

THE NATIONAL ANGUILLA CLUB

A GUIDE TO THE 1968 REPORTING SCHEMES

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INTRODUCTION

The 1968 Reporting Scheme is divided into two parts: the Session Reporting Scheme and the Optional Projects.

The Session Reporting Scheme follows on from and slightly extends the scheme operated in 1967. For the time being, the same Forms will be used as in 1967, with suitable modification. General administrative points and detailed notes on filling in each item are given in this guide. All members are requested to take part in the full Session Reporting Scheme.

The Optional Projects continue and extend the 1967 Growth Rate work and introduce pilot exercises on a number of other topics. General administrative points and detailed notes on each project are given. It is not expected of any member working individually that he should even consider attempting to take part in all the Optional Projects, but members are asked to give a "declaration of intent" on the project(s) they hope and propose to take part in, to help administration. Suggestions are given for achieving a wider coverage by Group Working.

Please read the Guide carefully, retain it and refer to it as necessary when making out the various reports. It is important to the success of the projects and the scheme as a whole that the various administrative and detailed notes are complied with: the notes are not mere red tape, they have been written to help with filling in the forms, to help make the data consistent and reliable and to make the job of analysing the data a practical possibility.

REMEMBER: Careless and unreliable reports are not merely useless - they sabotage the efforts of your fellow-members.

2. THE SESSION REPORT

2.1 General Administrative Points

(a) A Session Report should be completed for every session of eel-fishing whether or not any eels are caught. Please do not bias the results by reporting odd successful sessions and missing out odd blank sessions. The main value of the scheme derives from reports on project waters to which a substantial fishing effort is devoted, preferably more or less steadily throughout the season. So, if for any reason it becomes impossible to keep abreast of the reporting, odd sessions on "occasional" waters should preferably be dropped; but in this case, successful sessions as well as blanks must be dropped.

(b) Make out a full report, as far as possible. Obviously, one cannot report water temperatures (say) if the thermometer is lost or broken; but please adopt the same standards of reporting for blanks as for successful sessions. For example, do not miss out temperatures or cloud cover on blanks yet report them in detail on successful sessions, because this biases the data.

(c) "A session of eel-fishing" means any more or less continuous period of fishing using suitable methods, tackle and baits where the intention is wholly or partly to catch eels. Generally speaking, sessions where the main intention is to catch other species e.g. carp, tench, should not be reported, even if an eel or eels are caught. If the capture of an eel during such a session persuades you that the data might be useful and should be reported, then all similar sessions must be reported to avoid bias.

(d) Use the forms freely. Do not try to squeeze too much fishing time onto one form else you risk running into problems and the job of extracting the data will be difficult or impossible. Although there is provision for up to four sessions per form, sessions should not be combined unless they are very short. As a general rule, one form per session of not more than 24 hours is suggested; longer continuous sessions should be broken down onto several forms. This makes it easier all round. Very eventful sessions may be easier to report and to interpret if one form is used for each rod.

(e) Reports should not run over from one month into the next. If a session crosses the "dateline", terminate one report at 24.00 hours on the last day of the old month, and start a fresh report at 00.00 hours on the first day of the new month.

(f) Do not rely on memory! Either carry a few forms on a clip-board or similar and make out the reports during the sessions; or take notes in diary form and complete the session report as soon as possible after the session while the meaning of the notes is still fresh in mind.

(g) Please try to get corroboration for 4 lb.+ eels caught on solo sessions - a witness, otoliths, photograph, etc. - so that the Club is in a position to substantiate its results.

(h) Reports filled in on behalf of non-member friends fishing with you will be welcome, providing blanks are reported as well as successful sessions.

(i) As soon as possible after the end of the month - and not, please, later than the 14th. of the next month - batch up the complete set of reports for the month and return them direct to:-

T.M.Coulson,
13, Luxemburg Gardens,
London, W.6.

Enclose one of the "Monthly Returns" forms to confirm positively to me that the month's reporting is complete. In the event you do no eel-fishing during a month, please use the "Monthly Returns" form to advise me that it is a nil return, so that I can get on with the analyses. Remember that I have all your reports to deal with, as well as my own, and it is vital to keep up to date with the analyses as the data come in during the season.

2.2 Detailed Notes on the Session Report

- * Please ensure that all entries are clearly legible.
- * If you fish in company, please indicate the name(s) of your companion(s) in the space above Item 1, to enable the best use to be made of all data.

Item 2. The name by which the water is usually known, a nearby town of reasonable size, and the County in which the water lies. If the water is near a County boundary, refer to a map to make sure. If you use a code name for a water, we hope you will indicate the correct name in confidence wherever possible, to enable records to be correlated. 'Class of Water' refers to the classification in Bull., March 1967, p. 7; enter only the code numbers:-

1.1 = Upland river	2.1 = Lakes etc. with outflow	3.1 = Estuaries, creeks
1.2 = Lowland river	2.2 = - do. - totally enclosed	3.2 = Salt lagoons etc.
1.3 = Tidal river	2.3 = Canals and drains	3.3 = The sea

Item 3. Enter the full date or dates covered by the report, in numbers only, e.g. 16.6.69 or 20/21.7.69. In subsequent items where the date is required only the day number need be entered. Entry of session times optional.

Item 4. This section caters for observations made at a point in time such as, for example, readings from instruments. Air and water temperatures are specified, but the two blank lines may be used for other observations of your choice e.g. barometric readings - see Section 3.4 of this Guide. Against 'date' enter the day number (the month and year are given in Item 3). Against 'time' enter the exact time at which the observation was made, using the 24-hour clock system. A minute after midnight, it is 00.01. An hour after midnight it is 01.00, and so on to 23.59 at a minute before midnight. Remember that the date changes at midnight, so that midnight is 24.00 with the preceeding day's date, but 00.00 with the following day's date. Please do not refer time to "a.m." and "p.m." as these can be ambiguous; nor miss off the initial zero from the four-figure time. For temperature readings, use a spirit thermometer scaled in degrees Fahrenheit, and read it as accurately as you can - to fractions of a degree if possible. Take water temperatures from a depth similar to where your bait is - not surface or marginal temperatures, please. Aim to give enough data for the water temperatures during the whole session to be estimated; readings at the beginning and end of the session and at (say) three hourly intervals in between would be very satisfactory. Air temperatures are used only to help estimate poorly reported water temperatures; if water temperatures are well reported, air temperatures may be missed out.

Item 5. This item caters for observations made over a period of time. Cloud cover is specified, but there are blank lines on which you may enter any other suitable data of your choice e.g. periods of rain or thunder, strength and direction of wind, etc. However, it is a report on cloud cover that is specifically required; estimate the percentage of sky covered by cloud, and make entries thus:-

More or less complete overcast	= 100%
Significant amounts of both cloud and clear sky	= 50%
Scattered clouds or completely clear sky	= 0%

Make the estimate to the nearest one of these three - 0%, 50% or 100%. Do not enter intermediate percentages such as 33 $\frac{1}{3}$ % or 75%. Do not try to record a multitude of very short-term changes; concentrate on giving a fair picture of the broad pattern of cloud cover during the session; for example, a period of rapid variations in cover is best reported as 50% throughout. At night, thoughtful observation is needed to make a valid estimate. Report cloud cover for the whole session, day, twilight and night.

Item 6. Your own general comments, especially on factual observations or events not covered elsewhere. Optional.

Item 7. Please enter at least weight, date, time and bait for every eel caught; but try to fill in as many of the other details as possible.

Weight: weights taken with an inaccurate or insensitive balance are worse than useless; please use a reliable balance scaled in half-ounces (e.g. the Avon Dial Scale) and report weights to the nearest half-ounce (with eels of less than 1:8, estimate to the nearest quarter ounce, if you can). For the purposes of the report, do not just miss off the odd fractions of an ounce. For clarity, please do not write the letters "lbs." or "ozs." on the form: enter only the numbers e.g. 0:6 $\frac{1}{4}$ or 3:7 $\frac{1}{2}$ (the weight column is headed "lb:oz" and the ":" symbols are already printed in place). Check the accuracy of your balance e.g. against a local shopkeeper's weights, at intervals during the season.

Length & Girth: Use a good, broad tape measure; or preferably, for lengths, use a simple measuring board constructed along the lines illustrated in Bull., May 1966, p. 11. Measure length from tip of snout to end of tail fin, and girth at the thickest point (usually just in front of the root of the dorsal fin). Work in inches and record measurements to the nearest $\frac{1}{8}$ th. inch - again, writing down only the numbers. Accurate measurement of weights, lengths and girths is greatly facilitated if the eels are first anaesthetised with MS 222 (Bull., Feb. 1967, 16)

Date: Day number only: month and year are already recorded in Item 3.

Time: The time when the run occurred, not the time when the eel was finally banked; on the 24-hour clock system as indicated under Item 4.

Bait: These are described and numbered in Item 8; enter only the code numbers from the left-hand column of Item 8.

Sex: See Section 3.3 of this Guide. The problem of correctly sexing the smaller eels is not yet satisfactorily resolved.

Stomach Contents: See Section 3.3. Please try not to miss any opportunity to note the stomach contents (including 'empty') esp. of eels which die or are killed for the table.

Item 8. Enter a full description of all baits used. With dead and live fish baits, make separate entries for 0-2", 2-4", 4-6" and 6"+ baits, state the species and whether DB or LB. With worm baits, state whether e.g. lobworms, brandlings, blacheads, etc., and whether 1, 2-5 or more than 5. List all baits used, including those which did not catch eels, the total rod-hours spent on each, and the total number of eels caught on each. Make sure the entries cross check correctly with Items 7 and 9.

Item 9. The four columns under "Swim Details" are required to be filled in only for waters in Classes 2.1 and 2.2 The rest of Item 9 is required for all sessions. There is provision for reporting up to 4 rods and four changes of bait or swim with each rod. Enter the date (i.e. day number) and time when you started fishing with each rod used; enter the bait code number from Item 8; and with Class 2.1 & 2.2 waters, enter the swim details. If you later recast with that rod with a different type, size or species of bait, or (with 2.1 & 2.2 waters) into a different type of swim, enter the date and time in the 'stop' column, and start a fresh entry immediately underneath. Against each entry, specify the eels caught using the code numbers from the left-hand column of Item 7.

Enter (for 2.1 & 2.2 waters) the distance cast in yards; make the best estimate you can, and try to improve your estimating, if necessary, by occasional practice casts on dry land, and pacing out the distance. Depth and Bottom data will often only be known after some form of water survey, and may therefore have to be omitted for sessions on "occasional" waters. Try to get distance and depth estimates into the right ranges as used in the Report for 1968, q.v. State the approximate depth in feet, and nature of bottom on the following classification:

Silt, mud, clay, mud & sand, silt & sand	= soft
Sharp sand, gravel	= medium
Close-packed stones, boulders, solid rock	= hard

Under "Snags", enter "yes" if you cast within 2-3 yards of a known snag such as a submerged tree or rooted-weed bed; if not, enter "no".

2.2 Detailed Notes on the Session Report

*Please ensure that all entries are clearly legible.

*If you fish in company, please indicate the name(s) of your companion(s) in the open space above your own name in Item 1. This will enable the best use to be made of all the data recorded.

Item 2. If you use a code name for a water, we hope you will indicate the correct name in brackets to enable records to be correlated. "County" means the county where the water is. "Class of Water" refers to the classification given in the Bulletin for March 1967, p. 7; enter only the code number:-

- 1.1 = Upland river
- 1.2 = Lowland river
- 1.3 = Tidal river
- 2.1 = Lakes etc. with surface outflow
- 2.2 = Totally enclosed lakes etc.
- 2.3 = Canals & drains
- 3.1 = Estuaries & creeks
- 3.2 = Saltwater lagoons etc.
- (3.3 = The sea)

Item 3. Enter "Date" as day month and year, numbers only e.g. 16.6.68. Enter time on the 24-hour clock system, all four numbers. Thus, for example, 2 hours after midnight, the time is 02.00; and 2 hours after mid-day, the time is 14.00. A minute before mid-night, it is 23.59, and a minute after midnight, it is 00.01. Remember the date changes at mid-night. Also, midnight is 24.00 hours with yesterday's date, but 00.00 hours with today's date.

Item 4. Please enter at least weight, date, time and bait for every eel caught; but try to get as many length and girth measurements as possible. Weight: weights taken with an inaccurate or insensitive balance are worse than useless; please use a reliable balance (e.g. the Avon Dial Scale) marked in half-ounces, and report weights to the nearest half-ounce; for the purpose of the report, do not just miss off the half-ounces. Check the accuracy of your balance e.g. against a local shopkeeper's weights, at intervals during the season. For clarity, please do not write the letters "lbs" or "ozs" on the form: enter only the numbers. For example, a $6\frac{1}{2}$ oz. eel should be recorded simply as "0:6 $\frac{1}{2}$ " and a 3 lb. $7\frac{1}{2}$ oz. eel as "3:7 $\frac{1}{2}$ ", nothing else. Length & Girth: Use a good, broad tape measure; or preferably (for lengths) a measuring board constructed along the lines illustrated in the Bulletin for May 1966, p. 11. Measure length from the tip of the snout to the end of the tail fin, and girth at the thickest point (usually just in front of the root of the dorsal fin). Work in inches and record measurements to the nearest $\frac{1}{8}$ th. inch - again, writing down only the numbers.

N.B. Please number the eels in Item 4 by jotting 1, 2, 3...etc. in the margin alongside the weight column. These numbers are required in Item 10.

Item 5. Enter total number of eels caught ("nil" if appropriate) and the total rod-hours covered by the report. "Rod-hours" means the sum of hours fished with each rod used e.g. a 6 hour session with one rod during which a second rod was used for 3 hours = 9 rod-hours. You may leave this item blank if you wish; but if you fill it in, please ensure that the rod-hours cross-check with Items 6 & 10. Report rod-hours throughout to the nearest $\frac{1}{2}$ hour.

Item 6. Enter under "Bait" in the case of dead and live fish baits, the approximate length of the bait to the nearest inch, the species, and whether DB or LB. Optionally, if you wish, indicate the approximate number (you need not actually count them!) of worms, maggots, etc. and, in the case of worms, whether lobworms, blackheads, brandlings etc. On this basis, list all baits used, including those which did not catch any eels; the rod-hours spent on each; and the total number of eels caught on each. N.B. Please number the baits in the left-hand margin, for use in Item 10 (if you wish, these numbers may also be used as the "Bait" entry in Item 4).

Item 7. This section caters for observations made at a point in time such as, for example, readings from instruments. Air and water temperatures are specified, but the two blank lines may be used for observations of your choice (e.g. barometric readings - see Section 3.4 of this Guide). Enter in the two top spaces the date and time (as indicated in Item 4, above) at which the observation was made, and the observation on the appropriate line underneath. For temperatures, use a spirit thermometer scaled in degrees Fahrenheit and record readings to the nearest whole number of degrees unless you wish to draw attention to some small change in temperature. Take air temperatures with a dry thermometer in the shade; and water temperatures from a depth similar to where your bait is - not surface or marginal temperatures, please. Aim to provide enough data for the water temperatures during the whole session to be estimated; readings at the beginning and end of the session and at (say) three hourly intervals between would be very satisfactory.

Item 8. It is proposed to do separate analyses for dusk and dawn twilight, this year. For this reason, and to simplify the job of filling in the form, it is suggested that you leave Item 8 blank.

Item 9. This section caters for observations made over a period of time. Cloud cover is specified, but there are blank lines on which you may enter any other suitable data that you may be interested in and would like analysed (e.g. rain, thunder, etc.) For cloud cover, estimate % of sky covered and make entries thus:

More or less complete overcast	100%
Significant amounts of both cloud & clear sky	50%
Scattered clouds or completely clear sky	0%

Make the estimate to the nearest one of these three - 100%, 50% or 0%. Do not enter intermediate percentages such as 33 $\frac{1}{3}$ % or 75%. Do not try to record a multitude of very short-term changes; concentrate on giving a fair picture of the broad pattern of cloud cover (for example, a period of rapid variations in cover is best reported as 50% throughout). Aim for a complete picture of cloud cover during the night - the analysis will not take account of day and twilight cover.

Item 10. This item is the pilot exercise on swim details. There is provision for reporting up to 4 rods and up to 4 changes of swim and/or bait with each rod. Enter the date and time you start fishing with each rod and the details of the swim you cast into. If you later recast with that rod into a different swim and/or with a different type, size or species of bait, enter the date and time in the "stop" column, and start a fresh entry immediately underneath. Against each entry, show the bait used and the individual eels caught, using the numbers in the margins of Items 4 & 6.

Enter the distance cast, in yards; this will be a subjective estimate but the analysis will not require highly accurate figures; try to improve your estimating, if necessary, by occasional practice casts on dry land, and pacing out the distance. Generally, depth and bottom data will only be known after some form of water survey and you will therefore not be able to report them very often for "occasional" waters. Do not guess these data; they must be reliable even though a high degree of accuracy is neither needed nor possible in many cases. State approximate depth in feet; aim for errors no greater than about 20%. Under "bottom", enter "soft", "medium" or "hard" from the following classification:

Silt, mud, clay, mud & sand, silt & sand	= soft
Sharp sand, gravel	= medium
Close-packed stones, boulders, solid rock	= hard

Under "Snags", enter "yes" if you cast within 2 or 3 yards of a known snag such as a sunken tree or rooted-weed bed; if not, enter "no". Swim details are only really worth reporting for project waters; but N.B. that even if swim details are missed out, the rest of Item 10 must be completed because it is needed centrally for Item 8 and others. If in difficulty, please correspond.

"Swim Details" in Item 10 are required for Class ~~waters~~ 2.1 & 2.2 waters ONLY.

3. THE OPTIONAL PROJECTS

3.1 General Points

The Optional Projects are aimed at extending the scope of the Club's work as far as is consistent with members' interests and wishes. No member should even consider attempting all the projects, because the reporting would become a laborious task and both enjoyment and reliability would suffer.

The following notes indicate in detail what is involved in the various projects, and members are invited to reconsider their provisional plans in the light of these details. Obviously, it is better to select a limited number of projects in which you are interested, and do them well, than to take on too much and either lose enjoyment or reliability or both. Please indicate any revision of your plans.

It is obvious that there will be less data to analyse in the Optional Projects than in the basic Session Reports. Equally, we want to get useful analyses out of the season's work, despite the limited amounts of data. To help towards this, where the project is suitable, a "comparative" element has been introduced i.e. they have been designed as "controlled trials" which - by limiting the variables - make the smaller amounts of data more meaningful. The Projects which are in the nature of "controlled trials" are those described in Sections 3.5, 3.6 and 3.7. These all take the form of reporting results from two or more tackles which differ as far as is practicable in only one respect.

Taking part in a controlled trial can be fascinating if you are interested in the matter in hand; but it is not everyone's cup of tea. It requires a certain amount of commitment and discipline. However, although "controlled", there is a large element of free choice, and there is no question of asking you to adopt a method in which you have no confidence. For example, if you take part in the Terminal Tackle Test, you will be comparing results on two or more trace materials; but there is no need to use any materials in which you have no confidence - simply choose materials in which you do have some confidence for the trial.

If, during the course of such a trial, you lose confidence in one half of the trial, do not risk spoiling your enjoyment: stop the trial, and simply advise that you have done so.

In any of these comparative or controlled trials, two or more members may join forces, if they wish, one member running one half of the trial with one of his rods and the other member running the other half. The only proviso is that the two members concerned should collaborate and agree together, so as to ensure that the particular requirements set out for the Project are fulfilled. For example, if one member always uses groundbait in all his swims and another does not, they can take part in the Groundbaiting Project when they fish together, by arranging to fish a rod in one of two swims chosen to be similar in distance, depth, etc., by tackling up in similar ways, using similar bait and so on; but one groundbaiting his swim and the other not. They would then fill in their Session Reports in the usual way, ignoring the collaborative exercise; but they would then get together to fill in the separate Groundbaiting Project Report, jointly. Similarly, if one member always uses monofil and another always uses wire, they can arrange to run a Terminal Tackle Test when they fish together.

Such collaboration could greatly increase the amount of data with the minimum of extra work and without interfering with a member's normal fishing practices. Another extension of the same basic Group Working concept would be for one member to note (say) barometric readings for all those fishing together to report, and so on.

3.2 Growth Rates

*The essence of this is to pick your project waters for the season, and to aim at getting a sufficient number of specimens to enable a reasonable assessment of the growth rate to be made, along the lines illustrated in the Report on the 1967 work, from those waters. Killing odd eels from occasional waters is not of much value; except for really big eels especially if they are injured and likely to die, anyway. Members of this Club are naturally reluctant to kill any eels; but once the decision has been taken to carry out a growth rate study on a project water, it is best to press the project through, and terminate it, decisively. In any case, we should all think carefully before returning an injured eel, or one with a hook still inside it - especially to a project water - and ask ourselves whether it is ever likely to do well or, indeed, whether we may be simply consigning it to a lingering death. Also, when you are fishing someone else's project water (see Appendix) remember that your specimens would help their work.

(a) Basic Scheme: This involves removing the otoliths from the eels and sending them in for onward transmission to Liverpool University; please do not send otoliths direct to Liverpool. The method of taking the otoliths is described in the Bulletin for December 1966, p. 21 et seq. (duplicate copies can be made available on request and several members are now able to demonstrate the simple procedure). Immediately each pair of otoliths has been removed, clean them by rubbing lightly between the thumb and forefinger and place them in a stamp envelope clearly labelled with length, weight, date of capture and name of water, thus:-

35½
3:11½
16.6.68
Limpid Lake

Suitable envelopes are 2¼" square, glassine or (preferably) brown paper, from stationers, stamp-dealers or tackle-dealers (hook envelopes). Pack the envelopes containing the otoliths in cotton wool and/or a suitable small, stiff box, to protect them from breakage in the post (far too many were broken in 1967). Send the packages in with your Session Reports each month or alternate months, as convenient. Enclosure of a check list showing lengths, weights, dates and waters would be appreciated.

In Group working, one member can usefully take on the job of removing otoliths and keeping the project well organised. The otoliths are best taken fresh; but it may be more convenient to sever the eels' heads, label them so that the otoliths can be married up with the right data, and store them in formalin diluted with not more than 9 parts of water, or in meths., and having an otolith-removal session at intervals. Suitable methods of labelling during storage in formalin are being investigated. It is hoped that members taking part in this work will also submit sex and stomach contents data - see Section 3.3. Incidentally, David Goodrum has offered to remove otoliths from properly preserved and labelled heads - but contact him first, please!

(b) Alternative Scheme: For this, whole eels of 20" length or more are to be labelled with a code number, preserved, and despatched by rail in reasonably-sized batches to Dr. V.R.P.Sinha, Department of Zoology, The University, Liverpool. Please enclose a check-list showing length, weight, date of capture and water for eels despatched, with your Session Reports. Preserve the eels by placing in formalin diluted as above and injecting some of the solution through the body-wall into the guts; keep for 3-4 days, remove and wrap the eels in a cloth well moistened with freshly diluted formalin. Wrap well in plastic sheet or a stout plastic bag and finally make a sound parcel in hessian or strong brown paper. For members who would like to keep the eel's flesh, head, stomach and skin may be sent: details on request. In either case, otoliths from eels of less than 20" should be taken and dealt with as in the Basic Scheme (a) above.

3.3 Sex & Stomach Contents

The sex of eels is of interest to us, for example, in the more detailed interpretation of Condition data. In spite of a recent statement to the contrary, information about stomach contents is of such obvious relevance to angling as to need no emphasis. We shall obtain information on stomach contents for eels sent to Liverpool (which will, of course, be mainly females) but it will be of great value to the Club to supplement this with our own observations. The main - though not the only - interest will lie in eels from project waters, because dietary data should be considered in relation to the food available; but it will be worthwhile recording the sex and stomach contents of any eel killed but not sent to Liverpool.

(a) Sex: The sexing of eels is discussed in the Bulletin for August 1967, p. 3. The gonads (sex organs) are easy to find when the eel is opened and have either a "frilled" or a "lobed" appearance which is easy to distinguish after a little experience. Eels with frilled gonads are females; those with lobed gonads are mostly males but include a smaller proportion of females. Members taking part in this project will obviously NOT be expected to try to tell whether eels with lobed gonads are really males or females; all that is required is for the type of gonad to be identified, whether frilled or lobed. For the purpose of coding the observations onto Reports, it is suggested that members use the female symbol (♀) to indicate a frilled gonad, and the male symbol (♂) to indicate a lobed gonad. The symbols may be inserted in the "Remarks" column in Item 4 of the Session Report (but see below).

(b) Stomach Contents: Even a partial identification of all the small food items in a fish's stomach - especially if they are partly digested - is a difficult job even for a skilled zoologist, and the project does not call for this to be attempted. If you can confidently identify small food items in a general way - e.g. as "shrimps", "nymphs" etc. - so much the better, but if in any doubt, all such items may be reported simply as "small food items". The main objective is to identify the larger forms present, such as fish, snails, mussels, crayfish etc. With fish, report the approximate size and, if the state of digestion permits it, the species (insert a question mark if in slight doubt on species, but avoid guessing). Try to identify snails and snail shells; a useful guide is "The Observer's Book of Pond Life" by John Clegg, costing 6/-d. The observations may be inserted in Item 4 of the Session Report under "Remarks", alongside the indication of sex.

It is most important that the report should NOT be omitted when the stomach is found to be empty; make a special point of remembering to report "stomach empty" when this is what was observed.

The stomach is easily found when the eel is opened, and the diagram in the Bulletin for September 1967, p. 5, will help initially. The stomach may be slit open, or the closed end may be cut off with a pair of scissors and the contents squeezed out between the fingers (gently!); in either case, it will help if the contents are transferred to a shallow dish for examination: look at it "as it comes" first, and then try swilling it with a little water. This can all be done very quickly at the waterside, if you wish; and the lid of a plastic bait box serves well as an examination dish.

As indicated above, the observations on both sex and stomach contents may be reported under "Remarks" in Item 4 of the Session Report; this need not be cramped unless there are a large number of eels to report on, because the report can be spaced out over the whole of the Item 4 grid. However, if you wish to make a more detailed report (and additional data on the state of development of the frilled gonads, and the colour of the eel's skin would be welcome) the details may be set out on a separate sheet and pinned to the SR. There will be no special S. & S.C. Report Form.

N.B. If you intend looking at stomach contents, the sooner the eel is killed or anaesthetised after capture, the better, so as to reduce the risk of loss by disgorging.

All possible shades of opinion have been expressed about the possible influence of air pressure on angling results. The object of this preliminary exercise is to find out what the eels think about it. To take part, groups or individual members will need to acquire an aneroid barometer (the type with a dial and pointer) and record readings during fishing sessions at the waterside. Get the best instrument you can, remembering that it is the "works" that count; we do not want costly pieces of domestic furniture with elaborately carved wooden surrounds, etc. Especially when considering buying a second-hand instrument, check that it gives the same reading whether held vertically or horizontally. Advice on buying and using Govt. surplus altimeters as barometers is given in the Bulletin for March, 1965, p. 5.

Domestic barometers with a "weather forecast" inscribed on the dial should be satisfactory, if of reasonable quality, providing the dial also carries a graduated scale showing the air pressure in inches of mercury. However, it is vital to note that these instruments are (or should be) sold already adjusted to give a reading notionaly corrected for the height of the locality above sea level. In other words, they do not indicate what the air pressure actually is; they indicate what it would be if the barometer were lowered to sea level. Air pressure diminishes by about 0.1 inch for every 100 ft. rise in altitude. Thus, for example, a barometer "set for 400 ft." and intended for use in a locality about 400 ft. above sea level, gives an actual reading which is about 0.4 inches greater than the true air pressure at the time. If such an instrument is used at an altitude of 400 ft., it gives a reading roughly corresponding to the pressure at sea level; however, it is used at a different altitude, it still reads 0.4 inches "fast" but the reading no longer corresponds to sea level, of course.

There is therefore great scope for confusion; and if the exercise is to have any chance of success (whether the outcome is positive or negative) care must be taken to ensure that all participants' readings are consistent with one another. For the purposes of this project, it is proposed that we work in terms of the actual air pressure at the waterside where the eels are. The first step, having acquired a barometer, is to compare its reading with that of an accurate instrument set to read the true air pressure; this will probably mean comparing with a mercury barometer (some old-fashioned chemists' shops may have a mercury barometer on the premises; otherwise a young friend at school or college may be able to help). The second step is to either (a) make a note of the difference between your barometer's reading and the true air pressure, and alter your readings accordingly before reporting them; or (b) adjust your barometer - there is usually a set-screw at the back - so that it reads the correct air pressure directly on its dial.

Whichever method you use, report the actual barometric pressure, in inches to the nearest 0.1 inch. Enter the readings in Item 7. Indicate what they are by writing "Bar." or "Air Press." in the left hand column underneath "Water temp." and insert the readings in the grid under the date and time when they were taken. As with water temperatures, aim to give enough data for an estimate to be made of barometric pressures throughout the session - readings at the beginning, the end, and at three-hourly intervals during the session would be satisfactory. It is no great chore to make a routine of spending a few minutes "doing the readings" of thermometer and barometer every three hours or so, especially in group working.

The set-hand on the barometer will sometimes reveal that the pressure has been changing slightly, even though the readings, as recorded to the nearest 0.1 inch, remain the same. In such cases, please indicate the situation by writing "rising" or "falling" as appropriate on the form.

Everyone knows that the barometer glass must be tapped with the finger before taking the reading. Continue tapping until you are sure that the needle has settled to its reading.

3.5 Unusual Baits

There is no doubt that the sense of smell is important - perhaps most important of all the senses - to the eel in locating and "homing in on" its food. We know relatively little about what things smell strongly and attractively to eels, in water; certainly, they are not necessarily the same things that smell attractive - or, indeed, smell at all - to men, in air. When the eel reaches the bait, the sense of taste comes into play; and the same remarks apply. These are only a few reasons for taking some degree of interest in the evaluation of unconventional baits.

Results on the customary baits, which are used by all members on all waters for periods of time aggregating thousands of rod-hours per season, can reasonably be expected to reflect the merits of the baits themselves, the many other variables having "averaged out". Obviously, this does not apply to an unusual bait - otherwise, it would not be unusual! To get a reasonably valid appraisal of an unusual bait from the limited sort of trial we shall feel inclined to give it, we need to be able to compare its performance with that of one of the usual baits, in circumstances where as many as possible of the other variables are eliminated. In other words, we need to give it a "controlled trial".

To take part in this project, you may at any time decide to run a bait test; for a whole session or for part of it. You require two complete tackles as nearly identical as you can make them - the reel, the line, the trace material, the hook, the type of bite-indicator, everything which may affect results - and both must be fished for the same period of time, side by side, in similar situations, the baits lying in swims as nearly alike as you can manage. The unusual bait is fished on one tackle, and a usual bait on the other. Ideally, the tackles should be switched, either half way through the session, or from one session to another, so that each bait gets a roughly equal chance in each swim. Preferably, the trial should be extended, if not over the whole season, at least until a fair number of eels have been caught on at least one of the baits.

The rod-hours spent fishing the baits under these "controlled" conditions, and the results obtained, should be kept separate from the rest of the session data, and entered up in Item 6 of the S.R. form. The baits will be numbered in the margin; to indicate that you are reporting controlled bait test data, bracket the two numbers, and write "B.T." clearly against the bracket. The total rod-hours will be recorded in the usual way for each bait. However, to avoid any possible ambiguity about the results, enter in the "No. of Eels" column the individual code-numbers of the eels caught, from the margin of Item 4.

The reason for this last point is that you may have results to report which are not part of the controlled bait test, either from the same two rods or from a third or fourth rod. Thus, for example, you may have x rod-hours on worm as part of the B.T., and a further y rod-hours on worm which are not part of the B.T., and we need to be able to see which of the worm-eels caught are part of the B.T. and which are not.

The over-riding point is to run the bait test so that everything is as nearly the same as you can make it, with the sole exception of the two baits on test; note particularly that the periods of time should be the same, so that the report will show the same number of rod-hours against each bait in the test. Additional rod-hours on one or more of the baits which are not part of the test should simply be reported on a separate line in Item 6.

If you wish to, and if you can set up a third tackle to meet the requirements of the test, there is no reason why you should not run tests in triplicate; either to compare one unusual bait with two conventional ones, or two unusual baits with one conventional bait. Report as above, bracketting all three sets of data and marking "B.T." Please do not mark data "B.T." unless you are satisfied that they are genuinely comparative.

3.6 Groundbaiting

There was insufficient support for the idea of a pre-baiting test project to make it worth running, and no reports of pre-baiting data are required.

To take part in the Groundbaiting Test Project, you will require two tackles as nearly identical as you can make them in all respects which may affect results, to be fished for the same periods of time in swims as nearly alike as you can manage - just as in the Unusual Bait Test, which see. In this test, however, the baits used on the two tackles must be as similar as possible. One of the two swims to be ground-baited; the other, not ground-baited.

In the bait test, the two baits may with advantage be fished quite close together. For the groundbait test, however, the two swims should be far enough apart for it to be unlikely that the groundbait in one swim would be responsible for the presence of eels in the other swim.

If you want to groundbait all your swims, you may still take part if you can join forces occasionally with another member who does not groundbait all his swims, providing that between you, you can meet the control requirements of the test; otherwise, no report of groundbaiting data is required.

Obviously, using only two rods, one cannot run both a bait test and a groundbait test at the same time, because the former requires the swims to be similar (i.e. both groundbaited, or neither) and the latter the baits to be similar.

As with the bait test, swims in the groundbait test could be alternated with advantage; but because it is uncertain how persistent the effects of some kinds of groundbaiting may be, it would be advisable to groundbait one swim for (say) one weekend session and reverse them on the next weekend. The test need not be run every time you go fishing, of course.

The groundbaiting technique itself may take whatever form you wish. The groundbait may be similar to the hookbait, or unrelated to it; it may be, for example, whole fish, chopped fish or minced fish; it may be thrown in loose, or deposited in the water in a perforated container (there are interesting comments about "swim scenters" in Mike Winter's article in FISHING, 12.2.65, p. 9).

Reporting the G.B. Test data requires a separate Monthly Report form to be filled in, entirely independently of the Session Reports for the month. In other words, all your rod-hours etc. will go into the S.Rs. in the usual way, including the rod-hours spent on G.B. Tests, but without giving the G.B. Test data; the specific data from the G.B. Tests will be entered on the separate G.B. Test Monthly Report form, and finally sent in along with the month's batch of S.Rs. If necessary, several forms may be used for the report - the data need not be squeezed on to one sheet.

The form provides for the water, details of the test period, the bait used, and details of the groundbaiting and the results to be reported. The groundbaiting details may be entered in full in the appropriate column (e.g. "loose whole worms", "loose chopped roach" etc.) or you may use a simple number or letter code, and explain the coding on the back of the form (for example, you might enter "M.L.P.C." in the column, and indicate on the back that these initials stand for "minced liver in perforated can"). Obviously, for each entry of G.B. details, there will also be a "NIL" entry for the other half of the test.

Results from the groundbaited swim and the control swim will be entered separately. Eels caught are indicated simply by writing in their weights (e.g. 1:10, 2:6 $\frac{1}{2}$, 2:0 $\frac{1}{2}$ etc.) and other species caught also shown (e.g. 2xPIKE, 3xBREAM, etc.)

If you wish, and circumstances lend themselves to it, you may run a test in triplicate, providing the control requirements are met.

3.7 Terminal Tackle

The object of this test for the present season is to examine the effect (if any) of different types of "trace" material on the actual results obtained. By "trace" material is meant the material to which the hook is fastened; it may be the reel-line itself, or it may be a length of wire, monofil etc. which is fixed to the end of the line.

To take part in the test, control requirements similar to those in the Unusual Bait and Groundbaiting tests (which see) must be met. That is, two tackles as nearly identical as possible in all respects other than the trace material must be fished using similar baits and in swims as nearly alike as possible for the same period of time.

Whole sessions, or any parts of sessions, during which the control requirements apply may be reported as T.T. Test results. For this season, general information about tackle used is not required to be reported; information about tackle is required only when the T.T. Test conditions apply.

As in the other controlled trials, you may join forces with another member using either one or two rods each, arranging matters so that each meets one half of the test requirements, and making out a T.T. Test Report jointly. The trace materials used are entirely a matter for your own choice, though it is obviously desirable that they should be physically different to a significant degree. You may, if you wish, run three or more rods in the test, either duplicating one of your test materials, or introducing additional ones.

Obviously, you need not run the test every time you fish; sometimes you may start a test run, and then have to terminate it during the session because you run out of the particular type and size and bait, or because you lose tackle which you cannot match up again exactly. If a test run is terminated prematurely in this way, it does not matter - the data can still be reported.

Although there is complete freedom of choice on the test materials, the most useful data will arise when the materials on test are either different materials of the same thickness (diameter); or different materials of the same strength (wet B.S.); or the same material in different thickness/strength.

If you lose confidence in one or other of the materials, drop it and either stop testing or switch to another material. However, it is desirable to carry on until a fair number of eels have been caught on at least one of the materials - and, of course, you will probably have no cause to lose confidence until the test has gone this far.

Reporting the T.T. Test data requires a separate Monthly Report Form to be filled in, and sent with your Session Reports for the month. All the data will go on the S.Rs. in the usual way, but without mention of the terminal tackle; the data to which the T.T. Test requirements apply will then be picked out and duplicated in the T.T. Test Monthly Report.

The report form is largely self-explanatory, and broadly similar to the Groundbaiting Test report. The main special requirements are that the terminal trace material should, obviously, be specified in full detail; if you wish, to save space, enter a code letter or number against "tackle" and state on the back of the form what the coding stands for. Under "Results" eels caught are recorded simply by writing down their weights (e.g. 1:10, 2:6 $\frac{1}{2}$, 2:0 $\frac{1}{2}$, etc.); the capture of other species need not be recorded, but breakages etc. should be coded in under results, using the following code:-

reel-line broke on strike	= L.S.
reel-line broke while playing fish	= L.B.
trace broke on strike	= T.S.
trace broke while playing fish	= T.B.

If any of these things happen more than once, code it e.g. "2xL.S., 3xT.B." etc. If the trace "goes", you need not try to guess whether it broke or was bitten through; but comments about this may be written on the back of the form or on a separate sheet. Preferably, stick to one sensible comparison of materials and run the test now and again throughout the season.

3.8 Water Surveys

Some of the main reasons for setting out to build up a Club collection of water surveys or descriptions were indicated in the preamble to the monograph on Partney Pit, which was issued as a Supplement to the Bulletin for March, 1967. As our projects progress, the need for and the value of these surveys will increase rapidly. We shall not be able to get very much out of our data on swims, or stomach contents, or condition coefficients (to name but three) unless we are in a position to review and correlate the data against a background of information about the general characteristics of the individual waters.

It is proposed, therefore, that members acting individually or as Groups should survey waters - especially project waters - from time to time as and when opportunity presents itself; and send in the collected data (the job need not be "complete", indeed, it probably never will be!) which will then be redrafted into standard form, if necessary, and issued to all members to marry up with their collection of water summery sheets. The main items of information required will be:-

(a) A map showing the location of the water in its surrounding area, with approach roads and at least one fair-sized village or town. The map should be at least roughly to scale; about 3 miles to the inch would be suitable; and preferably traced from a road map. In the case of the few waters which are "confidential" for one reason or another, this map will necessarily have to be omitted. Give road numbers and the direction of North.

(b) A sketch map of the water. Make it at least roughly to scale - for example, by pacing out the main distances. Make a particular point of showing feeder and outflow streams and nearby water-courses. Show direction of North.

(c) A general description of the water. This need not be a literary essay; concise notes are better. Some of the main factual points to cover are: history (old gravel pit, old clay pit, natural lake etc.); O.S. Grid reference number; elevation (in ft.) above sea level; catchment area (use THE FIELD map which is supplied in the back cover pocket of WHERE TO FISH); county, if not covered in the maps; class of water as given in Section 2.2 of this Guide; main dimensions; depths; nature of the bottom; snags; location of weed-beds and indentification of the plant species; well-established swims; surrounding terrain, including whether farmland and whether cultivated or livestock, and nature of local rock etc. - granite, limestone, gravel, and so on; any physico-chemical measurements taken on the water such as pH, and method of estimation; etc. Code features onto Map (b) with letters.

(d) Fish and food species in the water (data will be assumed to be your own knowledge, unless otherwise stated). Comment on the approximate size and abundance of fish species (some Clubs and Groups are carrying out population estimates by e.g. marking and recapture rates, these days). Give details of identity and approximate abundance of any food species observed e.g. mussels, snails, crayfish, aquatic larvae etc., and try to identify the species, if you can, from a reference book or by showing specimens to a zoologist.

(e) Brief details of any notable eels from the water. Please do not omit details of big eel stories just because you have not been able to get absolute confirmation of them; get them on record, first - we may then be able to get further evidence; but state the source of your information and indicate any reservations you may have.

(f) Rules and regulations applying to the water. Rod-licence, whether close-season eel-fishing is permitted, whether permits are required, price and where to get them. Local facilities, etc.

Information for water surveys may be sent in - typescript or longhand - at any time, of course; but it would be particularly useful to send in soon after the end of eel-fishing for the season, so that the standard sheets can be distributed in time for them to be considered alongside the season's Water Summary sheets.

APPENDIX

List of Waters Members are Provisionally Planning to Fish

1968

Class 1.	R. Exe, Devon	M.W.
	R. Gt. Ouse, Bucks., Northants.	R.C. ϕ
	Beds., Hunts.	D.M., A.S.* ϕ
	Cambs., Norfolk	B.K., R.T. ϕ
	R. Tees, Yorks	G.F.*
Class 2.1/2	Arlesey Lake	A.S.* ϕ
	Balderton Pit, Notts.	Grantham Group ϕ
	Butlers Pit, Hunts.	Grantham Group* ϕ , A.S.
	Carlton Miniott Lakes, Yorks	G.F.*
	Castle Pool, Devon	M.W.?
	Crown Pits, Hunts.	Grantham Group* ϕ , T.C.
	Eggett's Pit, Hunts.	K.D.* ϕ
	Emberton Lake, Northants.	R.C. ϕ
	Fenhouses, Lincs.	Grantham Group ?
	Funtley Pit	M.J.* ϕ
	Harleston Lake (Pte.)	P.S.*
	Hatchett Pond, Hants	M.J.* ϕ
	L. Helen, Lincs.	Grantham Group ?
	Hollows Pond, E.11.	L.H.* ϕ
	Kingsmead Pit, Bucks	G.M., T.C., * ϕ
	"Radlip Pond" (pte.)	M.M.*
	Roswell Pits, Cambs.	B.K., R.T., * ϕ
	Slapton Ley, Devon	M.W.* ϕ
	Stickney Pit, Lincs.	T.C.* ϕ , Grantham Group ?
	Wood Pit, Devon	M.W. ?
	Wraysbury No. 1, Middx.	G.M., T.C., * ϕ
Class 2.3	Exeter Ship Canal	M.W.
	G.U. Canal, Husband's Bosworth	M.M.*
	Northants.	R.C., P.S. ϕ
	Warwicks.	R.B.* ϕ
	Grand Western Canal	M.W.
	Worcs. Canal	J.B.* ? ϕ
Class 3.	Coastal creeks, Essex	D.M.
Code:	* = Water survey projected	
	ϕ = Growth rate work projected	
	? = Minor project or undecided.	

Addendum: No doubt, there are a number of omissions in this Guide (for example, it should have been noted in Section 2.2 that length measurements should preferably be taken with the eel anaesthetised; and that the anaesthetic MS.222 can be obtained for members on request) but it is hoped that there are no serious errors. However, corrections, additions and suggestions for improvement would be welcome.

Terence Coulson, 4.5.68.