basis of the Association's new plans. Our concept of the species club has taken hold; already, similar clubs

SESSION REPORTING: WHERE DO WE GO FROM HERE?

Members will now have had an opportunity to read through the Report on the results of our session reporting work in 1967, and a supplementary report on our Growth-Rate work will be available shortly. In one sense, we have succeeded in taking only a few small steps forward, yet in a wider sense, we have achieved a major angling break-through. By our concerted team-work, we have begun to get some angling facts, at long last - facts we can use directly to guide our fishing plans in 1968, and on which we can confidently build further efforts to understand eel fishing in progressively greater detail.

It is common experience in scientific work that progress is slow at first, but then accelerates - so let your imagination roam ahead for a moment, and think what we shall have achieved 10 years from now, if we continue along the path.

Exactly whether we are to continue and if so, on what lines, is a decision to which the whole Club must contribute. Your Committee believes it would be a tragic folly not to continue after such a promising start, and we hope you will agree. In this case, we shall have to consider together, in detail, three things:

1. what further work is needed to consolidate the provisional answers we have already got?
2. what additional questions are we to try to answer, this year?
3. what admin. improvements are needed?

On point 1, I would suggest that we need to collect at least one more years data on all the things we tackled in 1967 - even the ones where quite firm-seeming answers emerged. It is true that 11,000 rod-hours and 200 eels is a fairly firm basis from which to work; but it is all in a single year's experience, and the answers will be lot firmer if we can show whether or not they turn out about the same in a second year.

On point 2, there is an indefinitely long list of things we might choose to probe into, but the list can be classified under two main headings. First, we might choose to break some of our existing answers down into finer detail. Second, we might choose to add some questions about quite different aspects of eel fishing.

Let us look at breaking things down into finer detail. We have some fairly good answers about the relative merits of different baits. For example, on present evidence, we are fairly sure that on an average water, deadbaits are a better bet than worms for the bigger eels. But suppose we now ask some more detailed questions. For instance, are all worms alike, or do brandlings, lobworms, "blackheads" give noticeably different results? Do we get the same pattern of results with single worms as with great bunches of worms? If the difference between worms and deadbaits is, at least partly, due to bait size, is there an

have been formed for Tench, Barbel and Bream and it is widely thought - I believe it, myself - that such clubs will be formed for all the major British species.

In fact, scarcely realising it, we have wrought something of a quiet revolution; and with solid achievement behind us, it does no harm to pause a moment to congratulate ourselves on the prestige the Club enjoys.

It is almost trite to add that there is, nonetheless, no room for complacency - but it is true. Having taken a glance over our shoulders, it is to the future that we must turn our eyes, for whatever we may have achieved, we have as yet barely scratched the surface. It would not do justice to the situation to say "there is room for improvement" - there is much more than that: there is an exciting challenge on every front.

With the creation of the Newsheet, our Bulletin is stripped for action, and we are determined to continue developing it as a first class eel fishing Journal - interesting and enjoyable to read, and at the same time meaty and worth keeping for future reference; and in a form convenient to keep and easy to refer to. There is a challenge to every member to make a solid contribution to the Bulletin from time to time.

We have plans on the social side, and a programme of eel angling research second to none. We hope to continue developing our contacts with academic bodies, especially Liverpool University, where Dr. J.W. Jones and Dr. V.R.P. Sinha have already given us wonderful expert help. There is a challenge to every member to play his part in planning and executing these activities.

We want a steady flow of applications for membership from eel specialists like ourselves who are willing and able to play a useful role in the Club. Injections of fresh blood are good for the health of any club, and we expect all species clubs to have a steady turnover in membership, for few anglers maintain special interest in a species indefinitely - there is nothing wrong in that. But we do expect that, during his membership, however long or short it may be, an angler will commit himself wholeheartedly to our activities. We do not and cannot demand results - but we can and do demand effort! Of course, the effort that different members can put in will vary; nor do we expect members to fish for eels and nothing else, for in angling as in all things, variety is the spice. But we do expect eels to play a major part in members' angling, and we do expect a worthwhile contribution to the Club's activities.

After speaking of achievements, it is a sobering thought that, in its fifth year, the Club has only one 6 lb. eel to its credit. Well, if it were easy to catch big eels, I dare say we would all be interested in some other species. If we apply the fruits of our work together in 1967, our results in 1968 must improve. In the process, we shall learn still more, and start in 1969 with even better prospects, and so on. I want my share of results, this year, as each of us does. But I don't much care who gets the busters, so long as some of us do - and many of 'em! I wish the Club and every member the best of good fortune in 1968.

Terence Coulson, 16.2.68.

optimum size of deadbait? How do results differ as between the various species of freshwater fish we use as deadbait? What effect do injections of additives such as blood or pilchard oil have? And so on.

Each of the various analyses we did could be broken down into more detailed questions, in this way. The increase in the work involved in filling in the session report forms would be marginal. I should like each member to think through the various analyses in the Report, decide for himself whether he feels there is a case for seeking the various items of more detailed information at this stage, and let me know his views.

Considering, now, what fresh questions we might tackle, it is worth emphasising that all - or at any rate, most - of the things anglers are accustomed to holding more-or-less subjective "convictions" about, all the things about which we love to exchange "views" and "opinions" based on a few scraps of evidence or hearsay at most - all these are, in principle, answerable in firm and factual terms if a sufficient body of detailed records are collected, analysed and interpreted. What areas of opinion are there, that we might set about trying to turn into fact?

One obvious one is an element in the general "location problem" which we have not attempted, yet: namely, location within a water. In other words, the study of "swims". We could, if we chose, classify swims - for example, in terms of distance from the bank, depth, type of bottom, proximity to weeds or "snags", etc. - add our observations on these things to the S.R. form, and see what patterns emerge when they are analysed. There is some interesting food for thought on this subject in the review of the I.F.T.'s work in this issue. Is this subject of sufficiently high priority to take aboard, this year?

Another such area is on questions of tackle. For example, there was an interesting discussion on the subject of trace materials in the Bulletin for October 1967, from sub-Group No. 1. The discussion was based on the more-or-less subjective views formed by the various members from their own eel fishing experience - and sound, sensible stuff it was, too. Of course, as one expects in a discussion on a matter of opinion, there were areas of disagreement; but I would not argue with any of their contributors, for their opinions are certainly at least as good as mine! No; what interested me most was that not one of the contributors put forward the notion that the relative merits of different trace materials is a factual question, to which a factual answer could be obtained in just the same way that we are getting factual answers on the relative merits of different baits.

For instance, if one really wants to know whether nylon-covered wire has a bad effect on results relative to, say, monofil of the same B.S. or the same diameter, there is on the one hand no real point in arguing about it; nor on the other hand, trying to guess the answer from the few shreds of one's own experience. However, we could incorporate data on trace material in the S.R. in a properly thought-out way, and then see from the analysis of our consolidated results just what effect the trace material actually had on the quality and rate of catch. The discussion

served the very useful purpose of defining the problem; the question now is, whether it is of sufficient priority to take aboard, this year?

These are just two examples, and again I should like each member to think about the many additional questions of these kinds, and let me know his views. To be quite explicit about this, I do not, for present purposes, want to know what you think the answers might be; I want to know what you think the important questions are. It goes without saying that practical ideas about how an exercise might be set up, and on methods of analysis and interpretation, are always welcome.

On the admin. side, the job of extracting data from the reports and analysing it is a big one; but it is tolerable if the reports are reasonably well filled in and if they arrive on time. It is vital to get a month's reports sorted out, queries answered, and analyses completed before the end of the following month.

Your Committee's view is that members are expected to report every session of eel fishing. What is vital is that if you report sessions on a particular water at all, you report every session on that water; otherwise, the data will almost certainly be biased, and that undermines the whole Club's effort. Reports of odd sessions of 2 or 3 hours on waters visited only once during the season are useful, but they are much less valuable than a full set of reports on a water fished steadily throughout the season. All that is needed is a little forethought and a voluntary act of commitment to full reporting on at least a short-list of the main waters fished.

On growth-rate work, there are a number of specific points which will be the subject of a separate note, after the Report has been issued.

It may be that, in addition to the general session reporting, we shall want to set up one or two special schemes on a Group basis - the ideas on swims or on tackle mentioned above would lend themselves to this approach. So, if you or your Group have an idea for a separate exercise of this kind, let me know.

Once we have the measure of members' wishes, ideas and views on priorities, we shall map out a draft scheme as we did last year, and offer it for your approval.

THE 9½ lb. "EEL" FROM THE G.U. CANAL AT TRING

No members missed the stories carried in the angling Press in the middle of September, 1967, about an eel of 9½ lb. being caught from the Grand Union Canal near Tring in Hertfordshire. The accounts were given in Angling Times, 14 September, page 3 and in Angler's Mail, 15 September, page 2, and both were illustrated with photographs. Briefly, the stories were as follows.

Two Luton youngsters were spinning for perch in the canal, when one of them hooked a powerful fish and, suspecting that he would not be able to deal with it, handed the rod to his friend who landed what was thought at the time to be a catfish. The boys weighed the fish on a spring balance, noted a weight of 9½ lb., and gutted it. Later, the fish was seen by a number of local anglers who identified it as an eel, and suggested to the boys that they should make a claim to the British Record (Rod Caught) Fish Committee. The fish was weighed again in its gutted condition and scaled 7 lb. 6 oz.

As usual, I took steps to seek additional details, including a letter to the Secretary of the Committee, Mr. Peter Tombleson, to ask whether any steps might be in hand to estimate the age of the eel. Mr. Tombleson replied that he had seen the eel, but had put it in formalin and returned it to the captors; the Committee was not concerned with age, but only with the species. However, he expressed personal interest in knowing the eel's age, and suggested I get in touch with one of the boys, whose address he gave me.

In due course, I received a very courteous and cordial invitation to visit Luton to see the eel together with permission to try to extract the otoliths if this could be done without spoiling the eel for setting up. I was very well received by the boys and the parents of one of them and given every facility to examine and work on the carcass. After a good deal of probing through a hole in the side of the eel's head, I extracted a single otolith, but could not locate the second stone.

The otolith bore little resemblance to any of the dozens of anguilla otoliths I have handled, so I examined the carcass more closely, and the conclusion I came to seemed so incredible that I decided to hold my council until I had an opportunity to cross-check the facts. Next day, reference to "Eels: A Biological Study" by Prof. Leon Bertin and other authoritative works confirmed what I had suspected: that the "eel" was not anguilla, but conger.

I wrote to the boys to pass on the sad news and to say that I was sorry that they appeared to have been the victims of what had all the hallmarks of a particularly mischievous hoax. I also advised Mr. Tombleson of the facts, and I believe the Committee asked for the carcass to be re-submitted for confirmation of the species. At the same time, I pointed out to Mr. Tombleson that, in my view, the matter should be given proper publicity in the angling Press as soon as the identity of the fish had been officially established, so as to make the differences between

anguilla and conger so well-known that any would-be hoaxers would be deterred in the future; and also to give the National Anguilla Club credit for vigilance and knowledge. Obviously, if the capture of a potential record eel warranted Press coverage, then its exposure as an apparent hoax presumably has at least as much news value. I invited Mr. Tombleson's co-operation in deciding the timing and form in which the news might be released.

Since that time, the record claim has been withdrawn - presumably, the boys took local advice and received confirmation of my identification - and I have had a useful meeting with Mr. Tombleson at which, amongst other things, complete agreement was reached with regard to publication. Mr. Tombleson expressed appreciation, both for himself and on behalf of the Committee, for the Club's close interest in the matter.

Pending Press coverage, members may like to have a brief summary of the differences between anguilla and conger, so that there shall be no doubt if ever a similar situation arises in future.

There are three features which distinguish the two species to an examination by eye. Firstly, the skin of conger is devoid of scales and scraping with a knife reveals only smooth skin; in contrast, after the first few years of freshwater life, the skin of anguilla becomes covered with small, deeply-embedded scales which are clearly apparent to the eye in specimens of any size in the form of a "parquet floor" type of pattern and can be felt - and seen even more plainly - if the skin is scraped with a knife-edge. Secondly, the upper jaw of conger projects beyond the lower jaw at the tip of the snout; in contrast, it is the lower jaw which projects beyond the upper jaw in anguilla. Thirdly, the dorsal fin starts nearer the head in conger.

Given an eel-like fish of British origin, these three features are enough to enable one to make a definite identification, conger or anguilla. They are simple, and should clearly be made widely known to anglers, to help eliminate innocent mis-identification and malicious hoax, alike.

It is also worth knowing that the otoliths are distinctive; once seen side by side, they would not be mistaken. This much was apparent from the otolith of the $9\frac{1}{2}$ lb. fish, and I have had the privilege of confirming that it was typical by examining the collection of authentic otoliths in the British Museum of Natural History. Our member, George Moss, has also supplied otoliths from two conger, to start a similar collection of our own. Anguilla otoliths are concave on one side and convex on the other with a small projection on one edge (rather like a cupped hand with the fingers together and the tip of the thumb projecting) and with a well-marked groove on the convex side. Conger otoliths are a more elongated, oval shape, convex on both sides, with no groove or only a trace of one, and an indentation on one edge which gives the appearance of a "head" and "body". Comparative photographs of otoliths will be reproduced in the Bulletin in due course; the knowledge could aid identification in a difficult case - for example, if one had only the eel's head to work on.

EEL INVESTIGATIONS IN LOUGH ARROW - A REVIEW

The Inland Fisheries Trust has published a two-part paper describing their work on the feeding of eels in Lough Arrow. The work was primarily concerned with the possible effects of eels on the water as a trout fishery, and much of the discussion in its 12 foolscap pages is concerned with this aspect. The object of this review is to extract and summarise the information on the feeding of eels.

Introduction

L. Arrow is a limestone lake of about 2,800 acres in Co. Sligo. The bed consists of eroded limestone boulders, sand, mud and marl, and there are both extensive shallows and considerable deeps. The water contains a rich growth of food organisms, especially shrimps and water-lice, shellfish and various insect larvae. The lake holds pike, perch, bream, sticklebacks, eels and brown trout, the latter being noted for their large size and good condition.

Methods

The work was done during 1954, 55 and 56. "Deadlines" carrying up to 100 commercial eel hooks and snoods were baited with either (a) all worms; (b) all perch fry; or (c) alternate worms and perch fry (plus a few sticklebacks in one year). These lines were fished so as to obtain results by night and by day; over sandy and over stony beds; in the shallows (up to 20 ft.) and in the deeps (from 20 to 100 ft. and more). To take account of the varying numbers of hooks per line, a single setting of 10 hooks is taken as a "unit of effort" (thus the I.F.T. have not taken the time factor fully into account, as we do in working with rod-hours per eel; but their results are presented below in terms of "units of effort per eel", which is roughly comparable in principle).

Results(1) Day v. night & shallows v. deeps

	<u>Day</u>	<u>Night</u>	<u>Total</u>
<u>Shallows</u>	12 (6)	3.3 (400)	3.4 (406)
<u>Deeps</u>	4.8 (9)	1.0 (275)	1.1 (284)
<u>Total</u>	7.7 (15)	2.4 (675)	2.5 (690)

Figures are units of effort per eel; figures in brackets are the numbers of eels in question; thus, for example, a total of 690 eels were caught at a grand average of 2.5 units of effort per eel.

Three broad conclusions seem reasonable. 1: Overall, the deeps were about 3 times more productive than the shallows; and night was about 3

times more productive than the day. 2: The deeps were about $2\frac{1}{2}$ times more productive than the shallows by day, and about $3\frac{1}{2}$ times more productive at night. 3: Night was about $3\frac{1}{2}$ times more productive than day in the shallows, and about $4\frac{3}{4}$ times more productive in the deeps. The difference between day and night is as expected, but it is perhaps surprising that the deeps appear to have been more productive than the shallows even at night. It is even more surprising in view of the I.F.T.'s comment that eels caught in the deeps often had stomach contents which suggested that they had been feeding in the shallows.

(2) Sandy v. stony bed

Considering all baits, but results at night only:

Sandy bed	0.82 (92)
Stony bed	0.84 (92)

Again, figures are units of effort per eel; and figures in brackets are the numbers of eels concerned. The obvious conclusion is that, in L. Arrow, the eels feed equally freely over both sandy and stony beds.

(3) Seasonal variation

	<u>APR, MAY</u>	<u>JUN</u>	<u>JUL - SEP</u>
<u>Day, worms</u>			
Shallows	-	9.0	28
Deeps	-	2.5	9.3
<u>Night, worms</u>			
Shallows	3.8	-	0.36
Deeps	1.2	-	0.38
<u>Night, mixed settings</u>			
Shallows	4.9	-	5.7
Deeps	1.2	-	5.0

Figures are units of effort per eel, 1954 and 55 only. It is difficult to draw any definite seasonal conclusions from these fragmentary data, but it is perhaps fair to say that April and May are more productive than might be supposed. The July - September data suggest that there is little to choose between the deeps and shallows at night, but that the deeps are more productive by day.

The I.F.T. comment that the rate of catch in 1956, on worms at night in the shallows, was about 7 times faster in late April and early June than in March and early April.

(4) Stomach contents

The stomach contents of 133 of the eels were examined and the results are tabulated on page 10. In considering the diet of fish, the

size of the specimens examined is important, but unfortunately the I.F.T. do not give size data except to say that "the eels captured were mainly of fair size, and specimens of up to 3 lb. were taken".

Of the 133 eels examined, 114 had food in their stomachs. The table shows the number of eels in which the stated type of food was seen:

Shrimps & water-lice	96
Snails & bivalves	59
Insect larvae etc.	64
Earthworms & leeches	11
Fish	20
Spawn	8

Shrimps and water-lice were the most important dietary items with insect larvae and pupae next (Duck Fly pupae and cased caddis were singled out for mention) and shellfish (especially *Theodoxus* (*Neritina*) and *Bithynia*) third.

The worms and fish seen were mainly earthworms and perch fry, and most if not all were thought to be swallowed baits. The comment was made that the trout are known to feed voraciously on perch fry; but not, apparently, the eels - at least, in the size range examined.

The Sexing of Eels: A Footnote

Members will have found the review by David Marlborough on this subject (Bulletin, August 1967) a most useful summary. In a nutshell, an eel with a "frilled organ" is female; an eel with a "lobed organ" may or may not be male. However, it may be worth emphasising that, in the paper by Jones & Sinha referred to, the largest eel with a "lobed organ" in which the sex was not yet "fixed" one way or the other was only 14", i.e. less than 2 oz. Out of 201 eels in the range 10 - 19", 73% were definite males and only 7% were definite females, all having "lobed organs".

In our growth-rate work, last year, we did not take account of the sex of the eels; but there is no reason why we should not make the distinction between "females" and "eels with lobed organs", in future, using David Marlborough's descriptions. Incidentally, Dr. Sinha is still interested in receiving specimens of whole eels upwards of 20" in length - and by supplying such specimens, we would not only get growth data but also contribute towards studies on the diet of large eels and on the sexual significance of these lobed organs, too.

NOTABLE EELS OF 1967

1967 may have been a poor year for most members of the Club, but a fair number of big eels were once again reported in the angling Press. An attempt was made to get in touch with the captor in each case, by the courtesy of the angling journal concerned, and quite a lot of extra details were obtained in this way.

Still more details of big eel captures came in from our friends in several specimen groups, and I am sure you would all like to join me in thanking these good anglers for their help: let us trust that these friendly links will develop to even greater mutual advantage.

The consolidated list of big eels is reproduced on page 12. Details reported in the Press are common property, of course, but in many cases there are extra details given by the captor in confidence. Members will need no reminding that information from other groups must, please, be treated as confidential.

Apart from big eels caught by angling, several notable eels were captured in other ways. A 7 lb. eel was caught by hand from the Thames by Bermondsey dock worker, Brian Cottrell, and reports and photographs appeared in A.T., 25 May and A.M., 26 May. Eels of 6 and 7 lb. were found by a keeper trapped in the sluice system at "Greystone Lake" on 7 July, and reported to us by our friend, Robert Jones (see Mr. Jones' letter about "Greystone" in the Bulletin, April 1967). In the Country Life issue of 20 July, Dr. David Haler gave an account of an eel found dead in the R. Wey, Surrey, which measured 51" in length and 16" in girth, and was estimated after "hefting" the carcass to weigh about 15 lb. - a reasonable estimate according to out statistical data. In the Northampton Chronicle & Echo, 8 September, news of an 8 lb. 2 oz. eel being dredged from a dyke draining into the Northants. Nene set our good members Bob Church and Phil Shatford off in search of confirmation; the head of this great eel was eventually tracked down to the bottom of a fishmonger's waste-bin and, undeterred, Bob secured its otoliths. Dr. Sinha has since estimated that it had spent 18 years in freshwater. An account of the 9½ lb. "eel" from the G.U. Canal at Tring is given on page 6.

It is good to hear news of these big eels, even if they did not rejoice an angler's heart: at least, we know that there are a few eels of 8 lb. - even, perhaps, 15 lb. - around for the catching! But, of course, it is mainly from the eels caught by angling that we can hope to learn something of possible relevance to our own fishing.

Please read the list critically and volunteer any information you may have by way of corrections or additions - especially details of the capture of any big eels not mentioned in the list.

FRESH LIGHT ON THE SCHMIDT-TUCKER CONTROVERSY

Fresh interest in the migration of Atlantic eels was aroused in 1959 when Dr. Denys Tucker proposed a hypothesis radically different from the one originally put forward in Schmidt's classical work. Schmidt proved that European eels originate from a breeding ground in the Sargasso Sea, and assumed that the mature silver eels which annually migrate from European waters to the Atlantic, in fact reach the Sargasso and breed there.

Tucker argued that it was unlikely that the mature eels could accomplish this remarkable journey, and proposed instead that the eel larvae which are carried to Europe are derived from the breeding of American eels, which are known to breed in an area partly overlapping that of the European eels. Schmidt regarded European and American eels as different species, but Tucker argued that the differences between them - for example, the average number of vertebrae - are of a kind known to be affected by conditions of temperature etc. during the hatching of the egg and early development; and that eggs laid in the parts of the Sargasso from which the larvae would eventually be carried in the Gulf Stream to Europe, are subjected to conditions which cause the development of the European eel characteristics. In short, Tucker argued that European and American eels are one and the same species, and that the differences between them are not genetic.

Danish scientists at the Institute of Genetics in Copenhagen have now published research findings (Nature, 10 June 1967, p. 1141) which argue against Tucker's hypothesis. The Danish workers have examined haemoglobin from the blood of European and American eels by electrophoresis - a special method of analysis. They have found that all European eels have the same haemoglobin pattern (848 specimens examined). The same pattern is most common amongst American eels, but there are in addition two other less common patterns (666 specimens). The proportions of the three patterns amongst American eels strongly suggests that they are genetically determined.

Clearly, the argument is that - whatever non-genetic differences there may be between European and American eels - there is at least this one difference which is genetic, and the Danes state that this is "strong evidence against Tucker's one-population concept".

The Danish workers add that Tucker's hypothesis would be tenable only if European eels with the two uncommon American haemoglobin patterns are in some way exterminated before reaching the sizes they sampled, and they say that "while theoretically possible, such an efficient selection seems to us very unlikely".

We do not know Dr. Tucker's reaction to this new work; he has shown himself a redoubtable proponent of his hypothesis and might, perhaps, be prepared to contend that "such an efficient selection" is not implausible. But, while not sounding its death-knell, perhaps, the Danes certainly seem to have put the hypothesis in considerable doubt.