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# HABITAT STUDIES IN THE RIVER THAMES: IN RELATION TO A SEVERN-THAMES TRANSFER

**Final Report**

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This document is one in a series of reports which investigate various aspects of a proposed Severn to Thames Transfer.

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# EXECUTIVE SUMMARY

On the assumption that a possible Severn-Thames transfer would involve discharge of water from the River Severn into the River Thames near Buscot the present study consisted of an investigation of the habitat structure within the River Thames from St John's Lock (NGR SU222991) to below Grafton Lock (NGR SU278989). Preliminary modelling results by the Environment Agency indicate the transfer would be needed about one year in six for an average of five months, most commonly in July-November. In major drought years the transfer would be required earlier (May or June) and in some years it might be required after November.
In the present study the extent of major physical habitats, together with their stability over time and their significance for the aquatic fauna and flora were considered.

Three main aspects were investigated:

- The historical information provided by the River Thames Soundings Data.
- Application of the River Habitat Survey (RHS) methodology.
- Mapping of water depth, submerged plants and fine sediment, together with a description of prevailing flow conditions during periods of low discharge.

The River Thames Soundings hydrographic survey maps revealed that there had been little movement of the river channel in the general area of Buscot since 1938. At a few locations bank erosion and deposition had resulted in the channel moving from a few metres to the full channel width. In most areas the patterns of water depth along the river channel have remained very similar over several decades. The river channel stability has been maintained despite peak annual flood discharges averaging several thousand megalitres day$^{-1}$. Therefore in the context of the proposed Severn-Thames transfer it is considered that the River Thames channel and the extent of major physical habitats would remain stable.

Characteristics of five River Habitat Survey sites near Buscot were compared with similar river sites in England and Wales in the RHS database. This established that the mean annual discharge of River Thames at Buscot was at the lower end of the range represented by 86 lowland sites with similar physical attributes.

The within-river habitat survey confirmed that water depth was >2m in about one quarter of the river channel area and aquatic plants were absent from 90% of this deep zone but overall they occupied about 20% of the channel area. No species of emergent plant occupied more than 1% of the river channel. A deterioration in the underwater 'light climate', associated with increased water depth or higher turbidity, would reduce the area of submerged plants and change the proportions of different habitats available for river fauna. However detailed information is lacking on the settlement of fine sediment in the

River Thames at varying river discharges therefore conclusions on the impacts of fine sediment transferred from the River Severn, via proposed settlement lagoons, were speculative.

The theoretical mean water velocities in the River Thames at Buscot were predicted for a series of low river discharge values using the average volume of water present within the river channel. Addition of 200Ml per day from the River Severn would more than double the discharge prevailing in late summer however the impoundment of the River Thames between weir structures tends to buffer velocity changes. At higher baseflow discharges, when velocities restrict the spatial distribution of young fish in the River Thames, operation of the proposed Severn-Thames transfer during May or June would increase downstream displacement of fish fry and impose sub-optimal feeding conditions.

In conjunction with the parallel review of biological data (Furse, *et al.*, 1997), it was concluded that significant gaps in information remain. It is recommended these are addressed prior to the formulation of conditions under which the proposed Severn-Thames transfer would operate.

Recommendations:

- Establish precise relationships between the hydrological conditions in the River Thames and velocity changes at low river discharges to assist the prediction of impacts arising from the proposed Severn-Thames transfer.

- Investigate the settlement characteristics of transferred sediment to assist the formulation of guidelines on the maximum levels of suspended sediment permitted in any water transferred from the Severn.

- Obtain data on the seasonal availability of invertebrates within the aquatic plant stands to provide greater understanding of interactions between submerged plants, invertebrates, plankton and juvenile fish recruitment in the River Thames.

# CONTENTS

# 1. BACKGROUND

From the mid-1970's a series of investigations were commissioned by the Environment Agency, Thames Water (and their predecessors) to assess the viability of a possible Severn-Thames transfer scheme. These have primarily been desk studies and literature reviews but water quality in the River Severn and baseline conditions in the River Thames were also addressed. Initially several alternative transfer routes, transfer rates, off-take and input points were considered. Modes of transfer included direct pipelines and combinations of pipeline/canal and pipeline/Thames tributary.

In summary it was concluded that the most economic option was a direct pipeline from an off-take point on the River Severn, near Haw Bridge, to the vicinity of Buscot on the River Thames. Short retention storage (between one and five days) in lagoons at each end would be required to intercept sediment from the River Severn and facilitate controlled rates of discharge into the River Thames. Transfer rates of 200Ml to 400Ml per day were envisaged with the transfer operating when resources in the Thames region were exceptionally low. Such transfers would also depend on maintaining prescribed minimum flows in the River Severn to safeguard access for migratory fish. The prescribed minimum flow in the River Severn would be in the order of 2500-4000 Ml $day^{-1}$ (28.3-46.2 cumecs) during critical times of the year.

The transfer would be designed to operate during periods when water resources are scarce, for example, periods of excessive drought. The transfer would be triggered when storage in London's reservoirs dropped below a predetermined level for the time of year. Additional reservoir releases from the upper catchment of the River Severn would be necessary to permit the transfer to operate when river flows are universally depleted. Preliminary modelling results by the Environment Agency indicate the transfer would be needed about one year in six for an average of five months, most commonly in July-November. In major drought years the transfer would be required earlier (May or June) and in some years it might be required after November.

The Environment Agency (Thames Region) commissioned a series of reviews and research studies focused on the middle reaches of the River Thames [eg. Berrie, 1993; Mann & Bass, 1995; Mann *et al.*, 1995; Bass & May, 1996).

Additional studies were undertaken in 1996 on:

- juvenile fish diets in the River Thames (Mann *et al.*, 1996)
- River Thames zooplankton (Bass *et al.*, 1997)
- the consequences of mixing water from the River Severn and River Thames (House *et al.*, 1997) and chemical interactions of transferred sediment (Talbot *et al.*, 1997)
- a review of biological data (Furse *et al.*, 1997)
- and the within-river habitats study (this report).

A report summarising the conclusions from these studies was also prepared (Bass, Furse & House, 1997).

The present report was commissioned to establish the types and extent of within-river habitats present in the River Thames at Buscot, near Lechlade, on the basis that a proposed Severn-Thames transfer operating at a constant rate equivalent to 200Ml day$^{-1}$ would discharge into the River Thames near to Buscot. The study was focused on a river reach downstream from the proposed input point at Buscot and a "control" reach just upstream.

To assess the potential changes to habitats that might arise three aspects were investigated:

- 1. An examination of the historical information provided by the Thames Soundings Data.
- 2. An overview and analysis of habitats provided by the River Habitat Survey methodology.
- 3. Within-channel transect mapping to establish the distribution of aquatic plants and fine sediment, together with a description of prevailing flow conditions during periods of low discharge.

## 2. INTRODUCTION

Changes in river discharge patterns in the middle reaches of the River Thames may result from future river management schemes. These include proposals such as the construction of a new reservoir and the transfer of water from other catchments. Alteration to river discharge would have direct consequences for the flora and fauna through associated changes in water chemistry, velocity patterns and possibly temperature. Direct and less direct impacts would also arise from the modification of the within-river habitats that particular species require, either throughout their life or at critical life-stages. Alterations to the extent, depth and quality of fine sediment on the river bed, the distribution and species of aquatic plants, all have implications for the faunal community. In common with many rivers in lowland Britain the middle reaches of the River Thames receives a high proportion of summer flow via treated effluent discharges. Also the channel has a low gradient with extensive impounded reaches to maintain access for navigation. An increase in river baseflow has been noted on the lower reaches of the River Thames (Higgs & Petts, 1988). They report similar increases in other lowland rivers and attribute them to the direct return of treated effluent to rivers and water supply transfers between catchments in recent decades. Despite such an un-natural regime the chemical and biological water quality is "Good" (Class A), as is bacteriological quality with coliform counts classed as "low" [LEAP Consultation Report: River Thames (Buscot to Eynsham) Windrush and Evenlode, 1996].

Throughout this part of the middle River Thames the river valley is classified as an Environmentally Sensitive Area and extensive areas of semi-improved grassland occupy the riparian zone. In the near future a new system, "SERCON", (initiated by Scottish Natural Heritage) will be available for classifying more precisely the conservation status of the river. Unlike the majority of lowland rivers of comparable size, riverbank modifications are largely confined to boat lock cuttings and weir structures. Removal of gravel 'shoals' and fine sediment deposits in these areas are occasionally undertaken for flood defence purposes. Maintenance of the River Thames navigation requires the removal of silt banks from the central third of the channel if they impede boat traffic. In the area of Buscot this action is reported to be rarely necessary as such material is naturally translocated to downstream reaches during periods of high discharge. No routine weed cutting within the main river is undertaken in this area.

This study examines the stability of the River Thames channel morphology, comparing the current situation with historical information from the Buscot area. By this means establishing a baseline from which to predict and monitor future changes to within-river habitats, which might arise from modifications to river discharge associated with the proposed Severn-Thames transfer.

## 3. PROJECT OBJECTIVES

The aims of the present study were:

1) Provide an analysis of currently available data relating to within-river habitats present, both upstream and downstream of the proposed discharge point (for water from the River Severn), using the Thames Soundings data.

2) Undertake a series of River Habitat Surveys at selected sites during the prescribed early summer period (May and June). Such surveys to conform in all respects with the Environment Agency's River Habitat Survey Methodology (1996).

3) Undertake a late summer transect survey of within-river habitats, to include the seasonally restricted submerged plants, complementing existing Thames Soundings data.

4) Assess the vulnerability of the available river habitats to flow changes resulting from the proposed Severn-Thames transfer.

5) Predict significant structural changes to within-channel habitats, arising from the proposed River Severn transfer, which will impact the fauna and flora.

6) Recommend possible constraints on transfer discharges which may be required to maintain or enhance habitat structure of significance to the fauna and flora.

7) Provide a baseline from which to measure future changes in within-river habitats, upstream and downstream from the proposed discharge point for water from the River Severn, in a post-development impact assessment.

It is the intention that this study will assist future interpretation of data at the reach, habitat and species levels with regard to the potential impacts of a proposed Severn-Thames transfer. The findings should be assessed in conjunction with the concurrent project summarising the biological data available on the middle reaches of the River Thames (Furse, *et al.*, 1997).

# 4. METHODOLOGY

## 4.1 Thames Soundings Data

Analysis of currently held Thames Soundings data and the acquisition and analysis of new data was based on a river length of about 5km near Buscot (Fig. 1). This included the reach approximately 2km upstream and 3km downstream from the possible discharge point for water from the River Severn. An investigation of past channel 'migration' and alterations in channel shape over an extended timescale provided insight into the degree of stability when exposed to seasonal and extreme hydrological conditions. The potential for changes in river channel morphology and the associated within-river habitats were considered in the context of the proposed River Severn transfer of an additional discharge of 200Ml per day.

The Environment Agency (Thames Region) Survey Group, based in Reading, possess extensive recent and historical data on river channel form, position and dimension. For the purposes of the present study only data from maps produced during hydrographic surveys have been consulted. Copies of the following series of Thames Soundings maps were kindly made available by the Environment Agency Survey Group staff:

1938 - Buscot Lock to Radcot Lock
1975 - St John's Lock to Buscot Lock
1979 - St John's Lock to Buscot Lock
1986 - Buscot Lock to Grafton Lock
1996 - Buscot Lock to Grafton Lock

Information derived from the maps was transferred to a spreadsheet (Appendix I), including river section (transect) number and channel depths which were recorded at 3m intervals across each section (corrected to local Ordnance Datum points). Data from 1938 were converted to metric equivalents. The Thames Soundings data record depth at 3m intervals across the river.

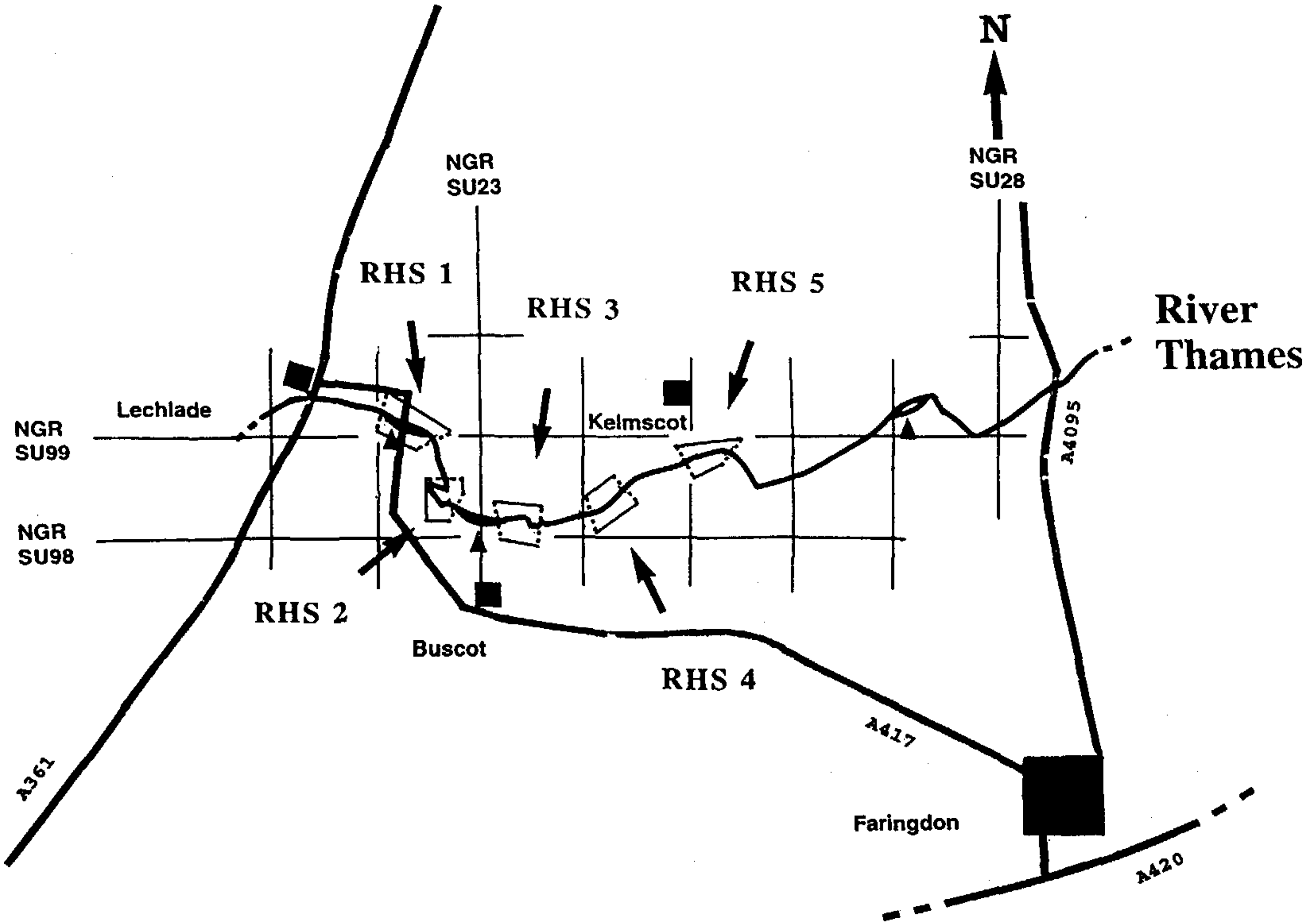


**Figure 1**. River Thames reach on which data from Thames Soundings, River Habitat Survey sites and within-river habitats where obtained. St.John's Lock, Buscot Lock and Grafton Lock are indicated by triangles (West-East); locations of the five River Habitat Survey sites (1-5) are indicated.

These measurements incorporate corrections to account for the prevailing discharge. At each lock the water height, in relation to a fixed mark (Standard Head Water Minimum), is recorded several times each day. By this means channel depth distribution in the Buscot area was compared over a 10-60 year timescale. In addition, by visually comparing maps (adjusted to the same scale) the river channel location and width could be crudely compared between survey dates. From this information the position and size of the river channel and, by inference, the comparative stability of within-river habitats was assessed.

Particular reaches where structural changes were evident (downstream from the Buscot Lock bypass channel 1975-1979)(Fig. 2) were compared with stable non-meandering lengths (upstream from Eaton Weir)(Fig. 3). However, the river reaches selected for comparison between dates were limited by the availability of corresponding maps.

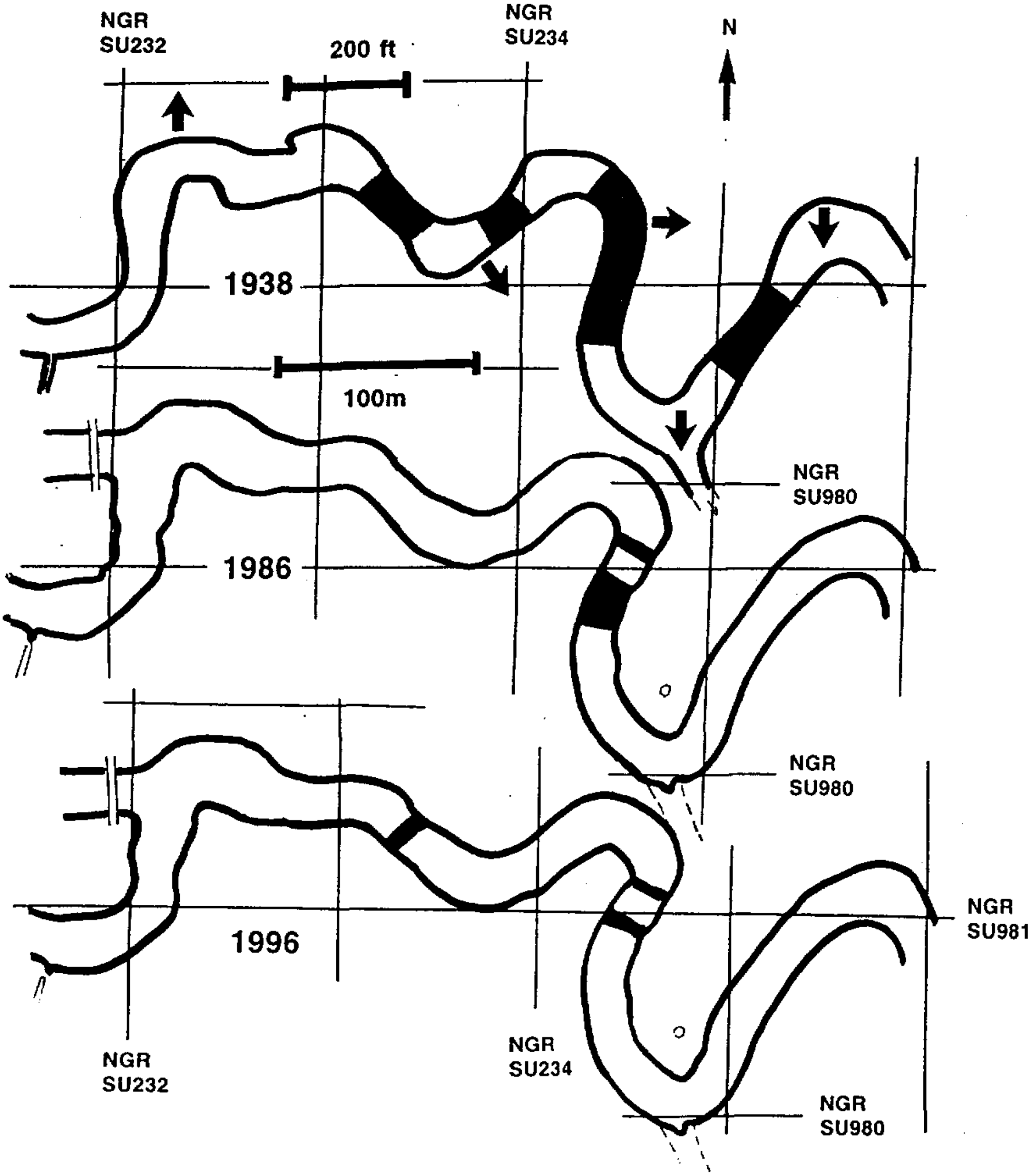


Figure 2. River Thames downstream from Buscot Lock, derived from Thames Soundings maps; the extent of river <20m wide is indicated by shading; situations where the river channel has shown greatest movement are arrowed.

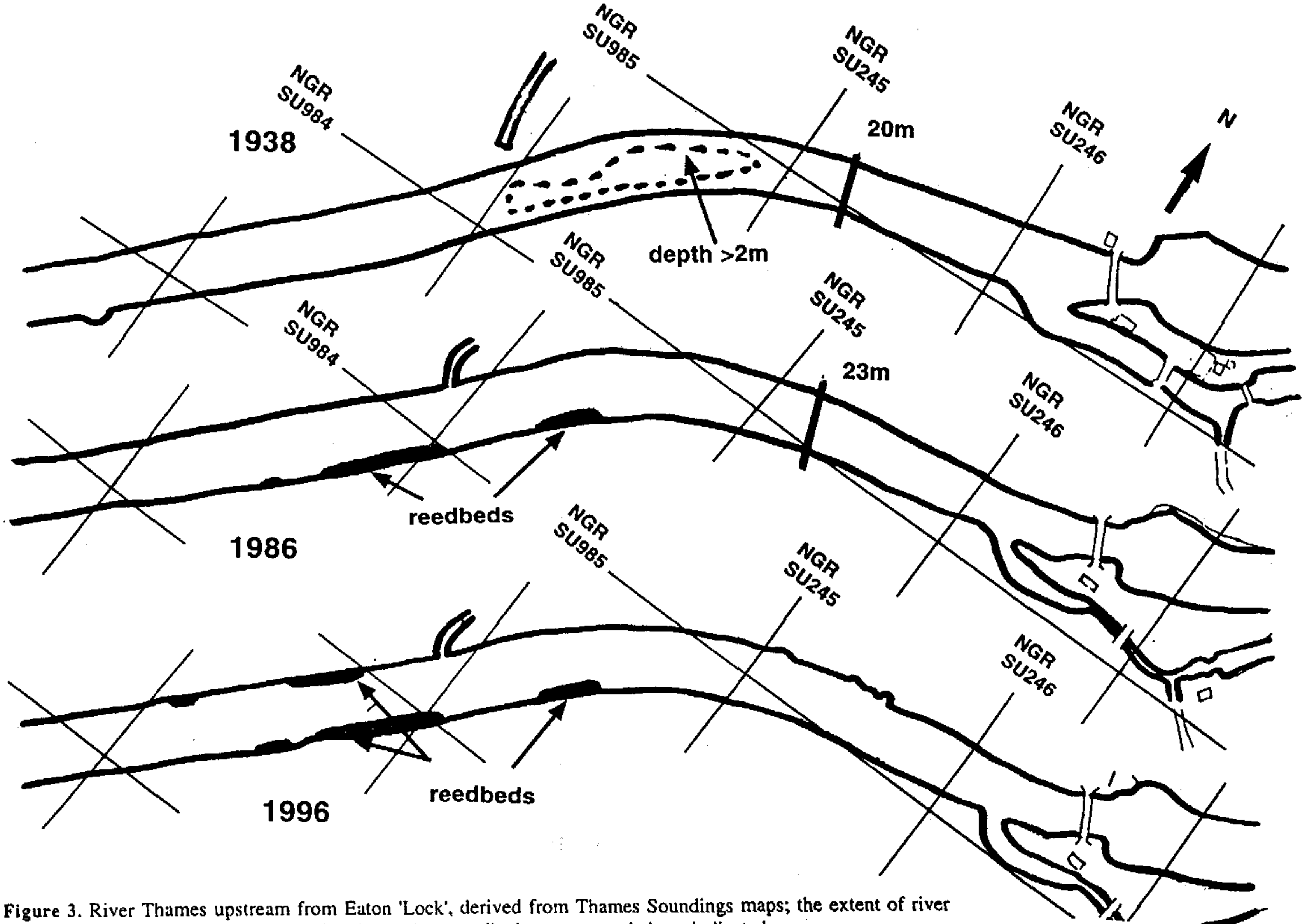


**Figure 3.** River Thames upstream from Eaton 'Lock', derived from Thames Soundings maps; the extent of river <20m wide is indicated by shading; situations where reedbeds were recorded are indicated.

## 4.2 River Habitat Survey (RHS)

The River Habitat Survey is currently being developed as a tool for classifying rivers based on their habitat quality. The database may also be used to assess the characteristics of individual river sites by comparing them with other adjacent sites, rivers, regional sites or viewed in a national context. The RHS methodology allows an assessment to be made of the physical structure of watercourses based on a 500m sample unit. This is achieved by completing a four page form (RHS Field Survey Guidance Manual, 1996). Page one of the form involves collating background and overview information, requiring both desk study and field work. Pages two to four are collated in the field. Page two of the form comprises ten spot checks. The spot checks are located at equal distances along the 500m sample length. Each spot check is comprised of an assessment of flow types, physical features, vegetation structure, land use and vegetation types. Physical features are assessed from a 1m wide "transect" across the channel, while vegetation structure, land use and channel vegetation types are assessed within a 10m wide "transect" across the river at the same spot. Page three of the form comprises a sweep-up of information and represents an inventory of features over the whole 500m sample length and so will include features not recorded in the spot checks. The fourth page of the form records channel dimensions, influences and special features. In rivers that are too deep for the surveyor to wade and where a view of the river bed is obscured the details of water depth and river bed material are recorded as "unknown". This was the case at all 5 River Thames sites.

Although the survey did not require specialist geomorphological or botanical expertise, it was essential that there was consistent recognition of features. To ensure consistency of recording all surveyors had to be accredited. Mr Geoff Collett, in charge of this sector, trained as an RHS surveyor in 1995 and attended a further accreditation and training course in April 1996, at Chester.

Analysis of RHS information enabled the sample length of river to be compared on a regional and national level. A computer database on CD-ROM permits easy access to the

RHS data. Whilst the current report was in preparation the CD-ROM (1996) draft version became available.

The locations of the 5 RHS sites (Fig. 1) selected by the Environment Agency were as follows:

1. NGR SU224990 (downstream from St. John's Lock)
2. NGR SU225984
3. NGR SU234982
4. NGR SU242982
5. NGR SU252988 (due south from Kelmscot Manor)

### 4.3 Within-river habitat mapping

The late summer (1996) survey involved mapping and measuring the areas of within-river habitats over a predetermined river reach. The reach selected (Fig. 1) included the 5 RHS sites and the area for which Thames Soundings maps were available. Contemporary data on water depths and velocities were also obtained. It was proposed to re-survey alternate river transects used in the River Thames Soundings, namely at about 100m intervals on straight river sections and approximately 40m intervals on bends.

Light attenuation increases with water depth and photosynthetically useful wavelengths penetrate the shortest distance. Therefore rooted aquatic plants generally fail to become established in British rivers where water depths exceed 2-2.2m, even when turbidity from suspended particles is low. To assess the pattern of depth distribution (and by analogy the probable limits of aquatic plant distribution) the location and proportion of Thames Soundings points within certain depth ranges (<1m, >2m and 1-2m), were examined and compared for all river sections and on all dates (Table 1). The 1938 Soundings had been recorded in feet and inches and these values were converted to metres for ease of comparison (Appendix I).

The following techniques of river transect mapping have previously been used on the River Great Ouse by the Institute of Freshwater Ecology. A rope was held under tension across the river at each transect by a person on each bank. A light inflatable boat was moved along the rope which was labelled at 1m intervals. The fourth person recording water depth, substrate type, presence of aquatic plants and depth of any fine sediment occurring. The survey boat retreated to the river edge and the weighted rope was allowed to sink when boats approach the transect point.

Water and fine sediment depths were measured using a telescopic 5m survey pole, with the pole pushed into fine sediment until compacted clay or gravel/pebbles were encountered. A small grapnel on a rope was available for determining the presence of plants when visibility was obscured. Water velocity was measured with an electromagnetic flow meter.

In the River Thames survey, conducted in September 1996, data were recorded at 1m intervals in marginal zones changing to 3m intervals away from the river margin. The substrate and any aquatic plants immediately adjacent to each survey point were noted. Fifty transects were surveyed throughout the study reach (St. John's Lock to 0.5km downstream from Grafton Lock.

## 4.4 Water Velocity

Water velocity was insufficient at all localities during the September 1996 survey to record flow with the electromagnetic flow meter (capable of measuring velocities down to 0.05m $sec^{-1}$).

Some theoretical calculations of water velocity (Equation 1) are presented to illustrate the scale of change that occurs in the River Thames during low flow conditions in response to increasing discharge. In the absence of measurable water velocities the channel capacity and gauged flows were used to calculate the mean velocity at the river discharges recorded (by the Environment Agency) in September 1996 . For the purposes of the calculation it was assumed that the volume of water within the channel remained constant as discharge increased under conditions of low flow. This assumption was made on the basis that water height was artificially maintained by weir structures and that 'backing-up' would be insignificant under conditions of low flow, accepting that in practice the water height would increase with rising discharge and also be modified by adjustments to sluices and the operating of locks. The degree to which channel roughness would modify velocity across the channel and from river bed to water surface was also ignored.

(Equation 1)

$$\text{Mean water velocity } (\text{m sec}^{-1}) = \frac{\text{gauged flow rate } (\text{m}^3\ \text{sec}^{-1})}{\text{volume of water within the channel } (\text{m}^3)\ [\text{displaced 1m downstream}]}$$

[channel volume = mean water depth x mean water width x 1m ]

# 5. RESULTS AND DISCUSSION

## 5.1 Thames Soundings data (Hydrographic Surveys)

*Channel width and position*

There was no evidence for major alterations having occurred on this reach of the River Thames but it is noteworthy that a high proportion of lowland river channels in England and Wales were extensively modified in the 1970s (Brookes *et al.*, 1983). Over relatively short timescales (<10 years) the Thames Soundings maps indicated little movement in river channel position but at a few locations over long timescales (10-60 years) the channel had migrated from a few metres to the full channel width. The clearest changes were noted just downstream from the Buscot Lock bypass channel (Fig. 2) which was constructed in the late 1970s. Changes to the flow conditions in this particular area appear to have been sufficient to accelerate the very slow channel migration noted on other reaches (eg upstream from Eaton Weir, Fig. 3). Generally the position of the river channel on straight sections has shown long term stability. On all sections the river width was more variable in 1938 and narrow lengths along the channel have become wider in recent decades (Figs 2 & 3). If the differences in channel width highlighted on the survey maps are realistic it suggests the river had a more spatially variable velocity pattern in 1938 than has been the case in the 1980s and 1990s. Consequently the prevailing within-river habitats available may be less diverse now than was historically the case. The artificial maintenance of water height by control structures and the removal of sediment banks when they form within the boat channel have probably enhanced channel stability.

*Channel depth*

It was recognised that as data were restricted to varying lengths of river on each date the comparison might have been biased by the inclusion/exclusion of exceptional reaches. Therefore three reaches at which the same transects were surveyed on several occasions were examined separately and they indicated depth characteristics were reach-specific and fairly stable (Table 1). Differences between the 1996 datasets (Thames Soundings and IFE transect mapping) are apparent where depths <1m were recorded. This is attributed to an overestimate of shallow areas resulting from the conversion of values for the 3m measuring interval (Thames Soundings) to 1m intervals, where the first measurement point reflected depth close to the bank but the conversion ignored the typically rapid increase in depth within 1-2m of the bank.

*Available habitats*

The Thames Sounding data include reference to river bank structure and the presence of 'reedbeds' which on some reaches remained in similar areas over at least a ten year period (Fig. 3). A description of the river bed material was also recorded every fifth 'section' surveyed but no detailed distribution of substrata or the aquatic plants present were recorded. Hence the need to utilise the RHS methodology and undertake mapping in September 1996 (section 5.3). The long term status of different within-river habitats and the associated flora and fauna in the Buscot area remain open to speculation in the absence of further documentary evidence.

**Depth zones derived from Thames Soundings (1938-1996) and IFE (September 1996) transect mapping downstream from St John's Lock to Grafton Lock.**

| Date | depth total points <1m | >1<1.99m | >1.99m | <1m mean % | >1<1.99m | >1.99m |
|---|---|---|---|---|---|---|
| 01/01/38 | 39 | 40 | 22 | 39 | 39 | 22 |
| 01/01/75 | 24 | 46 | 22 | 26 | 50 | 24 |
| 01/01/79 | 35 | 55 | 37 | 28 | 43 | 29 |
| 01/01/86 | 46 | 107 | 36 | 24 | 57 | 19 |
| 01/01/96 | 51 | 82 | 33 | 31 | 49 | 20 |
| /09/1996 | 72 | 164 | 80 | 23 | 52 | 25 |

**Selected corresponding transects - permitting more precise direct comparisons (dates/reaches)**

## Transects 1-14 (excl. 8-10)

| total | <1m | >1<1.99m | >1.99m | <1m mean % | >1<1.99m | >1.99m |
|---|---|---|---|---|---|---|
| 01/01/75 | 24 | 46 | 22 | 27 | 48 | 24 |
| 01/01/79 | 29 | 43 | 21 | 33 | 46 | 21 |
| /09/1996 | 16 | 38 | 20 | 22 | 51 | 27 |

## Transects 22-32

| total | <1m | >1<1.99m | >1.99m | <1m mean % | >1<1.99m | >1.99m |
|---|---|---|---|---|---|---|
| 01/01/38 | 33 | 30 | 13 | 42 | 39 | 18 |
| 01/01/86 | 20 | 55 | 7 | 24 | 67 | 8 |
| 01/01/96 | 26 | 50 | 9 | 30 | 60 | 11 |
| /09/1996 | 20 | 52 | 9 | 25 | 64 | 11 |

## Transects 33-43 (excl. 37,37,40,41)

| total | <1m | >1<1.99m | >1.99m | <1m mean % | >1<1.99m | >1.99m |
|---|---|---|---|---|---|---|
| 01/01/86 | 18 | 23 | 20 | 29 | 38 | 33 |
| 01/01/96 | 23 | 27 | 24 | 31 | 36 | 32 |
| /09/1996 | 12 | 28 | 17 | 21 | 49 | 30 |

Table 1 : Comparison of River Thames depth distributions recorded during Thames Soundings (Hydrographic surveys) and the present study (IFE -1996). The number of points in each of three depth ranges (corrected to local datum points) relate to those obtained at 3m intervals across the river.

## 5.2 River Habitat Survey (RHS)

The five 500m reaches (Fig. 1), selected for the RHS survey by the Environment Agency, were surveyed in mid-June 1996. Field-recorded data was transferred to a spreadsheet format and used to generated a summary of site characteristics (Appendix II) . The RHS forms and summaries produced by the Institute of Freshwater Ecology include reference to plant species additional to the RHS 'notable nuisance' species. The computer-generated summaries only include the three most common categories or attributes within each section of the form and therefore reference to the four page questionnaire is necessary to check for the presence of less frequently occurring features. Subsequent comparison with the 1996 RHS database software package was delayed until the CD ROM version of verified data became available in January 1997.

Features of the 5 RHS sites that might be impacted by the proposed transfer of 200Ml per day from the River Severn were examined and are listed below:

The bank top channel width (following the RHS methods) ranged from 23-30m. Bank height ranged from 0.4-1.4m.

There was "no perceptible flow" present at all sites (as defined using the RHS methodology).

Bank profile descriptors indicated:"vertical undercut" banks were "extensive" (>33% of bank length) at 4 of the 5 sites, "steep" banks were extensive at 2 sites and "reinforced" banks were extensive at 1 site (adjacent to St John's Lock).

The most frequently recorded river bank features (from a total of 100 locations) were: "stable earth cliff" - 48; "no features" - 39; "vegetated side bar" - 5 and "eroding earth cliff" - 5.

Vegetation within the channel was recorded as present at 48 out of the 50 locations, with the most frequent growth forms being filamentous algae, "emergent reeds/sedges/rushes" (*Glyceria maxima, Schoenoplectus (Scirpus) lacustris, Phragmites australis, Sparganium erectum, Phalaris arundinacea*) and "floating-leaved rooted" (represented by *Sparganium emersum* and *Nuphar lutea*). To assess the potential impacts of the proposed Severn-Thames transfer the scale of physical changes generated were considered. The majority of RHS descriptors are associated with the physical characteristics of the river bank and channel dimensions (23-30m at the RHS survey points on sites 1-5). These major features are maintained and occasionally modified by peak annual flood discharges of several thousand megalitres $day^{-1}$ on the middle River Thames. It was considered such features will not be altered by the additional discharge from the proposed River Severn transfer of 200Ml $day^{-1}$. For the purposes of the present study the RHS methodology was considered unsuited to the detection of the more subtle changes to within-river habitats that may occur during low flow periods in large river channels. This is addressed in the following section.

From the RHS database consisting of over 5000 river sites throughout England and Wales a range of 86 sites with similar physical attributes to the middle River Thames were selected for comparison. This was accomplished by specifying delimited ranges to attributes: eg, channel width, site altitude, river slope and water depth exceeding 1m. The RHS software was used to display the distribution of mean annual discharge (flow) categories at these 86 sites. A comparison with the 5 River Thames sites showed that the River Thames discharge category ("5") was at the lower end of the range of the 86 similar sites in the database. This indicates that the middle River Thames channel is "overwidened", for the mean discharge it conveys and emphasises the point that relatively small increases in discharge would have negligible impact on the structure of the river channel. It is stressed that this was a preliminary and incomplete exploration of the RHS software capabilities.

## 5.3 Within-river habitat mapping

*Transect mapping*

River transect mapping in the Buscot area (Fig. 1) was undertaken in September 1996. Late summer was chosen for this activity to coincide with maximum water clarity and the decline in seasonal boat traffic. The majority of aquatic plants are still present prior to the autumn die-back. The data were compared with information on within-river habitats provided by the River Thames Soundings and RHS methodology. Data were recorded from 50 river transects (sections) in the same format as the River Thames Soundings. Data on river bed characteristics were also collected at more frequent (1m) intervals in shallow (<2m) areas. Water depths recorded on the day were adjusted to take account of the Standard Head Water Minimum on each lock reach to permit direct comparison with Thames Soundings measurements. Both the within-river habitat survey and Thames Soundings datasets showed that the 1-2m depth range was the most frequently occurring category. Occupying from 36-67% of the river channel in different reaches. The proportion of the river channel less than 1m deep ranged from 21-25% in September 1996. This was considerably lower than the values derived from the Thames Soundings obtained earlier in 1996 (30-31%). Reasons for this difference are unknown. It cannot be attributed to water height change as the Standard Head Water Minimum adjustment had been applied to both data sets. However there was much closer agreement between the datasets in relation to proportion of the channel with deeper water (>2m)(Table 1) and it is noteworthy that particular reaches have retained their "deep" or "shallow" characteristics over long time periods. The latter observation confirms that extensive surveys covering reach lengths of more than 500m are required on large rivers in order to fully evaluate the distribution of some habitats.

*Aquatic plants*

As noted in Section 4.3, the depth profile of the river channel imposes light restrictions on the particular species and distribution of aquatic plants occurring. The within-river habitat survey established that aquatic plants were absent at 90% of the locations where depths exceed 2m. Emergent species were confined to the marginal zone and of the six most commonly recorded species [*Schoenoplectus (Scirpus) lacustris*, *Glyceria maxima*, *Phragmites australis*, *Sparganium erectum*, *Phalaris arundinacea*, *Sagittaria sagittifolia*] none occupied more than 1% of the river channel (Table 2). Conditions restricting more extensive growth of emergent species were considered to include water depth, stock grazing, bank profile, tree-shading, erosion during floods and abrasion by boat traffic. No emergent species, or significant areas of emergent vegetation, are considered likely to be adversely effected by additional flow or turbidity as a result of the proposed Severn-Thames transfer. However submerged plant species, including epiphytic algae, are subject to the additional constraints imposed by the prevailing "light climate" within the river. In September 1996, approximately 20% of the river channel was occupied by *Sparganium emersum*, a plant with narrow strap-like leaves which grow from extensive rhizomes firmly rooted in the river bed. The yellow water lily (*Nuphar lutea*) was the next most prolific species, occupying about 6% of the river. This species has comparatively robust floating leaves and extensive areas of softer submerged leaves in addition to long-

| Plant species/taxon | Habitat / growth form | % occurrence at survey points |
|---|---|---|
| *Sparganium emersum* | submerged / perennial rhizomes | 20% |
| *Nuphar lutea* | submerged and floating leaves / perennial rhizomes | 6% |
| *Elodea* spp | submerged / adventitious fragments | 3% |
| *Sagittaria sagittifolia* | submerged and emergent / perennial rhizome | <1% |
| *Schoenoplectus (Scirpus) lacustris* | emergent / perennial rhizome | <1% |
| *Sparganium erectum* | emergent / perennial rhizome | <1% |
| *Phragmites australis* | submerged and emergent / perennial rhizome | <1% |
| *Glyceria maxima* | bankside and floating mat / perennial rhizome | <1% |
| *Phalaris arundinacea* | bankside flood zone / perennial rhizome | <1% |

**Table 2 :** River Thames within-river habitat mapping (September, 1996) in the Buscot area; summary of the % cover of the most common aquatic plants recorded.

established rhizomes. Canadian Pondweed (*Elodea* spp) was present at 3% of survey points. The aquatic moss, *Fontinalis* sp., was recorded on tree roots and on other stable substrata particularly in shaded areas. Other submerged plant species occurred less frequently (<1%). It should be noted that seasonal changes in plant growth and the intensity of boat traffic may alter the areas occupied and the species recorded. However the two most common species were persistent long-lived perenials with slow-growing rhizomes, therefore the single "snap-shot" survey in September 1996 probably yielded an accurate picture of their distribution. Using the same mapping technique on the River Great Ouse the same species predominated in June-September over three years at three sites. The area of river channel occupied by *Nuphar lutea* (6-13%) was less variable than recorded for *Sparganium emersum* (<5-16%)(Pinder et al., 1997)(Fig. 4).

As noted earlier, the almost complete confinement of aquatic plants to depths less than 2m is largely as a result of the attenuation of photosynthetically useful light. The normal seasonal restrictions imposed by high turbidity during floods and turbidity from planktonic algae in late spring and early summer currently limit the area occupied by submerged plants in the middle River Thames. Additional turbidity resulting from the proposed Severn-Thames transfer would impose further constraints but such effects are difficult to predict against a background of wide variation in the natural seasonal and year to year variability in turbidity in the River Thames. Short-term changes in turbidity levels attributable to boat-wash may also impose constraints. The interactions between submerged plants, phytoplankton and microcrustacea sheltering within plant stands (Timms & Moss, 1984) also remain to be evaluated in rivers.

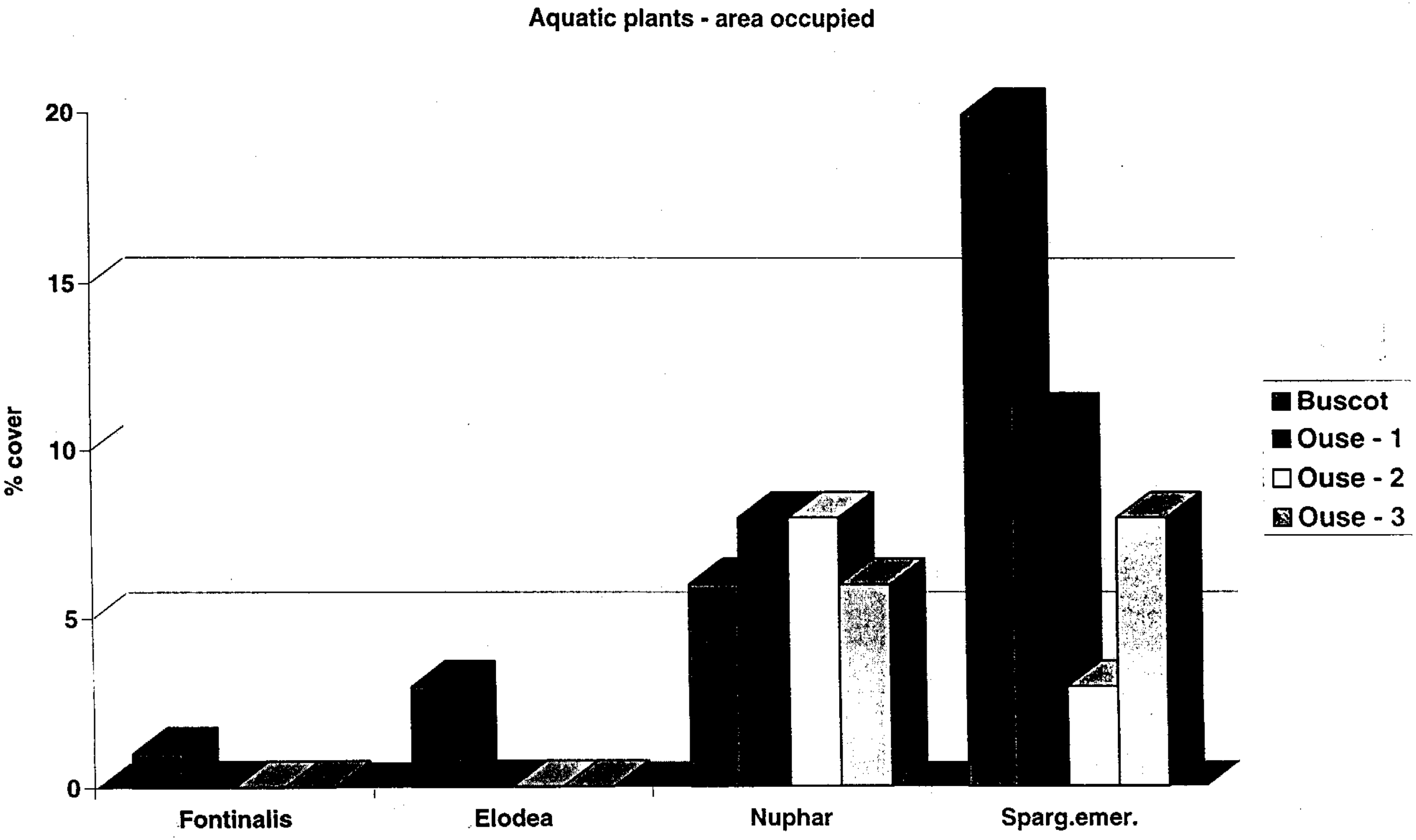


**Figure 4.** Area cover (%) of the most common aquatic plants in the River Thames and River Great Ouse.

*River bed substrates and sediment deposits*

The distribution and depths of fine sediment present in the River Thames in the area of Buscot were recorded in September 1996 (Table 3). Fine sediments provide a highly contrasting habitat for freshwater invertebrates, fish and plants, when compared with the river bed gravel and compacted clay which are the predominant substrata (57% and 23%, respectively, of 1094 survey points). In September 1996 fine sediment was recorded present at 29 of the 50 river transects surveyed and at about 10% of the individual survey points. The average depth of the fine sediment was 0.16m. On most occasions it was possible to differentiate between sand and silt using a blunt-tipped ranging pole but sand was recorded at only 6 of the 117 locations with a measurable depth of sediment. Mixtures of sand and silt occurred and they were recorded as fine sediment. No attempt was made to gauge the degree of siltation present within the interstices of the river bed gravel.

The small proportion (c.10%) of river channel occupied by fine sediment in September 1996 was initially surprising when the lack of water current and absence of flood flows over the preceding 5 months was considered. The observations are consistent with the experience of the Environment Agency engineers, who report minimal sediment accumulation in this reach associated with a self-cleansing capacity and a regular seasonal translocation of any deposits to reaches downstream. The River Great Ouse also passes through a clay catchment and carries highly turbid water during flood flows. It closely resembles the middle reaches of the River Thames, with gravel and pebbles also comprising the most frequent substrata even after extended periods of low river discharge (IFE unpublished data, Table 4).

| Transect No. | Depth (m) | Transect No. | Depth (m) | Transect No. | Depth (m) |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| 1 | 0.7 | 12 | 0.4 | 23 | 0.25 |
| 1 | 0.7 | 12 | 0.1 | 23 | 0.5 |
| 1 | 0.5 | 12 | 0.1 | 24 | 0.05 |
| 1 | 0.45 | 12 | 0.1 | 27 | 0.05 |
| 1 | 0.5 | 13 | 0.05 | 27 | 0.1 |
| 1 | 0.45 | 17 | 0.05 | 27 | 0.05 |
| 1 | 0.5 | 17 | 0.05 | 27 | 0.1 |
| 1 | 0.2 | 17 | 0.05 | 31 | 0.05 |
| 1 | 0.05 | 18 | 0.05 | 31 | 0.1 |
| 2 | 0.1 | 18 | 0.05 | 31 | 0.25 |
| 4 | 0.1 | 18 | 0.05 | 31 | 0.25 |
| 4 | 0.05 | 18 | 0.05 | 31 | 0.35 |
| 4 | 0.1 | 18 | 0.08 | 32 | 0.05 |
| 4 | 0.1 | 18 | 0.1 | 32 | 0.05 |
| 5 | 0.05 | 18 | 0.05 | 32 | 0.1 |
| 5 | 0.1 | 18 | 0.1 | 32 | 0.05 |
| 6 | 0.1 | 19 | 0.05 | 34 | 0.25 |
| 6 | 0.1 | 19 | 0.05 | 34 | 0.2 |
| 6 | 0.1 | 19 | 0.1 | 34 | 0.2 |
| 8 | 0.05 | 19 | 0.05 | 35 | 0.05 |
| 8 | 0.05 | 19 | 0.05 | 36 | 0.15 |
| 8 | 0.10 | 19 | 0.05 | 37 | 0.05 |
| 8 | 0.05 | 22 | 0.05 | 37 | 0.05 |
| 8 | 0.10 | 22 | 0.15 | 38 | 0.05 |
| 8 | 0.05 | 22 | 0.75 | 38 | 0.5 |
| 9 | 0.05 | 22 | 0.75 | 39 | 0.05 |
| 9 | 0.05 | 22 | 0.3 | 39 | 0.05 |
| 9 | 0.05 | 22 | 0.75 | 39 | 0.05 |
| 9 | 0.05 | 22 | 0.15 | 39 | 0.15 |
| 9 | 0.05 | 22 | 0.1 | 39 | 0.05 |
| 9 | 0.05 | 22 | 0.05 | 40 | 0.1 |
| 9 | 0.05 | 22 | 0.05 | 40 | 0.05 |
| 9 | 0.05 | 22 | 0.25 | 40 | 0.15 |
| 9 | 0.05 | 22 | 0.2 | 40 | 0.15 |
| 12 | 0.1 | 22 | 0.5 | 41 | 0.2 |
| 12 | 0.1 | 22 | 0.5 | 42 | 0.05 |
| 12 | 0.05 | 23 | 0.05 | 44 | 0.25 |
| 12 | 0.45 | 23 | 0.1 | 44 | 0.1 |
| | | | | 51 | 0.1 |

**Table 3** : River Thames within-river habitat mapping (September, 1996) in the Buscot area; depths of fine sediment at locations where measurable quantities were present.

Proposed settlement of fine sediments from the River Severn, prior to transfer to the River Thames, would prevent an increase in sediment load. However, data on fine sediment translocation in the River Thames is not currently available and it would be speculative to assume detrimental impacts would only be associated with an increase in sediment loading. Erosion by transferred water lacking suspended sediment has been reported in some water transfers (eg Hesse *et al.*, 1982, quoted by Mann & Bass, 1995). The latter report included an outline proposal to investigate the quantity and fate of fine sediments in the lower reaches of the River Severn and middle reaches of the River Thames.

| Substrata | River Thames - Buscot area | River Great Ouse - Huntingdon area |
|---|---|---|
| Gravel and pebbles | 57% | 72% |
| Sand | 8% | <1% |
| Hard clay | 23% | <1% |
| Silt | 10% | 28% |
| Other categories | 2% | 0% |

**Table 4** : Comparison of River Thames substrata in the Buscot area (September, 1996) with the middle reaches of the River Great Ouse (IFE, unpublished data).

*Habitats available to macroinvertebrates and fish*

The faunas of deep rivers in the UK have been comparatively little studied (Furse, *et al.*, 1997). The physical constraints on taking adequate quantitative samples mean there is a dearth of information on the distribution and comparative importance of the habitats available. Extrapolations from studies in smaller rivers (Pinder, *et al.*, 1987) and streams (Armitage & Pardo, 1995) suggest that invertebrate diversity and biomass will be higher in the River Thames gravel habitat than in the fine sediments. We are aware of no comparable data on the fauna of compacted clay in rivers but anticipate it will be an impoverished community in terms of species diversity and levels of abundance. It follows that any additional settlement of fine sediment in the River Thames from the proposed River Severn transfer might result in an extension of the area and depth of fine sediment. Though prevailing conditions indicate such settlement will not occur in the Buscot area (section 2.0), any increase in the area of fine sediment at the expense of gravel/pebble and aquatic plant habitats would be accompanied by a corresponding reduction in macoinvertebrate diversity.

Aquatic plants in rivers provide contrasting structural habitats for certain macroinvertebrates (Armitage, *et al.*, 1995), microcrustacea (Bottrell, 1977; Garner *et al.*, 1996; Bass, *et al.*, 1997b) and fish (Mann, 1997). Associated differences in feeding conditions, protection from dislodgement and predation, explain the contrasts in communities and population densities between open water and plant stands. Changes in macroinvertebrate community structure within a range of riverine 'mesohabitats', in response to flow manipulation, have been documented for streams (Armitage, 1995;

Armitage & Pardoe, 1995). Armitage suggested that in low discharge conditions habitat heterogeneity was important as the fauna made use of refugia and were capable of active colonisation when suitable conditions recurred. Established stands of aquatic plants create a range of velocities (Westlake & Marshall, 1990) by modifying the flow pattern and buffer the effects of changes in discharge.

Quantitative assessments of the fish populations in large rivers are imprecise, hence the *status quo* and the consequences of changes imposed by a river transfer are difficult to predict. Approaches to address the practical difficulties of effectively monitoring highly mobile fish populations in large rivers have included the development and application of acoustic techniques in conjunction with targeted netting/electro-fishing sampling methods. Initial results have confirmed adult cyprinids form high aggregations in some areas in the River Thames (A.Duncan, pers com.). The significance of this behaviour in relation to the seasonal habitat requirements of adult fish is at present still unclear. Similarly the quantitative assessment of young fish within particular habitats presents difficulties. Comparative investigations of habitat utilisation and diet studies (in the River Great Ouse) have confirmed young fish exploit a range of habitats and food sources during the first year of life (Garner, 1996; Garner, et al., 1996; Copp, 1997). Data on the seasonal availability of microinvertebrates within the aquatic plant stands in the area of Buscot are lacking. Therefore it is not currently possible to predict the effects of habitat change on the juvenile fish food resources associated with plant habitats in this part of the River Thames.

## 5.4 Water velocity and channel capacity

The middle reaches of the River Thames are effectively impounded by a series of locks which maintain sufficient water depth for the convenience of boat traffic. During periods of low river flows the capacity of the channel remains relatively constant as water height is controlled by the presence of weir structures. Such conditions lead to very low water velocities in the river channel with flowing water restricted to the close proximity of locks, spill weirs and bypass channels. In September 1996 the water velocity in the River Thames around Buscot was less than 0.1m $sec^{-1}$ which prevented accurate velocity measurement during the within-river habitat mapping exercise. In general the prevailing water velocity and its variability dictate the structure of physical habitats and the habitat-specific riverine communities. For this reason, in the absence of measurable velocities, the channel capacity and gauged flows were examined in order to establish the theoretical velocities that the fauna and flora are subjected to during low river discharge conditions. The changes in mean velocity with the addition of 200Ml $day^{-1}$ from the proposed Severn-Thames transfer were then considered.

Gauged discharge is measured at Buscot and Eynsham. Above and below Eynsham the rivers Windrush and Evenlode increase the River Thames baseflow, but abstraction to Farmoor Reservoir has a major effect on river discharge when it operates during low flow conditions (Fig. 5). Velocity profiles provided by the Environment Agency (Thames Region) for Buscot during winter discharges of c.940 Ml $day^{-1}$ (March 1996) and c.4000 Ml $day^{-1}$ (January 1996) recorded midstream velocities of around 0.35m $sec^{-1}$ and 1.41m $sec^{-1}$, whilst corresponding velocities near the river bank were around 0.19m $sec^{-1}$ and

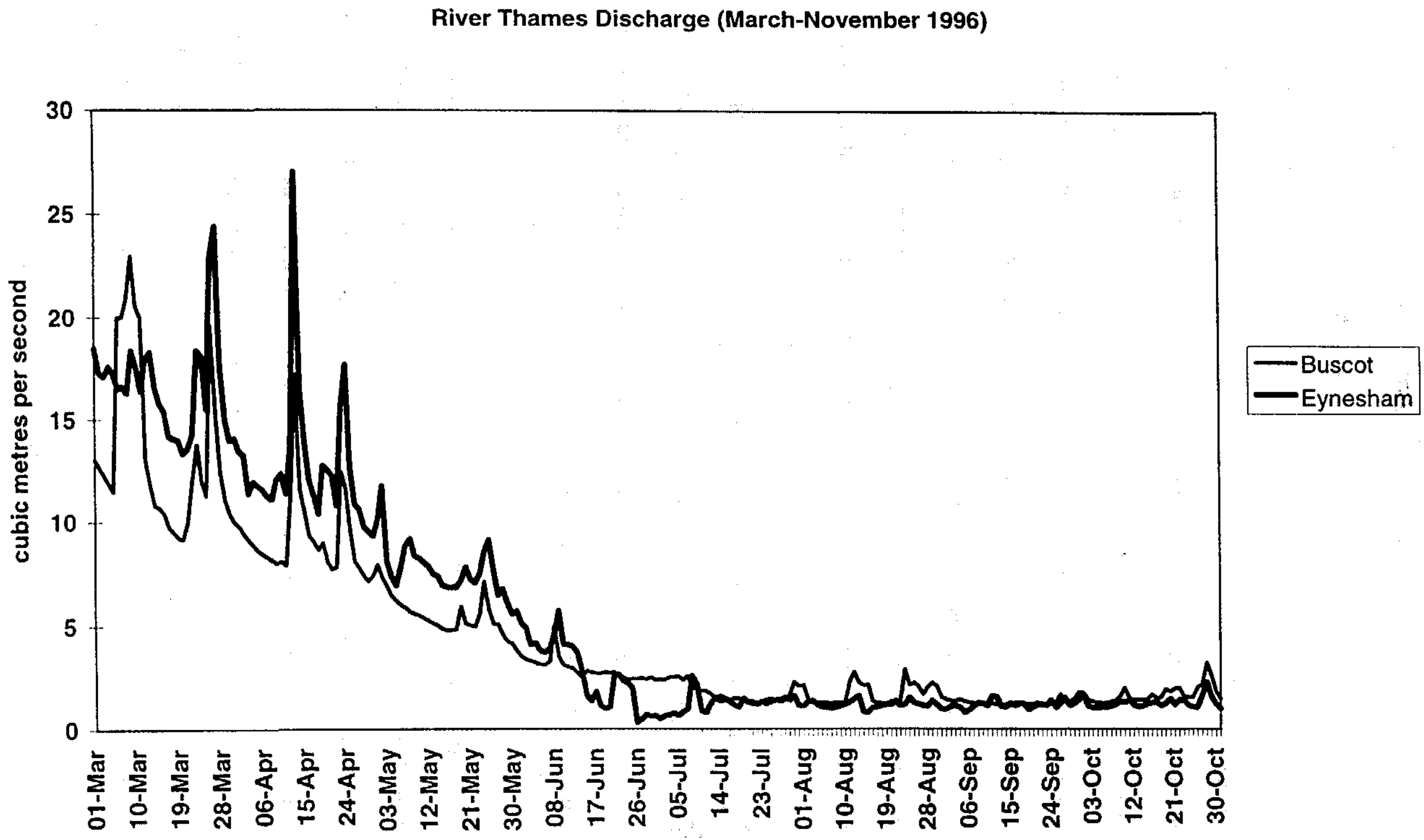


**Figure 5.** River Thames: gauged discharge at Buscot and Eynsham in 1996 (Note effect of abstraction to Farmoor Reservoir from June onwards).

0.73m $sec^{-1}$ (Appendix III). In contrast an examination of the river discharge at Buscot in the summer and autumn of 1996 (Fig. 5), indicated flows fell to around 130 Ml $day^{-1}$ (1.5 $m^3$ $sec^{-1}$) and this discharge was used to calculate the theoretical velocity prevailing (Equation 1, Section 4.4). This was achieved by applying the mean channel depth (1.5m) and mean channel width (25m) obtained during the within-channel habitat survey to calculate the travel-time of 1.5 $m^3$ $sec^{-1}$ within a channel volume of 37.5 $m^3$ over a passage of 1m downstream. Using a series of low river discharge values the relationship between river discharge and the theoretical mean velocity trend was predicted. It was assumed that water level was maintained at a constant level by spill weirs (under the conditions which would prompt operation of the Severn-Thames transfer). The changes resulting from the proposed Severn-Thames transfer at rates of an additional 200 or 400Ml $day^{-1}$ were superimposed (Fig. 6). Such calculations were imprecise, ignoring flow gradients generated within the river by channel form and near-bed frictional effects. Manual alterations to weir/sluice heights though not required for flood defence purposes at the low discharges under consideration would also change the flow rate.

Predicted mean water velocities represent a point within the range from near zero at the river bed to velocities above the theoretical mean velocity near the river surface. Precise velocity requirements and preferences for the majority of aquatic fauna is presently unavailable [note developments within PHABSIM (Armitage & Ladle, 1989)] but it is considered that species which depend on flowing water for feeding, respiration or reproduction may be confined to the proximity of weirs and bypass channels in the middle reaches of the River Thames during extended periods of low river discharge.

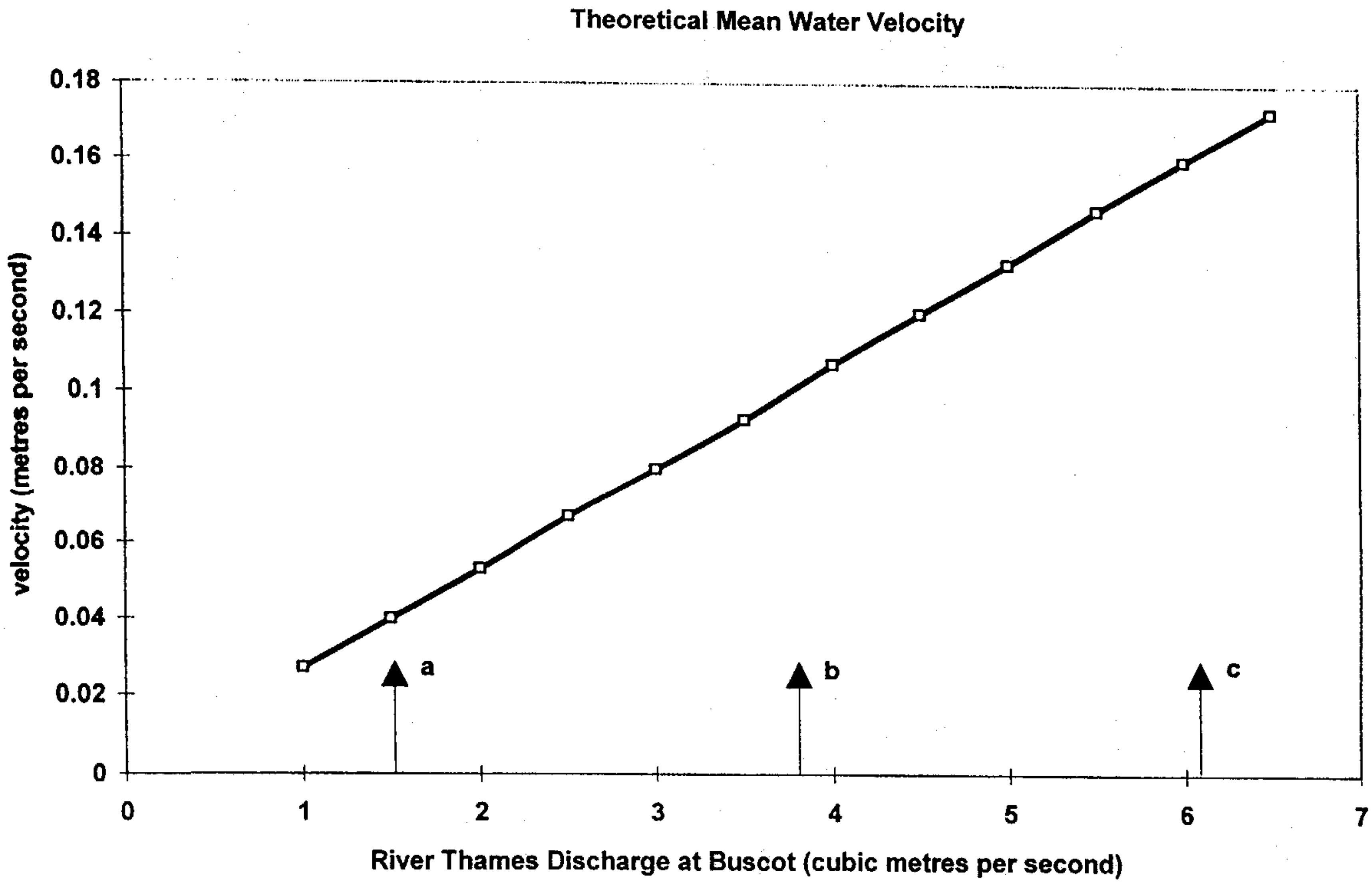


**Figure 6.** River Thames, Buscot: (a) theoretical mean water velocity at the prevailing flow conditions in summer 1996 ; (b) with an additional 200Ml day$^{-1}$; (c) with an additional 400Ml day$^{-1}$.

In this context the proposed Severn-Thames transfer may temporarily impose 'riverine' conditions whilst it operates and this effect would extend over a *limited* distance downstream from the input point, depending on the prevailing river discharge. It should be noted that operation of the proposed transfer in early summer (higher baseflow discharges) may result in the downstream displacement of some species; eg newly hatched fish, which have poor swimming capabilities (Mann & Bass, 1997). At the Severn-Thames transfer rates currently under consideration (200Ml $day^{-1}$, equivalent to c.2.3$m^3$ $sec^{-1}$), river discharge would more than double during the summer flow conditions which prevailed in 1996. However the effective impoundment of the River Thames between weir structures around Buscot would tend to buffer the changes that would occur in an unimpounded watercourse with the same discharge regime. More precise calculations of the hydrological conditions and velocity changes resulting from operation of the proposed Severn-Thames transfer are considered desirable.

## 6.CONCLUSIONS

The following conclusions are presented within the context of the objectives outlined in Section 3. Potential effects of the proposed transfer rate (200 Ml day$^{-1}$) are considered on the basis that pumping activities would operate throughout the 24h period.

***Characteristics of the river channel in the middle reaches of the River Thames.***

**Objective 1**: Provide an analysis of currently available data relating to within-river habitats present, both upstream and downstream of the proposed discharge point (for water from the River Severn), using the Thames Soundings data.

Maps generated during collection of the Thames Soundings hydrographic data in the area of Buscot were examined. They revealed little movement in river channel position but at a few locations over long timescales (1938-1996) the channel had migrated from a few metres to the full channel width. The channel stability is probably enhanced by weir structures which maintain water height and reduce bank erosion. Removal of sediment accumulations which impede navigation also maintains channel capacity and stability . If channel width constrictions indicated on the 1938 Thames Soundings survey maps are realistic and the river discharge characteristics have remained stable, the river had a more spatially variable velocity pattern in 1938 than has been the case in the 1980s and 1990s. Such differences indicate the prevailing within-river habitats available to the aquatic flora and fauna may be less diverse than was historically the case.

**Objective 2**: Undertake a series of River Habitat Surveys at selected sites during the prescribed early summer period (May and June). Such surveys to conform in all respects with the Environment Agency's River Habitat Survey Methodology (1996).

Examination of the River Habitat Survey (RHS) database of c.5000 sites throughout England and Wales permitted a comparison of the 5 River Thames sites in the Buscot area with similar sites in the database. The mean annual discharge category for Buscot ("5") was at the lower end of the range of the 86 sites in the database with similar physical dimensions and attributes . This indicates that the middle River Thames channel is "overwidened" for the mean discharge it conveys. The majority of RHS descriptors are associated with the characteristics of the river bank and channel dimensions. These features are maintained and occasionally modified by peak flood discharges of several thousand megalitres per day on the middle River Thames. It is considered they will not be altered by the additional discharge of 200Ml $day^{-1}$ from the proposed River Severn transfer. It is stressed that this was a preliminary and incomplete exploration of the RHS software capabilities.

***Water depths and the distribution of aquatic plants within the river channel.***

Objective 3: Undertake a late summer transect survey of within-river habitats, to include the seasonally restricted submerged plants, complementing existing Thames Soundings data.

Analysis of data derived from Thames Soundings surveys of the river in the area of Buscot showed that water depth in one quarter to one third of the river area was too deep for aquatic plants and that these conditions are long established. The within-river habitat mapping, in common with the Thames Soundings datasets, showed that the 1-2m depth range occurred more frequently than shallower or deeper water. This depth range occurred in 36-67% of the river channel in different reaches. The pattern of depth changes between reaches indicated that extensive surveys covering reach lengths of more than 500m are required on large rivers in order to fully evaluate the distribution of some habitats.

Emergent aquatic plants were generally confined to the marginal zone and no individual species occupied more than 1% of the river channel. The most widely distributed aquatic plants present were persistent long-lived perennial species (*Nuphar lutea* and *Sparganium emersum*) which have slow-growing rhizomes. It is considered that the single "snap-shot" survey in September 1996 yielded an accurate picture of their distribution in the river. The confinement of 90% of the aquatic plant cover to depths less than 2m is largely as a result of the attenuation of photosynthetically useful light. The normal seasonal restrictions imposed by high turbidity during winter floods and turbidity from planktonic algae in late spring and early summer limit the area occupied by submerged plants in the middle River

Thames. However submerged plant species, including epiphytic algae, respond to the prevailing "light climate" within the river. Additional turbidity resulting from a proposed Severn-Thames transfer would impose further constraints but effects are difficult to predict against a background of wide variation in the natural seasonal and year to year turbidity levels. It is noteworthy that the passage of boat traffic on the middle reaches of the River Thames also mobilises fine sediment and, particularly during peak holiday periods, fluctuations in turbidity are likely on a daily basis (Bass *et al*, 1997a).

***The relationship between river flow and water velocity.***

Objective 4: Assess the vulnerability of the available river habitats to flow changes resulting from the proposed Severn-Thames transfer.

Water velocity, river discharge and the volume of water within the River Thames in the area of Buscot were considered. During periods of low river flows the volume within the channel remains relatively constant as water height is controlled by the weir structures. Such conditions lead to very low water velocities in the main river channel, with flowing water restricted to the close proximity of weirs and bypass channels. The relationship between river discharge and the theoretical mean velocity trend was examined using a series of low discharge values and assuming water level remained constant. At the Severn-Thames transfer rates currently under consideration (200Ml $day^{-1}$, equivalent to c.2.3$m^3$ $sec^{-1}$), river discharge would more than double during typical late summer flow conditions. However, the effective impoundment of the river between weir structures would buffer the changes in velocity and water height that would occur in a natural (unimpounded) watercourse with the same discharge regime. More precise calculations of the hydrological conditions and velocity changes resulting from operation of the proposed Severn-Thames transfer are considered desirable.

***The benthic habitats and scope for modification.***

**Objective 5**: Predict significant structural changes to within-channel habitats, arising from the proposed River Severn transfer, which will impact the fauna and flora.

The within-river habitat mapping in September 1996 established that gravel and compacted clay were the predominant substrata (57% and 23%, respectively, of 1094 survey points). Whilst fine sediment occurred at 29 of the 50 river transects surveyed and at about 10% of the individual survey points. The average depth of the fine sediment was 0.16m. It was initially thought that addition of fine sediment to the River Thames from the proposed River Severn transfer would result in a localised extension of the area and depth of fine sediment present but the reported 'self-cleansing' capacity of the river channel in the Buscot area may shift this potential problem downstream. Any increase in the area of fine sediment would be accompanied by a corresponding localised reduction in macoinvertebrate diversity.

**Objective 6**: Recommend possible constraints on transfer discharges which may be required to maintain or enhance habitat structure of significance to the fauna and flora.

Aquatic plants provide a range of habitats important to certain invertebrates and fish. We conclude that the present constraints on the distribution of emergent plant species within the river would not be altered by the proposed Severn-Thames transfer. Any additional light restrictions imposed on the submerged plants, associated with greater water depth or higher turbidity, would reduce the area of river occupied and change the proportions of different habitats available for river fauna. At baseflow discharges where velocities restrict the spatial distribution of young fish in the River Thames, operation of the proposed Severn-Thames transfer during May or June would increase downstream displacement of fry and impose sub-optimal feeding conditions.

The review of biological data (Furse, *et al.*, 1997), highlighted a gap in recently acquired data adjacent to Buscot, limiting assessment of faunal components in relation to the available within-river habitats. Uncertainties remain with regard to the effectiveness of proposed settlement and mixing lagoons to reduce the clay fraction in water from the River Severn during high discharge conditions. We conclude further information is also required on the specific hydrological conditions in the Thames and settlement characteristics of transferred sediment before guidelines on the maximum levels of suspended sediment in transferred water can be formulated. In the context of Objective 6, it is appropriate that these factors are investigated before the operational constraints and conditions are recommended for the proposed Severn-Thames transfer.

**Objective 7:** Provide a baseline from which to measure future changes in within-river habitats, upstream and *downstream from* the proposed discharge point for water from the River Severn, in a post-development impact assessment.

The data presented in Appendices I-III and sources of information cited and summarised within this report provide a baseline from which to assess future within-river habitat changes in the area of Buscot on the middle reaches of the River Thames. Remaining gaps in information and limitations in the interpretation of data have been considered in drawing up the following recommendations:

■Establish precise relationships between the hydrological conditions in the River Thames and velocity changes at low river discharges to assist the prediction of impacts arising from the proposed Severn-Thames transfer.

■Investigate the settlement characteristics of transferred sediment to assist the formulation of guidelines on the maximum levels of suspended sediment permitted in any water transferred from the Severn.

■Obtain data on the seasonal availability of microinvertebrates within the aquatic plant stands to provide greater understanding of interactions between submerged plants, microinvertebrates, plankton and juvenile fish recruitment in the River Thames.

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## Appendix I

River Thames Soundings data - (The Environment Agency data 1938-1996; IFE data September 1996) St John's Lock to Grafton Lock: channel depths across numbered river sections.

Substrate codes

| | |
|---|---|
| Si | Silt |
| Cl | Clay |
| Sa | Sand |
| GP | Gravel/Pebbles |
| Ar | Artificial, eg concrete reinforcing |

Macrophyte codes

| | |
|---|---|
| MX | Mixed |
| Sps | *Sparganium emersum* |
| Spe | *Sparganium erectum* |
| Gl | *Glyceria* spp. |
| Fo | *Fontinalis* sp. |
| El | *Elodea* spp. |
| Calli | *Callitriche* spp. |
| SNu | *Nuphar lutea* (submerged) |
| Phrag | *Phragmites communis* |
| Phal | *Phalaris arundinacea* |
| Scs | *Schoenoplectus (Scirpus) lacustris* (submerged form) |
| Sc | *Schoenoplectus (Scirpus) lacustris* (emergent form) |
| Sa | *Sagittaria sagittifolia* |

## Thames Soundings in the Buscot area - EA Data

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 22 | 01/01/38 | 3 | 0 |
| 22 | 01/01/38 | 3 | 0.31 |
| 22 | 01/01/38 | 3 | 1.3 |
| 22 | 01/01/38 | 3 | 2.29 |
| 22 | 01/01/38 | 3 | 2.52 |
| 22 | 01/01/38 | 3 | 1.91 |
| 22 | 01/01/38 | 3 | 0.76 |
| 22 | 01/01/38 | 3 | 0 |
| 23 | 01/01/38 | 3 | 0 |
| 23 | 01/01/38 | 3 | 0 |
| 23 | 01/01/38 | 3 | 0.92 |
| 23 | 01/01/38 | 3 | 1.98 |
| 23 | 01/01/38 | 3 | 2.34 |
| 23 | 01/01/38 | 3 | 1.98 |
| 23 | 01/01/38 | 3 | 1.45 |
| 23 | 01/01/38 | 3 | 0 |
| 24 | 01/01/38 | 3 | 0 |
| 24 | 01/01/38 | 3 | 0.08 |
| 24 | 01/01/38 | 3 | 0.31 |
| 24 | 01/01/38 | 3 | 1.3 |
| 24 | 01/01/38 | 3 | 2.06 |
| 24 | 01/01/38 | 3 | 2.06 |
| 24 | 01/01/38 | 3 | 1.53 |
| 24 | 01/01/38 | 3 | 1.07 |
| 24 | 01/01/38 | 3 | 0.08 |
| 24 | 01/01/38 | 3 | 0 |
| 25 | 01/01/38 | 3 | 0 |
| 25 | 01/01/38 | 3 | 1.07 |
| 25 | 01/01/38 | 3 | 1.98 |
| 25 | 01/01/38 | 3 | 2.36 |
| 25 | 01/01/38 | 3 | 2.59 |
| 25 | 01/01/38 | 3 | 2.21 |
| 25 | 01/01/38 | 3 | 1.14 |
| 25 | 01/01/38 | 3 | 0 |
| 26 | 01/01/38 | 3 | 0 |
| 26 | 01/01/38 | 3 | 0.84 |
| 26 | 01/01/38 | 3 | 2.14 |
| 26 | 01/01/38 | 3 | 2.29 |
| 26 | 01/01/38 | 3 | 1.98 |
| 26 | 01/01/38 | 3 | 1.07 |
| 26 | 01/01/38 | 3 | 0 |
| 27 | 01/01/38 | 3 | 0 |
| 27 | 01/01/38 | 3 | 1.22 |
| 27 | 01/01/38 | 3 | 1.83 |
| 27 | 01/01/38 | 3 | 1.75 |
| 27 | 01/01/38 | 3 | 1.91 |
| 27 | 01/01/38 | 3 | 0.92 |
| 27 | 01/01/38 | 3 | 0.08 |
| 28 | 01/01/38 | 3 | 0 |
| 28 | 01/01/38 | 3 | 2.06 |
| 28 | 01/01/38 | 3 | 2.59 |
| 28 | 01/01/38 | 3 | 2.44 |
| 28 | 01/01/38 | 3 | 1.75 |
| 29 | 01/01/38 | 3 | 0 |

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 29 | 01/01/38 | 3 | 1.68 |
| 29 | 01/01/38 | 3 | 1.68 |
| 29 | 01/01/38 | 3 | 1.45 |
| 29 | 01/01/38 | 3 | 1.3 |
| 29 | 01/01/38 | 3 | 0.84 |
| 29 | 01/01/38 | 3 | 0 |
| 30 | 01/01/38 | 3 | 0 |
| 30 | 01/01/38 | 3 | 0.84 |
| 30 | 01/01/38 | 3 | 0.76 |
| 30 | 01/01/38 | 3 | 1.22 |
| 30 | 01/01/38 | 3 | 1.98 |
| 30 | 01/01/38 | 3 | 1.91 |
| 30 | 01/01/38 | 3 | 0.31 |
| 30 | 01/01/38 | 3 | 0 |
| 31 | 01/01/38 | 3 | 0 |
| 31 | 01/01/38 | 3 | 1.07 |
| 31 | 01/01/38 | 3 | 1.53 |
| 31 | 01/01/38 | 3 | 1.53 |
| 31 | 01/01/38 | 3 | 1.68 |
| 31 | 01/01/38 | 3 | 1.75 |
| 31 | 01/01/38 | 3 | 0.99 |
| 31 | 01/01/38 | 3 | 0.76 |
| 35 | 01/01/38 | 3 | 0.15 |
| 35 | 01/01/38 | 3 | 1.68 |
| 35 | 01/01/38 | 3 | 1.98 |
| 35 | 01/01/38 | 3 | 1.91 |
| 35 | 01/01/38 | 3 | 1.98 |
| 35 | 01/01/38 | 3 | 2.14 |
| 35 | 01/01/38 | 3 | 2.29 |
| 35 | 01/01/38 | 3 | 0.23 |
| 36 | 01/01/38 | 3 | 0.38 |
| 36 | 01/01/38 | 3 | 1.98 |
| 36 | 01/01/38 | 3 | 2.06 |
| 36 | 01/01/38 | 3 | 2.14 |
| 36 | 01/01/38 | 3 | 2.21 |
| 36 | 01/01/38 | 3 | 2.36 |
| 36 | 01/01/38 | 3 | 2.44 |
| 36 | 01/01/38 | 3 | 1.07 |
| 36 | 01/01/38 | 3 | 0.15 |
| 39 | 01/01/38 | 3 | 0.15 |
| 39 | 01/01/38 | 3 | 1.83 |
| 39 | 01/01/38 | 3 | 1.91 |
| 39 | 01/01/38 | 3 | 2.21 |
| 39 | 01/01/38 | 3 | 2.14 |
| 39 | 01/01/38 | 3 | 1.91 |
| 39 | 01/01/38 | 3 | 1.83 |
| 39 | 01/01/38 | 3 | 0.08 |
| 43 | 01/01/38 | 3 | 0.31 |
| 43 | 01/01/38 | 3 | 1.75 |
| 43 | 01/01/38 | 3 | 1.75 |
| 43 | 01/01/38 | 3 | 1.91 |
| 43 | 01/01/38 | 3 | 1.83 |
| 43 | 01/01/38 | 3 | 1.37 |
| 43 | 01/01/38 | 3 | 0.53 |

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 1 | 01/01/75 | 3 | 0.7 |
| 1 | 01/01/75 | 3 | 1 |
| 1 | 01/01/75 | 3 | 1.3 |
| 1 | 01/01/75 | 3 | 1.1 |
| 1 | 01/01/75 | 3 | 0.5 |
| 2 | 01/01/75 | 3 | 0.4 |
| 2 | 01/01/75 | 3 | 2.1 |
| 2 | 01/01/75 | 3 | 3.1 |
| 2 | 01/01/75 | 3 | 3.2 |
| 2 | 01/01/75 | 3 | 3 |
| 2 | 01/01/75 | 3 | 2.9 |
| 2 | 01/01/75 | 3 | 2 |
| 3 | 01/01/75 | 3 | 0 |
| 3 | 01/01/75 | 3 | 0.8 |
| 3 | 01/01/75 | 3 | 1.3 |
| 3 | 01/01/75 | 3 | 2.2 |
| 3 | 01/01/75 | 3 | 3.2 |
| 3 | 01/01/75 | 3 | 2.5 |
| 3 | 01/01/75 | 3 | 0.8 |
| 3 | 01/01/75 | 3 | 0.4 |
| 4 | 01/01/75 | 3 | 0 |
| 4 | 01/01/75 | 3 | 1.5 |
| 4 | 01/01/75 | 3 | 2.1 |
| 4 | 01/01/75 | 3 | 1.8 |
| 4 | 01/01/75 | 3 | 1.9 |
| 4 | 01/01/75 | 3 | 1.9 |
| 4 | 01/01/75 | 3 | 1.5 |
| 4 | 01/01/75 | 3 | 0.7 |
| 5 | 01/01/75 | 3 | 0.2 |
| 5 | 01/01/75 | 3 | 0.5 |
| 5 | 01/01/75 | 3 | 2.6 |
| 5 | 01/01/75 | 3 | 2.5 |
| 5 | 01/01/75 | 3 | 1.9 |
| 5 | 01/01/75 | 3 | 1.4 |
| 5 | 01/01/75 | 3 | 1 |
| 5 | 01/01/75 | 3 | 0.3 |
| 5 | 01/01/75 | 3 | 0.2 |
| 6 | 01/01/75 | 3 | 0.1 |
| 6 | 01/01/75 | 3 | 1 |
| 6 | 01/01/75 | 3 | 1.3 |
| 6 | 01/01/75 | 3 | 1.6 |
| 6 | 01/01/75 | 3 | 1.8 |
| 6 | 01/01/75 | 3 | 1.8 |
| 6 | 01/01/75 | 3 | 1.8 |
| 6 | 01/01/75 | 3 | 1.6 |
| 6 | 01/01/75 | 3 | 1.9 |
| 6 | 01/01/75 | 3 | 1.6 |
| 6 | 01/01/75 | 3 | 1.3 |
| 7 | 01/01/75 | 3 | 0.1 |
| 7 | 01/01/75 | 3 | 1.5 |
| 7 | 01/01/75 | 3 | 1.9 |
| 7 | 01/01/75 | 3 | 2.2 |
| 7 | 01/01/75 | 3 | 2.1 |
| 7 | 01/01/75 | 3 | 2.3 |

## Thames Soundings in the Buscot area - EA Data

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 7 | 01/01/75 | 3 | 2 |
| 7 | 01/01/75 | 3 | 1.7 |
| 7 | 01/01/75 | 3 | 1.1 |
| 11 | 01/01/75 | 3 | 0.1 |
| 11 | 01/01/75 | 3 | 0.7 |
| 11 | 01/01/75 | 3 | 1.9 |
| 11 | 01/01/75 | 3 | 1.9 |
| 11 | 01/01/75 | 3 | 1.6 |
| 11 | 01/01/75 | 3 | 1.2 |
| 11 | 01/01/75 | 3 | 1.1 |
| 11 | 01/01/75 | 3 | 0.9 |
| 12 | 01/01/75 | 3 | 0.2 |
| 12 | 01/01/75 | 3 | 3.1 |
| 12 | 01/01/75 | 3 | 3.5 |
| 12 | 01/01/75 | 3 | 3.9 |
| 12 | 01/01/75 | 3 | 3.5 |
| 12 | 01/01/75 | 3 | 2.9 |
| 12 | 01/01/75 | 3 | 1.9 |
| 12 | 01/01/75 | 3 | 0.4 |
| 12 | 01/01/75 | 3 | 0.2 |
| 13 | 01/01/75 | 3 | 0.1 |
| 13 | 01/01/75 | 3 | 1.8 |
| 13 | 01/01/75 | 3 | 1.6 |
| 13 | 01/01/75 | 3 | 1.6 |
| 13 | 01/01/75 | 3 | 1.5 |
| 13 | 01/01/75 | 3 | 1.5 |
| 13 | 01/01/75 | 3 | 1.3 |
| 13 | 01/01/75 | 3 | 1.4 |
| 13 | 01/01/75 | 3 | 1.3 |
| 14 | 01/01/75 | 3 | 0.1 |
| 14 | 01/01/75 | 3 | 0.5 |
| 14 | 01/01/75 | 3 | 2 |
| 14 | 01/01/75 | 3 | 1.7 |
| 14 | 01/01/75 | 3 | 1.7 |
| 14 | 01/01/75 | 3 | 1.8 |
| 14 | 01/01/75 | 3 | 1.7 |
| 14 | 01/01/75 | 3 | 1.4 |
| 14 | 01/01/75 | 3 | 1.4 |
| 1 | 01/01/79 | 3 | 0.4 |
| 1 | 01/01/79 | 3 | 0.8 |
| 1 | 01/01/79 | 3 | 1.1 |
| 1 | 01/01/79 | 3 | 0.5 |
| 1 | 01/01/79 | 3 | 0.1 |
| 2 | 01/01/79 | 3 | 0.4 |
| 2 | 01/01/79 | 3 | 0.6 |
| 2 | 01/01/79 | 3 | 0.4 |
| 2 | 01/01/79 | 3 | 1.3 |
| 2 | 01/01/79 | 3 | 2.8 |
| 2 | 01/01/79 | 3 | 3.3 |
| 2 | 01/01/79 | 3 | 3.2 |
| 2 | 01/01/79 | 3 | 2.6 |
| 2 | 01/01/79 | 3 | 2.2 |
| 2 | 01/01/79 | 3 | 0.1 |
| 3 | 01/01/79 | 3 | 0.1 |
| 3 | 01/01/79 | 3 | 0.6 |
| 3 | 01/01/79 | 3 | 0.8 |
| 3 | 01/01/79 | 3 | 1.3 |
| 3 | 01/01/79 | 3 | 2 |
| 3 | 01/01/79 | 3 | 2.6 |
| 3 | 01/01/79 | 3 | 2.3 |
| 3 | 01/01/79 | 3 | 1.2 |
| 4 | 01/01/79 | 3 | 0.4 |
| 4 | 01/01/79 | 3 | 1.5 |
| 4 | 01/01/79 | 3 | 1.6 |
| 4 | 01/01/79 | 3 | 1.7 |
| 4 | 01/01/79 | 3 | 1.4 |
| 4 | 01/01/79 | 3 | 1.4 |
| 4 | 01/01/79 | 3 | 0.5 |
| 4 | 01/01/79 | 3 | 0.1 |
| 5 | 01/01/79 | 3 | 0.1 |
| 5 | 01/01/79 | 3 | 2 |
| 5 | 01/01/79 | 3 | 2.2 |
| 5 | 01/01/79 | 3 | 1.9 |
| 5 | 01/01/79 | 3 | 1.8 |
| 5 | 01/01/79 | 3 | 2.2 |
| 5 | 01/01/79 | 3 | 1.9 |
| 5 | 01/01/79 | 3 | 1 |
| 5 | 01/01/79 | 3 | 0.2 |
| 6 | 01/01/79 | 3 | 0.9 |
| 6 | 01/01/79 | 3 | 1.3 |
| 6 | 01/01/79 | 3 | 1.6 |
| 6 | 01/01/79 | 3 | 1.9 |
| 6 | 01/01/79 | 3 | 1.8 |
| 6 | 01/01/79 | 3 | 1.9 |
| 6 | 01/01/79 | 3 | 1.8 |
| 6 | 01/01/79 | 3 | 1.5 |
| 6 | 01/01/79 | 3 | 0.9 |
| 6 | 01/01/79 | 3 | 0.3 |
| 7 | 01/01/79 | 3 | 0.2 |
| 7 | 01/01/79 | 3 | 1.3 |
| 7 | 01/01/79 | 3 | 1.5 |
| 7 | 01/01/79 | 3 | 1.9 |
| 7 | 01/01/79 | 3 | 2.4 |
| 7 | 01/01/79 | 3 | 2.5 |
| 7 | 01/01/79 | 3 | 1.4 |
| 7 | 01/01/79 | 3 | 0.7 |
| 7 | 01/01/79 | 3 | 0.3 |
| 8 | 01/01/79 | 3 | 0.6 |
| 8 | 01/01/79 | 3 | 2.4 |
| 8 | 01/01/79 | 3 | 2.4 |
| 8 | 01/01/79 | 3 | 2.3 |
| 8 | 01/01/79 | 3 | 2.5 |
| 8 | 01/01/79 | 3 | 2.7 |
| 9 | 01/01/79 | 3 | 1.2 |
| 9 | 01/01/79 | 3 | 1.8 |
| 9 | 01/01/79 | 3 | 2.5 |
| 9 | 01/01/79 | 3 | 2.4 |
| 9 | 01/01/79 | 3 | 2 |
| 9 | 01/01/79 | 3 | 1.8 |
| 9 | 01/01/79 | 3 | 1.9 |
| 9 | 01/01/79 | 3 | 2.1 |
| 9 | 01/01/79 | 3 | 1.3 |
| 9 | 01/01/79 | 3 | 0.4 |
| 10 | 01/01/79 | 3 | 0.4 |
| 10 | 01/01/79 | 3 | 1.4 |
| 10 | 01/01/79 | 3 | 1.2 |
| 10 | 01/01/79 | 3 | 1.5 |
| 10 | 01/01/79 | 3 | 1.2 |
| 10 | 01/01/79 | 3 | 1 |
| 10 | 01/01/79 | 3 | 2.5 |
| 10 | 01/01/79 | 3 | 3.8 |
| 10 | 01/01/79 | 3 | 4 |
| 10 | 01/01/79 | 3 | 3.3 |
| 11 | 01/01/79 | 3 | 1 |
| 11 | 01/01/79 | 3 | 1.1 |
| 11 | 01/01/79 | 3 | 1 |
| 11 | 01/01/79 | 3 | 1.6 |
| 11 | 01/01/79 | 3 | 1.4 |
| 11 | 01/01/79 | 3 | 1.2 |
| 11 | 01/01/79 | 3 | 0.9 |
| 11 | 01/01/79 | 3 | 0.2 |
| 12 | 01/01/79 | 3 | 2 |
| 12 | 01/01/79 | 3 | 2.5 |
| 12 | 01/01/79 | 3 | 2.4 |
| 12 | 01/01/79 | 3 | 2.3 |
| 12 | 01/01/79 | 3 | 1.6 |
| 12 | 01/01/79 | 3 | 1.7 |
| 12 | 01/01/79 | 3 | 2.2 |
| 12 | 01/01/79 | 3 | 2 |
| 12 | 01/01/79 | 3 | 0.2 |
| 12 | 01/01/79 | 3 | 0.1 |
| 13 | 01/01/79 | 3 | 0.1 |
| 13 | 01/01/79 | 3 | 1.2 |
| 13 | 01/01/79 | 3 | 1.4 |
| 13 | 01/01/79 | 3 | 2 |
| 13 | 01/01/79 | 3 | 1.9 |
| 13 | 01/01/79 | 3 | 2.2 |
| 13 | 01/01/79 | 3 | 1.8 |
| 13 | 01/01/79 | 3 | 0.8 |
| 14 | 01/01/79 | 3 | 0.7 |
| 14 | 01/01/79 | 3 | 1.7 |
| 14 | 01/01/79 | 3 | 1.8 |
| 14 | 01/01/79 | 3 | 1.8 |
| 14 | 01/01/79 | 3 | 1.8 |
| 14 | 01/01/79 | 3 | 1.6 |
| 14 | 01/01/79 | 3 | 1.2 |
| 14 | 01/01/79 | 3 | 1 |
| 15 | 01/01/79 | 3 | 0.2 |
| 15 | 01/01/79 | 3 | 1.4 |
| 15 | 01/01/79 | 3 | 2.3 |
| 15 | 01/01/79 | 3 | 2.2 |
| 15 | 01/01/79 | 3 | 2.1 |

## Thames Soundings in the Buscot area - EA Data

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 15 | 01/01/79 | 3 | 1.9 |
| 15 | 01/01/79 | 3 | 0.6 |
| 15 | 01/01/79 | 3 | 0.2 |
| 16 | 01/01/86 | 3 | 1.6 |
| 16 | 01/01/86 | 3 | 1.7 |
| 16 | 01/01/86 | 3 | 1.7 |
| 16 | 01/01/86 | 3 | 1.7 |
| 16 | 01/01/86 | 3 | 1.7 |
| 16 | 01/01/86 | 3 | 1.4 |
| 16 | 01/01/86 | 3 | 0.2 |
| 17 | 01/01/86 | 3 | 0.2 |
| 17 | 01/01/86 | 3 | 1.6 |
| 17 | 01/01/86 | 3 | 2.1 |
| 17 | 01/01/86 | 3 | 2.3 |
| 17 | 01/01/86 | 3 | 2.2 |
| 17 | 01/01/86 | 3 | 1.5 |
| 17 | 01/01/86 | 3 | 0.9 |
| 18 | 01/01/86 | 3 | 2.5 |
| 18 | 01/01/86 | 3 | 3.1 |
| 18 | 01/01/86 | 3 | 2.8 |
| 18 | 01/01/86 | 3 | 2.6 |
| 18 | 01/01/86 | 3 | 2.4 |
| 18 | 01/01/86 | 3 | 2.2 |
| 18 | 01/01/86 | 3 | 1.7 |
| 18 | 01/01/86 | 3 | 1 |
| 18 | 01/01/86 | 3 | 0.3 |
| 19 | 01/01/86 | 3 | 1.3 |
| 19 | 01/01/86 | 3 | 1.9 |
| 19 | 01/01/86 | 3 | 1.8 |
| 19 | 01/01/86 | 3 | 1.9 |
| 19 | 01/01/86 | 3 | 1.9 |
| 19 | 01/01/86 | 3 | 1.7 |
| 19 | 01/01/86 | 3 | 1.5 |
| 19 | 01/01/86 | 3 | 0.5 |
| 22 | 01/01/86 | 3 | 0.6 |
| 22 | 01/01/86 | 3 | 0.9 |
| 22 | 01/01/86 | 3 | 1.1 |
| 22 | 01/01/86 | 3 | 1.4 |
| 22 | 01/01/86 | 3 | 1.6 |
| 22 | 01/01/86 | 3 | 1.6 |
| 22 | 01/01/86 | 3 | 1.5 |
| 22 | 01/01/86 | 3 | 1.5 |
| 22 | 01/01/86 | 3 | 1.6 |
| 22 | 01/01/86 | 3 | 1 |
| 23 | 01/01/86 | 3 | 0 |
| 23 | 01/01/86 | 3 | 1.4 |
| 23 | 01/01/86 | 3 | 1.6 |
| 23 | 01/01/86 | 3 | 1.5 |
| 23 | 01/01/86 | 3 | 1.4 |
| 23 | 01/01/86 | 3 | 0.8 |
| 23 | 01/01/86 | 3 | 0.1 |
| 23 | 01/01/86 | 3 | 0.1 |
| 24 | 01/01/86 | 3 | 0.5 |
| 24 | 01/01/86 | 3 | 1.2 |

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 24 | 01/01/86 | 3 | 1.7 |
| 24 | 01/01/86 | 3 | 2 |
| 24 | 01/01/86 | 3 | 2.1 |
| 24 | 01/01/86 | 3 | 2.1 |
| 24 | 01/01/86 | 3 | 2.5 |
| 24 | 01/01/86 | 3 | 1 |
| 24 | 01/01/86 | 3 | 0.4 |
| 25 | 01/01/86 | 3 | 0.1 |
| 25 | 01/01/86 | 3 | 1.1 |
| 25 | 01/01/86 | 3 | 1.3 |
| 25 | 01/01/86 | 3 | 1.7 |
| 25 | 01/01/86 | 3 | 1.8 |
| 25 | 01/01/86 | 3 | 2.1 |
| 25 | 01/01/86 | 3 | 1.7 |
| 25 | 01/01/86 | 3 | 1.5 |
| 25 | 01/01/86 | 3 | 1.1 |
| 26 | 01/01/86 | 3 | 0.2 |
| 26 | 01/01/86 | 3 | 1 |
| 26 | 01/01/86 | 3 | 1.4 |
| 26 | 01/01/86 | 3 | 1.7 |
| 26 | 01/01/86 | 3 | 1.9 |
| 26 | 01/01/86 | 3 | 2.1 |
| 26 | 01/01/86 | 3 | 1.9 |
| 26 | 01/01/86 | 3 | 0.3 |
| 27 | 01/01/86 | 3 | 1.2 |
| 27 | 01/01/86 | 3 | 1.5 |
| 27 | 01/01/86 | 3 | 1.6 |
| 27 | 01/01/86 | 3 | 1.7 |
| 27 | 01/01/86 | 3 | 1.3 |
| 27 | 01/01/86 | 3 | 1.1 |
| 27 | 01/01/86 | 3 | 0.3 |
| 28 | 01/01/86 | 3 | 1.8 |
| 28 | 01/01/86 | 3 | 2.4 |
| 28 | 01/01/86 | 3 | 1.9 |
| 28 | 01/01/86 | 3 | 1.7 |
| 28 | 01/01/86 | 3 | 1.5 |
| 28 | 01/01/86 | 3 | 1 |
| 28 | 01/01/86 | 3 | 0.2 |
| 29 | 01/01/86 | 3 | 0 |
| 29 | 01/01/86 | 3 | 1.4 |
| 29 | 01/01/86 | 3 | 1.7 |
| 29 | 01/01/86 | 3 | 1.9 |
| 29 | 01/01/86 | 3 | 1.9 |
| 29 | 01/01/86 | 3 | 1.3 |
| 29 | 01/01/86 | 3 | 0.8 |
| 30 | 01/01/86 | 3 | 0.2 |
| 30 | 01/01/86 | 3 | 1.1 |
| 30 | 01/01/86 | 3 | 1.5 |
| 30 | 01/01/86 | 3 | 1.6 |
| 30 | 01/01/86 | 3 | 1.6 |
| 30 | 01/01/86 | 3 | 1.5 |
| 30 | 01/01/86 | 3 | 1.6 |
| 30 | 01/01/86 | 3 | 0.9 |
| 30 | 01/01/86 | 3 | 0.3 |

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 31 | 01/01/86 | 3 | 0.1 |
| 31 | 01/01/86 | 3 | 1.3 |
| 31 | 01/01/86 | 3 | 1.5 |
| 31 | 01/01/86 | 3 | 1.6 |
| 31 | 01/01/86 | 3 | 1.4 |
| 31 | 01/01/86 | 3 | 1.3 |
| 31 | 01/01/86 | 3 | 1.3 |
| 31 | 01/01/86 | 3 | 0.3 |
| 32 | 01/01/86 | 3 | 0.2 |
| 32 | 01/01/86 | 3 | 1.2 |
| 32 | 01/01/86 | 3 | 1.6 |
| 32 | 01/01/86 | 3 | 1.8 |
| 32 | 01/01/86 | 3 | 1.5 |
| 32 | 01/01/86 | 3 | 1.3 |
| 32 | 01/01/86 | 3 | 0.8 |
| 33 | 01/01/86 | 3 | 0.7 |
| 33 | 01/01/86 | 3 | 2.7 |
| 33 | 01/01/86 | 3 | 3.3 |
| 33 | 01/01/86 | 3 | 3.6 |
| 33 | 01/01/86 | 3 | 2.3 |
| 33 | 01/01/86 | 3 | 1.2 |
| 33 | 01/01/86 | 3 | 0.7 |
| 33 | 01/01/86 | 3 | 0.1 |
| 34 | 01/01/86 | 3 | 0.5 |
| 34 | 01/01/86 | 3 | 1.7 |
| 34 | 01/01/86 | 3 | 2.1 |
| 34 | 01/01/86 | 3 | 2.1 |
| 34 | 01/01/86 | 3 | 1.9 |
| 34 | 01/01/86 | 3 | 2 |
| 34 | 01/01/86 | 3 | 0.7 |
| 34 | 01/01/86 | 3 | 0.1 |
| 35 | 01/01/86 | 3 | 0.5 |
| 35 | 01/01/86 | 3 | 1.2 |
| 35 | 01/01/86 | 3 | 1.8 |
| 35 | 01/01/86 | 3 | 1.7 |
| 35 | 01/01/86 | 3 | 1.6 |
| 35 | 01/01/86 | 3 | 1.5 |
| 35 | 01/01/86 | 3 | 1.5 |
| 35 | 01/01/86 | 3 | 1.3 |
| 35 | 01/01/86 | 3 | 0.9 |
| 35 | 01/01/86 | 3 | 0.5 |
| 36 | 01/01/86 | 3 | 0.4 |
| 36 | 01/01/86 | 3 | 0.9 |
| 36 | 01/01/86 | 3 | 1.8 |
| 36 | 01/01/86 | 3 | 1.9 |
| 36 | 01/01/86 | 3 | 2 |
| 36 | 01/01/86 | 3 | 2.2 |
| 36 | 01/01/86 | 3 | 2.4 |
| 36 | 01/01/86 | 3 | 1.6 |
| 36 | 01/01/86 | 3 | 0.3 |
| 39 | 01/01/86 | 3 | 0.1 |
| 39 | 01/01/86 | 3 | 1.8 |
| 39 | 01/01/86 | 3 | 2 |
| 39 | 01/01/86 | 3 | 2 |

# Thames Soundings in the Buscot area - EA Data

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 39 | 01/01/86 | 3 | 1.9 |
| 39 | 01/01/86 | 3 | 1.9 |
| 39 | 01/01/86 | 3 | 1.4 |
| 39 | 01/01/86 | 3 | 0.2 |
| 42 | 01/01/86 | 3 | 0 |
| 42 | 01/01/86 | 3 | 1.3 |
| 42 | 01/01/86 | 3 | 1.8 |
| 42 | 01/01/86 | 3 | 1.6 |
| 42 | 01/01/86 | 3 | 2.1 |
| 42 | 01/01/86 | 3 | 2.2 |
| 42 | 01/01/86 | 3 | 2 |
| 42 | 01/01/86 | 3 | 1.8 |
| 42 | 01/01/86 | 3 | 0.1 |
| 43 | 01/01/86 | 3 | 1.5 |
| 43 | 01/01/86 | 3 | 2.4 |
| 43 | 01/01/86 | 3 | 2 |
| 43 | 01/01/86 | 3 | 2 |
| 43 | 01/01/86 | 3 | 2.1 |
| 43 | 01/01/86 | 3 | 2 |
| 43 | 01/01/86 | 3 | 1.8 |
| 43 | 01/01/86 | 3 | 0.2 |
| 43 | 01/01/86 | 3 | 0 |
| 16 | 01/01/96 | 3 | 0.1 |
| 16 | 01/01/96 | 3 | 1.5 |
| 16 | 01/01/96 | 3 | 1.7 |
| 16 | 01/01/96 | 3 | 1.7 |
| 16 | 01/01/96 | 3 | 1.9 |
| 16 | 01/01/96 | 3 | 1.8 |
| 16 | 01/01/96 | 3 | 1.7 |
| 16 | 01/01/96 | 3 | 0.9 |
| 16 | 01/01/96 | 3 | 0.1 |
| 17 | 01/01/96 | 3 | 0 |
| 17 | 01/01/96 | 3 | 1.5 |
| 17 | 01/01/96 | 3 | 2 |
| 17 | 01/01/96 | 3 | 2.2 |
| 17 | 01/01/96 | 3 | 2.1 |
| 17 | 01/01/96 | 3 | 2 |
| 17 | 01/01/96 | 3 | 1.1 |
| 17 | 01/01/96 | 3 | 0.6 |
| 18 | 01/01/96 | 3 | 0.2 |
| 18 | 01/01/96 | 3 | 2 |
| 18 | 01/01/96 | 3 | 3.7 |
| 18 | 01/01/96 | 3 | 3.8 |
| 18 | 01/01/96 | 3 | 2.7 |
| 18 | 01/01/96 | 3 | 2 |
| 18 | 01/01/96 | 3 | 1.2 |
| 18 | 01/01/96 | 3 | 0.3 |
| 18 | 01/01/96 | 3 | 0.1 |
| 18 | 01/01/96 | 3 | 0 |
| 19 | 01/01/96 | 3 | 1.1 |
| 19 | 01/01/96 | 3 | 1.5 |
| 19 | 01/01/96 | 3 | 1.8 |
| 19 | 01/01/96 | 3 | 1.8 |
| 19 | 01/01/96 | 3 | 1.9 |

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 19 | 01/01/96 | 3 | 1.7 |
| 19 | 01/01/96 | 3 | 1.5 |
| 19 | 01/01/96 | 3 | 0.9 |
| 22 | 01/01/96 | 3 | 0.1 |
| 22 | 01/01/96 | 3 | 0.6 |
| 22 | 01/01/96 | 3 | 0.7 |
| 22 | 01/01/96 | 3 | 0.9 |
| 22 | 01/01/96 | 3 | 1.3 |
| 22 | 01/01/96 | 3 | 1.5 |
| 22 | 01/01/96 | 3 | 1.5 |
| 22 | 01/01/96 | 3 | 1.3 |
| 22 | 01/01/96 | 3 | 0.9 |
| 22 | 01/01/96 | 3 | 0.6 |
| 23 | 01/01/96 | 3 | 0.1 |
| 23 | 01/01/96 | 3 | 0.5 |
| 23 | 01/01/96 | 3 | 0.9 |
| 23 | 01/01/96 | 3 | 1.3 |
| 23 | 01/01/96 | 3 | 1.7 |
| 23 | 01/01/96 | 3 | 1.6 |
| 23 | 01/01/96 | 3 | 1.9 |
| 23 | 01/01/96 | 3 | 1.7 |
| 23 | 01/01/96 | 3 | 1.5 |
| 23 | 01/01/96 | 3 | 0.1 |
| 24 | 01/01/96 | 3 | 0.7 |
| 24 | 01/01/96 | 3 | 1 |
| 24 | 01/01/96 | 3 | 1.2 |
| 24 | 01/01/96 | 3 | 1.7 |
| 24 | 01/01/96 | 3 | 2 |
| 24 | 01/01/96 | 3 | 2.1 |
| 24 | 01/01/96 | 3 | 2 |
| 24 | 01/01/96 | 3 | 1.4 |
| 24 | 01/01/96 | 3 | 0.8 |
| 25 | 01/01/96 | 3 | 0.4 |
| 25 | 01/01/96 | 3 | 1 |
| 25 | 01/01/96 | 3 | 1.3 |
| 25 | 01/01/96 | 3 | 1.5 |
| 25 | 01/01/96 | 3 | 2.3 |
| 25 | 01/01/96 | 3 | 2 |
| 25 | 01/01/96 | 3 | 1.4 |
| 25 | 01/01/96 | 3 | 1 |
| 25 | 01/01/96 | 3 | 0.9 |
| 26 | 01/01/96 | 3 | 0.1 |
| 26 | 01/01/96 | 3 | 1 |
| 26 | 01/01/96 | 3 | 1.7 |
| 26 | 01/01/96 | 3 | 1.7 |
| 26 | 01/01/96 | 3 | 1.8 |
| 26 | 01/01/96 | 3 | 2 |
| 26 | 01/01/96 | 3 | 0.8 |
| 27 | 01/01/96 | 3 | 0.1 |
| 27 | 01/01/96 | 3 | 1.4 |
| 27 | 01/01/96 | 3 | 1.7 |
| 27 | 01/01/96 | 3 | 1.7 |
| 27 | 01/01/96 | 3 | 1.6 |
| 27 | 01/01/96 | 3 | 1.5 |

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 27 | 01/01/96 | 3 | 1 |
| 27 | 01/01/96 | 3 | 0 |
| 28 | 01/01/96 | 3 | 0.5 |
| 28 | 01/01/96 | 3 | 1.3 |
| 28 | 01/01/96 | 3 | 2.3 |
| 28 | 01/01/96 | 3 | 2.3 |
| 28 | 01/01/96 | 3 | 1.8 |
| 28 | 01/01/96 | 3 | 1.4 |
| 28 | 01/01/96 | 3 | 1.2 |
| 28 | 01/01/96 | 3 | 1.1 |
| 29 | 01/01/96 | 3 | 0.8 |
| 29 | 01/01/96 | 3 | 1.3 |
| 29 | 01/01/96 | 3 | 1.5 |
| 29 | 01/01/96 | 3 | 1.5 |
| 29 | 01/01/96 | 3 | 1.5 |
| 29 | 01/01/96 | 3 | 1.5 |
| 29 | 01/01/96 | 3 | 1.2 |
| 30 | 01/01/96 | 3 | 0.1 |
| 30 | 01/01/96 | 3 | 1 |
| 30 | 01/01/96 | 3 | 1.5 |
| 30 | 01/01/96 | 3 | 1.7 |
| 30 | 01/01/96 | 3 | 1.9 |
| 30 | 01/01/96 | 3 | 2.2 |
| 30 | 01/01/96 | 3 | 1.7 |
| 30 | 01/01/96 | 3 | 0.9 |
| 30 | 01/01/96 | 3 | 0.1 |
| 31 | 01/01/96 | 3 | 0.1 |
| 31 | 01/01/96 | 3 | 1.4 |
| 31 | 01/01/96 | 3 | 1.4 |
| 31 | 01/01/96 | 3 | 1.5 |
| 31 | 01/01/96 | 3 | 1.5 |
| 31 | 01/01/96 | 3 | 1.5 |
| 31 | 01/01/96 | 3 | 0.9 |
| 31 | 01/01/96 | 3 | 0.6 |
| 32 | 01/01/96 | 3 | 0.1 |
| 32 | 01/01/96 | 3 | 1.5 |
| 32 | 01/01/96 | 3 | 1.6 |
| 32 | 01/01/96 | 3 | 1.8 |
| 32 | 01/01/96 | 3 | 1.5 |
| 32 | 01/01/96 | 3 | 1.21 |
| 32 | 01/01/96 | 3 | 0.9 |
| 33 | 01/01/96 | 3 | 0.1 |
| 33 | 01/01/96 | 3 | 2.7 |
| 33 | 01/01/96 | 3 | 3.1 |
| 33 | 01/01/96 | 3 | 3.5 |
| 33 | 01/01/96 | 3 | 2.3 |
| 33 | 01/01/96 | 3 | 1.2 |
| 33 | 01/01/96 | 3 | 1 |
| 33 | 01/01/96 | 3 | 0.3 |
| 34 | 01/01/96 | 3 | 0.3 |
| 34 | 01/01/96 | 3 | 1.7 |
| 34 | 01/01/96 | 3 | 2.1 |
| 34 | 01/01/96 | 3 | 2.2 |
| 34 | 01/01/96 | 3 | 2.2 |

## Thames Soundings in the Buscot area - EA Data

| Transect | Date | Interval | Depth |
|---|---|---|---|
| 34 | 01/01/96 | 3 | 2 |
| 34 | 01/01/96 | 3 | 1.3 |
| 34 | 01/01/96 | 3 | 0.6 |
| 34 | 01/01/96 | 3 | 0.1 |
| 35 | 01/01/96 | 3 | 0.1 |
| 35 | 01/01/96 | 3 | 1.6 |
| 35 | 01/01/96 | 3 | 1.6 |
| 35 | 01/01/96 | 3 | 1.8 |
| 35 | 01/01/96 | 3 | 1.6 |
| 35 | 01/01/96 | 3 | 1.6 |
| 35 | 01/01/96 | 3 | 1.5 |
| 35 | 01/01/96 | 3 | 1.3 |
| 35 | 01/01/96 | 3 | 1 |
| 35 | 01/01/96 | 3 | 0.2 |
| 36 | 01/01/96 | 3 | 0.2 |
| 36 | 01/01/96 | 3 | 1.5 |
| 36 | 01/01/96 | 3 | 1.7 |
| 36 | 01/01/96 | 3 | 1.9 |
| 36 | 01/01/96 | 3 | 2.1 |
| 36 | 01/01/96 | 3 | 2.2 |
| 36 | 01/01/96 | 3 | 2.3 |
| 36 | 01/01/96 | 3 | 1.6 |
| 36 | 01/01/96 | 3 | 0.5 |
| 36 | 01/01/96 | 3 | 0.2 |
| 39 | 01/01/96 | 3 | 0.2 |
| 39 | 01/01/96 | 3 | 2.1 |
| 39 | 01/01/96 | 3 | 2.2 |
| 39 | 01/01/96 | 3 | 2 |
| 39 | 01/01/96 | 3 | 2 |
| 39 | 01/01/96 | 3 | 2.1 |
| 39 | 01/01/96 | 3 | 2 |
| 39 | 01/01/96 | 3 | 0.8 |
| 39 | 01/01/96 | 3 | 0.1 |
| 42 | 01/01/96 | 3 | 0.1 |
| 42 | 01/01/96 | 3 | 1.1 |
| 42 | 01/01/96 | 3 | 1.9 |
| 42 | 01/01/96 | 3 | 2.1 |
| 42 | 01/01/96 | 3 | 2.4 |
| 42 | 01/01/96 | 3 | 2.4 |
| 42 | 01/01/96 | 3 | 2.1 |
| 42 | 01/01/96 | 3 | 2 |
| 42 | 01/01/96 | 3 | 2.1 |
| 42 | 01/01/96 | 3 | 0.1 |
| 43 | 01/01/96 | 3 | 0.3 |
| 43 | 01/01/96 | 3 | 0.9 |
| 43 | 01/01/96 | 3 | 1.7 |
| 43 | 01/01/96 | 3 | 1.4 |
| 43 | 01/01/96 | 3 | 2.2 |
| 43 | 01/01/96 | 3 | 1.5 |
| 43 | 01/01/96 | 3 | 0.6 |
| 43 | 01/01/96 | 3 | 0.3 |
| 43 | 01/01/96 | 3 | 0.3 |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 1 | 24/09/96 | Cl | | MX | 1 | 0.50 | 0.45 | |
| 1 | 24/09/96 | Si | Cl | Sps | 1 | 1.20 | 1.15 | 0.7 |
| 1 | 24/09/96 | Si | Cl | | 1 | 1.35 | 1.30 | 0.7 |
| 1 | 24/09/96 | Si | Cl | | 1 | 1.60 | 1.55 | 0.5 |
| 1 | 24/09/96 | Si | Cl | | 1 | 1.65 | 1.60 | 0.45 |
| 1 | 24/09/96 | Si | Cl | | 1 | 1.60 | 1.55 | 0.5 |
| 1 | 24/09/96 | Si | GP | Sps | 1 | 1.45 | 1.40 | 0.45 |
| 1 | 24/09/96 | Si | GP | Sps | 1 | 1.20 | 1.15 | 0.5 |
| 1 | 24/09/96 | Si | Cl | Sps | 1 | 1.05 | 1.00 | 0.2 |
| 1 | 24/09/96 | Si | Cl | Sps | 1 | 1.00 | 0.95 | 0.05 |
| 1 | 24/09/96 | Cl | | | 1 | 0.40 | 0.35 | |
| 2 | 24/09/96 | Cl | | Gly | 1 | 0.20 | 0.15 | |
| 2 | 24/09/96 | Si | Cl | Gly | 1 | 0.95 | 0.9 | 0.1 |
| 2 | 24/09/96 | GP | | | 1 | 1.45 | 1.4 | |
| 2 | 24/09/96 | GP | | | 1 | 1.95 | 1.9 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.10 | 3.05 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.10 | 3.05 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.10 | 3.05 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.1 | 3.05 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.1 | 3.05 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.1 | 3.05 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.45 | 3.4 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.45 | 3.4 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.45 | 3.4 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.00 | 2.95 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.00 | 2.95 | |
| 2 | 24/09/96 | Cl | | | 3 | 3.00 | 2.95 | |
| 2 | 24/09/96 | Cl | | | 1 | 2.50 | 2.45 | |
| 2 | 24/09/96 | Cl | | | 1 | 1.75 | 1.7 | |
| 2 | 24/09/96 | Cl | | | 1 | 0.80 | 0.75 | |
| 3 | 24/09/96 | Cl | | Sps | 1 | 0.75 | 0.7 | |
| 3 | 24/09/96 | Sa | | Sps | 1 | 1.00 | 0.95 | |
| 3 | 24/09/96 | Sa | | | 1 | 0.95 | 0.9 | |
| 3 | 24/09/96 | GP | | | 1 | 1.00 | 0.95 | |
| 3 | 24/09/96 | GP | | | 1 | 1.05 | 1 | |
| 3 | 24/09/96 | GP | | | 3 | 1.40 | 1.35 | |
| 3 | 24/09/96 | GP | | | 3 | 1.40 | 1.35 | |
| 3 | 24/09/96 | GP | | | 3 | 1.40 | 1.35 | |
| 3 | 24/09/96 | GP | | | 3 | 2.05 | 2 | |
| 3 | 24/09/96 | GP | | | 3 | 2.05 | 2 | |
| 3 | 24/09/96 | GP | | | 3 | 2.05 | 2 | |
| 3 | 24/09/96 | GP | | | 3 | 2.60 | 2.55 | |
| 3 | 24/09/96 | GP | | | 3 | 2.60 | 2.55 | |
| 3 | 24/09/96 | GP | | | 3 | 2.60 | 2.55 | |
| 3 | 24/09/96 | Cl | | | 1 | 2.75 | 2.7 | |
| 3 | 24/09/96 | Cl | | | 1 | 2.50 | 2.45 | |
| 3 | 24/09/96 | Cl | | | 1 | 2.35 | 2.3 | |
| 3 | 24/09/96 | Cl | | | 1 | 2.05 | 2 | |
| 3 | 24/09/96 | Cl | | | 1 | 0.85 | 0.8 | |
| 4 | 24/09/96 | Cl | | Gly MX | 1 | 0.55 | 0.5 | |
| 4 | 24/09/96 | Si | Cl | El | 1 | 0.90 | 0.85 | 0.1 |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 4 | 24/09/96 | Si | Cl | El | 1 | 1.25 | 1.2 | 0.05 |
| 4 | 24/09/96 | Si | Cl | El | 1 | 1.4 | 1.35 | 0.1 |
| 4 | 24/09/96 | Sa | | El Sps | 1 | 1.50 | 1.45 | |
| 4 | 24/09/96 | Si | GP | Sps | 1 | 1.45 | 1.4 | 0.1 |
| 4 | 24/09/96 | GP | | Sps | 1 | 1.60 | 1.55 | |
| 4 | 24/09/96 | GP | | | 1 | 1.65 | 1.6 | |
| 4 | 24/09/96 | GP | | | 3 | 1.70 | 1.65 | |
| 4 | 24/09/96 | GP | | | 3 | 1.70 | 1.65 | |
| 4 | 24/09/96 | GP | | | 3 | 1.70 | 1.65 | |
| 4 | 24/09/96 | GP | | | 3 | 2.30 | 2.25 | |
| 4 | 24/09/96 | GP | | | 3 | 2.30 | 2.25 | |
| 4 | 24/09/96 | GP | | | 3 | 2.30 | 2.25 | |
| 4 | 24/09/96 | GP | | | 3 | 2.60 | 2.55 | |
| 4 | 24/09/96 | GP | | | 3 | 2.60 | 2.55 | |
| 4 | 24/09/96 | GP | | | 3 | 2.60 | 2.55 | |
| 4 | 24/09/96 | Cl | | Sps | 1 | 2.10 | 2.05 | |
| 4 | 24/09/96 | Cl | | Sps | 1 | 1.55 | 1.5 | |
| 4 | 24/09/96 | Cl | | Sps | 1 | 1.85 | 1.8 | |
| 4 | 24/09/96 | Cl | | | 1 | 0.05 | 0 | |
| 5 | 24/09/96 | Cl | | Sps | 1 | 1.70 | 1.65 | |
| 5 | 24/09/96 | GP | | Sps | 1 | 2.20 | 2.15 | |
| 5 | 24/09/96 | Cl | | Sps | 1 | 2.20 | 2.15 | |
| 5 | 24/09/96 | Si | GP | | 1 | 2.00 | 1.95 | 0.05 |
| 5 | 24/09/96 | Cl | | | 3 | 2.00 | 1.95 | |
| 5 | 24/09/96 | Cl | | | 3 | 2.00 | 1.95 | |
| 5 | 24/09/96 | Cl | | | 3 | 2.00 | 1.95 | |
| 5 | 24/09/96 | GP | | | 3 | 2.25 | 2.2 | |
| 5 | 24/09/96 | GP | | | 3 | 2.25 | 2.2 | |
| 5 | 24/09/96 | GP | | | 3 | 2.25 | 2.2 | |
| 5 | 24/09/96 | GP | | | 3 | 1.70 | 1.65 | |
| 5 | 24/09/96 | GP | | | 3 | 1.70 | 1.65 | |
| 5 | 24/09/96 | GP | | | 3 | 1.70 | 1.65 | |
| 5 | 24/09/96 | GP | | | 1 | 1.30 | 1.25 | |
| 5 | 24/09/96 | Sa | | Sps | 1 | 1.15 | 1.1 | |
| 5 | 24/09/96 | Si | Cl | Sps | 1 | 1.15 | 1.1 | 0.1 |
| 5 | 24/09/96 | Cl | | | 1 | 0.65 | 0.6 | |
| 6 | 24/09/96 | Si | Sa | | 1 | 0.35 | 0.3 | 0.1 |
| 6 | 24/09/96 | Si | Sa | Sps | 1 | 0.55 | 0.5 | 0.1 |
| 6 | 24/09/96 | Si | Sa | Sps | 1 | 0.85 | 0.8 | 0.1 |
| 6 | 24/09/96 | Gp | | | 1 | 1.00 | 0.95 | |
| 6 | 24/09/96 | Gp | | | 3 | 1.65 | 1.6 | |
| 6 | 24/09/96 | Gp | | | 3 | 1.65 | 1.6 | |
| 6 | 24/09/96 | Gp | | | 3 | 1.65 | 1.6 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.30 | 2.25 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.30 | 2.25 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.30 | 2.25 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.70 | 2.65 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.70 | 2.65 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.70 | 2.65 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.00 | 1.95 | |
| 6 | 24/09/96 | Gp | | | 3 | 2.00 | 1.95 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 6 | 24/09/96 | Gp | | | 3 | 2.00 | 1.95 | |
| 6 | 24/09/96 | Cl | | | 1 | 2.00 | 1.95 | |
| 6 | 24/09/96 | Cl | | Sps El | 1 | 1.80 | 1.75 | |
| 6 | 24/09/96 | Cl | | El | 1 | 1.80 | 1.75 | |
| 6 | 24/09/96 | Cl | | | 1 | 1.45 | 1.4 | |
| 6 | 24/09/96 | Cl | | | 1 | 0.50 | 0.45 | |
| 7 | 24/09/96 | Si | Cl | | 1 | 0.70 | 0.65 | |
| 7 | 24/09/96 | Si | Cl | Sps | 1 | 1.00 | 0.95 | |
| 7 | 24/09/96 | GP | | Sps | 1 | 1.25 | 1.2 | |
| 7 | 24/09/96 | GP | | Sps | 1 | 1.40 | 1.35 | |
| 7 | 24/09/96 | GP | | Sps | 1 | 1.40 | 1.35 | |
| 7 | 24/09/96 | Si | GP | Sps | 1 | 1.40 | 1.35 | |
| 7 | 24/09/96 | GP | | | 1 | 1.55 | 1.5 | |
| 7 | 24/09/96 | GP | | | 3 | 1.95 | 1.9 | |
| 7 | 24/09/96 | GP | | | 3 | 1.95 | 1.9 | |
| 7 | 24/09/96 | GP | | | 3 | 1.95 | 1.9 | |
| 7 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 7 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 7 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 7 | 24/09/96 | Cl | | | 3 | 2.65 | 2.6 | |
| 7 | 24/09/96 | Cl | | | 3 | 2.65 | 2.6 | |
| 7 | 24/09/96 | Cl | | | 3 | 2.65 | 2.6 | |
| 7 | 24/09/96 | GP | | Sps | 3 | 1.40 | 1.35 | |
| 7 | 24/09/96 | GP | | Sps | 3 | 1.40 | 1.35 | |
| 7 | 24/09/96 | GP | | Sps | 3 | 1.40 | 1.35 | |
| 7 | 24/09/96 | GP | | Sps El | 1 | 1.10 | 1.05 | |
| 7 | 24/09/96 | Si | GP | El | 1 | 0.95 | 0.9 | |
| 7 | 24/09/96 | Si | Cl | Sps | 1 | 0.85 | 0.8 | |
| 7 | 24/09/96 | GP | | | 1 | 0.50 | 0.45 | |
| 8 | 24/09/96 | Si | Cl | Gly | 1 | 0.25 | 0.2 | 0.05 |
| 8 | 24/09/96 | Si | Cl | | 1 | 1.7 | 1.65 | 0.05 |
| 8 | 24/09/96 | Si | GP | El | 1 | 1.85 | 1.8 | 0.10 |
| 8 | 24/09/96 | Si | Cl | El | 1 | 2 | 1.95 | 0.05 |
| 8 | 24/09/96 | GP | | El | 1 | 2 | 1.95 | |
| 8 | 24/09/96 | GP | | El | 1 | 2.05 | 2 | |
| 8 | 24/09/96 | Sa | GP | | 1 | 2.15 | 2.1 | 0.10 |
| 8 | 24/09/96 | Sa | | | 1 | 2.25 | 2.2 | |
| 8 | 24/09/96 | Sa | GP | | 1 | 2.3 | 2.25 | 0.05 |
| 8 | 24/09/96 | GP | | | 3 | 2.35 | 2.3 | |
| 8 | 24/09/96 | GP | | | 3 | 2.35 | 2.3 | |
| 8 | 24/09/96 | GP | | | 3 | 2.35 | 2.3 | |
| 8 | 24/09/96 | GP | | | 3 | 2.90 | 2.85 | |
| 8 | 24/09/96 | GP | | | 3 | 2.90 | 2.85 | |
| 8 | 24/09/96 | GP | | | 3 | 2.90 | 2.85 | |
| 8 | 24/09/96 | Cl | | | 3 | 2.90 | 2.85 | |
| 8 | 24/09/96 | Cl | | | 3 | 2.90 | 2.85 | |
| 8 | 24/09/96 | Cl | | | 3 | 2.90 | 2.85 | |
| 8 | 24/09/96 | Cl | | | 3 | 3.10 | 3.05 | |
| 8 | 24/09/96 | Cl | | | 3 | 3.10 | 3.05 | |
| 8 | 24/09/96 | Cl | | | 3 | 3.10 | 3.05 | |
| 8 | 24/09/96 | GP | | | 1 | 2.90 | 2.85 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 8 | 24/09/96 | CL | | | 1 | 2.50 | 2.45 | |
| 8 | 24/09/96 | CL | | Sps | 1 | 1.30 | 1.25 | |
| 8 | 24/09/96 | CL | | Sps | 1 | 0.85 | 0.8 | |
| 9 | 24/09/96 | CL | | Sps | 1 | 1.50 | 1.45 | |
| 9 | 24/09/96 | CL | | | 1 | 2.50 | 2.45 | |
| 9 | 24/09/96 | GP | | | 1 | 3.15 | 3.1 | |
| 9 | 24/09/96 | GP | | | 1 | 3.70 | 3.65 | |
| 9 | 24/09/96 | GP | | | 3 | 4.75 | 4.7 | |
| 9 | 24/09/96 | GP | | | 3 | 4.75 | 4.7 | |
| 9 | 24/09/96 | GP | | | 3 | 4.75 | 4.7 | |
| 9 | 24/09/96 | CL | | | 3 | 3.65 | 3.6 | |
| 9 | 24/09/96 | CL | | | 3 | 3.65 | 3.6 | |
| 9 | 24/09/96 | CL | | | 3 | 3.65 | 3.6 | |
| 9 | 24/09/96 | CL | | | 3 | 3.00 | 2.95 | |
| 9 | 24/09/96 | CL | | | 3 | 3.00 | 2.95 | |
| 9 | 24/09/96 | CL | | | 3 | 3.00 | 2.95 | |
| 9 | 24/09/96 | CL | | | 3 | 2.85 | 2.8 | |
| 9 | 24/09/96 | CL | | | 3 | 2.85 | 2.8 | |
| 9 | 24/09/96 | CL | | | 3 | 2.85 | 2.8 | |
| 9 | 24/09/96 | GP | | | 3 | 2.80 | 2.75 | |
| 9 | 24/09/96 | GP | | | 3 | 2.80 | 2.75 | |
| 9 | 24/09/96 | GP | | | 3 | 2.80 | 2.75 | |
| 9 | 24/09/96 | Si | CL | Sps | 3 | 1.90 | 1.85 | |
| 9 | 24/09/96 | Si | CL | Sps | 3 | 1.90 | 1.85 | |
| 9 | 24/09/96 | Si | CL | Sps | 3 | 1.90 | 1.85 | 0.05 |
| 9 | 24/09/96 | Si | CL | Sps | 1 | 1.50 | 1.45 | 0.05 |
| 9 | 24/09/96 | Si | CL | Sps | 1 | 1.25 | 1.2 | 0.05 |
| 9 | 24/09/96 | Si | CL | El Spe Sps | 1 | 1.00 | 0.95 | 0.05 |
| 9 | 24/09/96 | CL | | El Spe Sps | 1 | 1.00 | 0.95 | |
| 9 | 24/09/96 | Si | CL | El Spe Sps | 1 | 1.10 | 1.05 | 0.05 |
| 9 | 24/09/96 | Si | CL | El | 1 | 0.95 | 0.9 | 0.05 |
| 9 | 24/09/96 | Si | CL | El Calli Sps | 1 | 0.50 | 0.45 | 0.05 |
| 9 | 24/09/96 | Si | CL | | 1 | 0.30 | 0.25 | 0.05 |
| 9 | 24/09/96 | Si | CL | | 1 | 0.25 | 0.2 | 0.05 |
| 10 | 24/09/96 | Cl | | | 1 | 0.50 | 0.45 | |
| 10 | 24/09/96 | Cl | | | 1 | 0.85 | 0.8 | |
| 10 | 24/09/96 | Cl | | El | 1 | 1.55 | 1.5 | |
| 10 | 24/09/96 | Cl | | Sps El | 1 | 1.30 | 1.25 | |
| 10 | 24/09/96 | Cl | | Sps El | 1 | 1.50 | 1.45 | |
| 10 | 24/09/96 | Cl | | Sps El | 1 | 1.60 | 1.55 | |
| 10 | 24/09/96 | Cl | | Sps El | 1 | 1.60 | 1.55 | |
| 10 | 24/09/96 | GP | | | 1 | 1.70 | 1.65 | |
| 10 | 24/09/96 | Cl | | | 1 | 1.80 | 1.75 | |
| 1+A | 24/09/96 | Cl | | | 1 | 1.65 | 1.6 | |
| 10 | 24/09/96 | Cl | | Sps | 1 | 1.75 | 1.7 | |
| 10 | 24/09/96 | Si | Cl | El Sps | 1 | 2.55 | 2.5 | |
| 10 | 24/09/96 | GP | | | 1 | 2.95 | 2.9 | |
| 10 | 24/09/96 | GP | | | 1 | 3.30 | 3.25 | |
| 10 | 24/09/96 | GP | | | 1 | 3.60 | 3.55 | |
| 10 | 24/09/96 | GP | | | 1 | 3.45 | 3.4 | |
| 10 | 24/09/96 | Ar | | | 1 | 3.00 | 2.95 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 10 | 24/09/96 | Si | Ar | Sps | 1 | 2.00 | 1.95 | |
| 10 | 24/09/96 | Ar | | Sps | 1 | 2.00 | 1.95 | |
| 10 | 24/09/96 | | | | 1 | 0 | 0 | |
| 10 | 24/09/96 | | | | 1 | 0 | 0 | |
| 10 | 24/09/96 | | | | 1 | 0 | 0 | |
| 10 | 24/09/96 | | | | 1 | 0 | 0 | |
| 10 | 24/09/96 | Cl | | | 1 | 1.80 | 1.75 | |
| 10 | 24/09/96 | Cl | | | 1 | 1.60 | 1.55 | |
| 10 | 24/09/96 | Cl | | | 1 | 1.70 | 1.65 | |
| 10 | 24/09/96 | GP | | | 1 | 1.65 | 1.6 | |
| 10 | 24/09/96 | GP | | | 3 | 1.90 | 1.85 | |
| 10 | 24/09/96 | GP | | | 3 | 1.90 | 1.85 | |
| 10 | 24/09/96 | GP | | | 3 | 1.90 | 1.85 | |
| 10 | 24/09/96 | Si | Cl | Sps | 3 | 1.70 | 1.65 | |
| 10 | 24/09/96 | Si | Cl | Sps | 3 | 1.70 | 1.65 | |
| 10 | 24/09/96 | Si | Cl | Sps | 3 | 1.70 | 1.65 | |
| 10 | 24/09/96 | Si | Cl | Sps | 1 | 1.65 | 1.6 | |
| 10 | 24/09/96 | Si | Cl | Sps El | 1 | 1.50 | 1.45 | |
| 10 | 24/09/96 | Si | Cl | Sps El | 1 | 1.45 | 1.4 | |
| 10 | 24/09/96 | Si | Cl | Sps El | 1 | 1.25 | 1.2 | |
| 10 | 24/09/96 | Si | Cl | Sps El | 1 | 1.20 | 1.15 | |
| 10 | 24/09/96 | Si | Cl | Sps El | 1 | 1.10 | 1.05 | |
| 10 | 24/09/96 | Si | Cl | Sps El | 1 | 0.80 | 0.75 | |
| 10 | 24/09/96 | Si | Cl | Sps | 1 | 0.80 | 0.75 | |
| 11 | 24/09/96 | Cl | | | 1 | 0.50 | 0.45 | |
| 11 | 24/09/96 | Cl | | | 1 | 0.50 | 0.45 | |
| 11 | 24/09/96 | Cl | | | 1 | 0.95 | 0.9 | |
| 11 | 24/09/96 | GP | | Sps SNu | 1 | 1.50 | 1.45 | |
| 11 | 24/09/96 | GP | | | 1 | 1.80 | 1.75 | |
| 11 | 24/09/96 | GP | | SNu | 1 | 1.85 | 1.8 | |
| 11 | 24/09/96 | GP | | SNu | 1 | 1.85 | 1.8 | |
| 11 | 24/09/96 | GP | | SNu | 1 | 1.85 | 1.8 | |
| 11 | 24/09/96 | GP | | SNu | 1 | 1.90 | 1.85 | |
| 11 | 24/09/96 | GP | | SNu | 1 | 2.00 | 1.95 | |
| 11 | 24/09/96 | GP | | SNu | 1 | 2.10 | 2.05 | |
| 11 | 24/09/96 | GP | | | 1 | 2.00 | 1.95 | |
| 11 | 24/09/96 | GP | | | 1 | 2.00 | 1.95 | |
| 11 | 24/09/96 | GP | | | 1 | 2.00 | 1.95 | |
| 11 | 24/09/96 | GP | | | 1 | 1.90 | 1.85 | |
| 11 | 24/09/96 | GP | | | 1 | 1.85 | 1.8 | |
| 11 | 24/09/96 | GP | | | 1 | 1.80 | 1.75 | |
| 11 | 24/09/96 | Cl | | | 1 | 1.70 | 1.65 | |
| 11 | 24/09/96 | Cl | | | 1 | 0.95 | 0.9 | |
| 11 | 24/09/96 | Cl | | | 1 | 0.10 | 0.05 | |
| 12 | 24/09/96 | Cl | | | 1 | 1.05 | 1 | |
| 12 | 24/09/96 | Si | Cl | Sps | 1 | 2.15 | 2.1 | 0.1 |
| 12 | 24/09/96 | GP | | | 1 | 2.45 | 2.4 | |
| 12 | 24/09/96 | GP | | | 3 | 2.55 | 2.5 | |
| 12 | 24/09/96 | GP | | | 3 | 2.55 | 2.5 | |
| 12 | 24/09/96 | GP | | | 3 | 2.55 | 2.5 | |
| 12 | 24/09/96 | Cl | | | 3 | 2.25 | 2.2 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 12 | 24/09/96 | Cl | | | 3 | 2.25 | 2.2 | |
| 12 | 24/09/96 | Cl | | | 3 | 2.25 | 2.2 | |
| 12 | 24/09/96 | GP | | | 3 | 1.85 | 1.8 | |
| 12 | 24/09/96 | GP | | | 3 | 1.85 | 1.8 | |
| 12 | 24/09/96 | GP | | | 3 | 1.85 | 1.8 | |
| 12 | 24/09/96 | Si | Cl | Sps | 3 | 1.75 | 1.7 | |
| 12 | 24/09/96 | Si | Cl | Sps | 3 | 1.75 | 1.7 | |
| 12 | 24/09/96 | Si | Cl | Sps | 3 | 1.75 | 1.7 | 0.1 |
| 12 | 24/09/96 | Si | Cl | | 1 | 1.95 | 1.9 | 0.05 |
| 12 | 24/09/96 | Si | Cl | Sps | 1 | 2.00 | 1.95 | 0.45 |
| 12 | 24/09/96 | Si | Cl | Sps El | 1 | 2.20 | 2.15 | 0.4 |
| 12 | 24/09/96 | Si | GP | El | 1 | 2.10 | 2.05 | 0.1 |
| 12 | 24/09/96 | Cl | | | 1 | 1.00 | 0.95 | |
| 12 | 24/09/96 | Si | Cl | | 1 | 0.40 | 0.35 | 0.1 |
| 12 | 24/09/96 | Si | Cl | | 1 | 0.20 | 0.15 | 0.1 |
| 12 | 24/09/96 | Cl | | | 1 | 0.10 | 0.05 | |
| 13 | 24/09/96 | Cl | | | 1 | 0.40 | 0.35 | |
| 13 | 24/09/96 | Si | Cl | Sps | 1 | 1.20 | 1.15 | 0.05 |
| 13 | 24/09/96 | Cl | | Sps | 1 | 1.50 | 1.45 | |
| 13 | 24/09/96 | Cl | | Sps | 1 | 1.75 | 1.7 | |
| 13 | 24/09/96 | Cl | | Sps | 1 | 2.00 | 1.95 | |
| 13 | 24/09/96 | GP | | | 1 | 2.15 | 2.1 | |
| 13 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 13 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 13 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 13 | 24/09/96 | GP | | | 3 | 2.30 | 2.25 | |
| 13 | 24/09/96 | GP | | | 3 | 2.30 | 2.25 | |
| 13 | 24/09/96 | GP | | | 3 | 2.30 | 2.25 | |
| 13 | 24/09/96 | GP | | | 3 | 2.20 | 2.15 | |
| 13 | 24/09/96 | GP | | | 3 | 2.20 | 2.15 | |
| 13 | 24/09/96 | GP | | | 3 | 2.20 | 2.15 | |
| 13 | 24/09/96 | GP | | Sps | 1 | 1.90 | 1.85 | |
| 13 | 24/09/96 | GP | | Sps El | 1 | 1.75 | 1.7 | |
| 13 | 24/09/96 | GP | | Sps | 1 | 1.65 | 1.6 | |
| 13 | 24/09/96 | GP | | El | 1 | 1.35 | 1.3 | |
| 13 | 24/09/96 | GP | | Sps El | 1 | 1.10 | 1.05 | |
| 14 | 24/09/96 | Cl | | | 1 | 0.30 | 0.25 | |
| 14 | 24/09/96 | Cl | | Sps | 1 | 1.50 | 1.45 | |
| 14 | 24/09/96 | GP | | Sps | 1 | 2.00 | 1.95 | |
| 14 | 24/09/96 | GP | | Sps SNu | 1 | 2.05 | 2 | |
| 14 | 24/09/96 | GP | | Sps SNu | 1 | 1.90 | 1.85 | |
| 14 | 24/09/96 | GP | | Sps SNu | 1 | 1.90 | 1.85 | |
| 14 | 24/09/96 | GP | | Sps | 1 | 1.80 | 1.75 | |
| 14 | 24/09/96 | GP | | SNu | 1 | 1.80 | 1.75 | |
| 14 | 24/09/96 | GP | | | 1 | 1.75 | 1.7 | |
| 14 | 24/09/96 | GP | | Sps | 1 | 1.75 | 1.7 | |
| 14 | 24/09/96 | GP | | Sps | 1 | 1.60 | 1.55 | |
| 14 | 24/09/96 | GP | | Sps | 1 | 1.50 | 1.45 | |
| 14 | 24/09/96 | GP | | | 1 | 1.45 | 1.4 | |
| 14 | 24/09/96 | GP | | | 1 | 1.40 | 1.35 | |
| 14 | 24/09/96 | GP | | Sps SNu | 1 | 1.30 | 1.25 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 14 | 24/09/96 | GP | | Sps SNu | 1 | 1.30 | 1.25 | |
| 14 | 24/09/96 | GP | | SNu | 1 | 1.25 | 1.2 | |
| 14 | 24/09/96 | GP | | SNu | 1 | 1.20 | 1.15 | |
| 14 | 24/09/96 | GP | | SNu | 1 | 1.30 | 1.25 | |
| 14 | 24/09/96 | GP | | SNu | 1 | 1.30 | 1.25 | |
| 14 | 24/09/96 | GP | | Sa | 1 | 1.40 | 1.35 | |
| 14 | 24/09/96 | GP | | | 1 | 1.40 | 1.35 | |
| 14 | 24/09/96 | Cl | | | 1 | 1.35 | 1.3 | |
| 15 | 24/09/96 | Cl | | Sps | 1 | 1.00 | 0.95 | |
| 15 | 24/09/96 | GP | | Sps | 1 | 1.50 | 1.45 | |
| 15 | 24/09/96 | GP | | | 1 | 1.45 | 1.4 | |
| 15 | 24/09/96 | GP | | | 1 | 1.50 | 1.45 | |
| 15 | 24/09/96 | GP | | | 1 | 1.65 | 1.6 | |
| 15 | 24/09/96 | GP | | | 3 | 1.95 | 1.9 | |
| 15 | 24/09/96 | GP | | | 3 | 1.95 | 1.9 | |
| 15 | 24/09/96 | GP | | | 3 | 1.95 | 1.9 | |
| 15 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 15 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 15 | 24/09/96 | GP | | | 3 | 2.50 | 2.45 | |
| 15 | 24/09/96 | GP | | | 3 | 2.55 | 2.5 | |
| 15 | 24/09/96 | GP | | | 3 | 2.55 | 2.5 | |
| 15 | 24/09/96 | GP | | | 3 | 2.55 | 2.5 | |
| 15 | 24/09/96 | GP | | | 3 | 2.05 | 2 | |
| 15 | 24/09/96 | GP | | | 3 | 2.05 | 2 | |
| 15 | 24/09/96 | GP | | | 3 | 2.05 | 2 | |
| 15 | 24/09/96 | Cl | | | 1 | 1.75 | 1.7 | |
| 15 | 24/09/96 | Cl | | | 1 | 1.45 | 1.4 | |
| 16 | 24/09/96 | Cl | | | 1 | 0.75 | 0.62 | |
| 16 | 24/09/96 | Cl | | | 1 | 1.45 | 1.32 | |
| 16 | 24/09/96 | Cl | | | 1 | 1.70 | 1.57 | |
| 16 | 24/09/96 | GP | | | 1 | 1.80 | 1.67 | |
| 16 | 24/09/96 | GP | | | 3 | 1.80 | 1.67 | |
| 16 | 24/09/96 | GP | | | 3 | 1.80 | 1.67 | |
| 16 | 24/09/96 | GP | | | 3 | 1.80 | 1.67 | |
| 16 | 24/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 16 | 24/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 16 | 24/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 16 | 24/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 16 | 24/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 16 | 24/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 16 | 24/09/96 | Cl | | SNu | 3 | 1.80 | 1.67 | |
| 16 | 24/09/96 | Cl | | SNu | 3 | 1.80 | 1.67 | |
| 16 | 24/09/96 | Cl | | SNu | 3 | 1.80 | 1.67 | |
| 16 | 24/09/96 | Cl | | SNu | 1 | 1.80 | 1.67 | |
| 16 | 24/09/96 | GP | | SNu Sps | 1 | 1.60 | 1.47 | |
| 16 | 24/09/96 | Cl | | SNu Sc | 1 | 1.10 | 0.97 | |
| 16 | 24/09/96 | Cl | | | 1 | 0.50 | 0.37 | |
| 17 | 24/09/96 | Si | Cl | Phrg Phal | 1 | 0.25 | 0.12 | 0.05 |
| 17 | 24/09/96 | Si | Cl | Phg | 1 | 1.00 | 0.87 | 0.05 |
| 17 | 24/09/96 | Cl | | | 1 | 1.65 | 1.52 | |
| 17 | 24/09/96 | Cl | | | 1 | 2.00 | 1.87 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 17 | 24/09/96 | Cl | | | 1 | 2.00 | 1.87 | |
| 17 | 24/09/96 | GP | | SNu | 3 | 2.05 | 1.92 | |
| 17 | 24/09/96 | GP | | SNu | 3 | 2.05 | 1.92 | |
| 17 | 24/09/96 | GP | | SNu | 3 | 2.05 | 1.92 | |
| 17 | 24/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 17 | 24/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 17 | 24/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 17 | 24/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 17 | 24/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 17 | 24/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 17 | 24/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 17 | 24/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 17 | 24/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 17 | 24/09/96 | GP | | Sps | 1 | 1.75 | 1.62 | |
| 17 | 24/09/96 | Cl | | Sps | 1 | 1.70 | 1.57 | |
| 17 | 24/09/96 | Cl | | Sps | 1 | 1.20 | 1.07 | |
| 17 | 24/09/96 | Si | Cl | | 1 | 0.75 | 0.62 | 0.05 |
| 18 | 24/09/96 | Sa | | | 1 | 1.10 | 0.97 | |
| 18 | 24/09/96 | Sa | | | 1 | 1.55 | 1.42 | |
| 18 | 24/09/96 | Cl | | | 1 | 2.60 | 2.47 | |
| 18 | 24/09/96 | GP | | | 1 | 3.00 | 2.87 | |
| 18 | 24/09/96 | Cl | | | 3 | 3.80 | 3.67 | |
| 18 | 24/09/96 | Cl | | | 3 | 3.80 | 3.67 | |
| 18 | 24/09/96 | Cl | | | 3 | 3.80 | 3.67 | |
| 18 | 24/09/96 | Cl | | | 3 | 3.35 | 3.22 | |
| 18 | 24/09/96 | Cl | | | 3 | 3.35 | 3.22 | |
| 18 | 24/09/96 | Cl | | | 3 | 3.35 | 3.22 | |
| 18 | 24/09/96 | Cl | | | 3 | 2.75 | 2.62 | |
| 18 | 24/09/96 | Cl | | | 3 | 2.75 | 2.62 | |
| 18 | 24/09/96 | Cl | | | 3 | 2.75 | 2.62 | |
| 18 | 24/09/96 | GP | | | 3 | 2.55 | 2.42 | |
| 18 | 24/09/96 | GP | | | 3 | 2.55 | 2.42 | |
| 18 | 24/09/96 | GP | | | 3 | 2.55 | 2.42 | |
| 18 | 24/09/96 | Si | Cl | | 3 | 2.25 | 2.12 | |
| 18 | 24/09/96 | Si | Cl | | 3 | 2.25 | 2.12 | |
| 18 | 24/09/96 | Si | Cl | | 3 | 2.25 | 2.12 | 0.05 |
| 18 | 24/09/96 | Si | Cl | | 1 | 2.15 | 2.02 | 0.05 |
| 18 | 24/09/96 | Si | Cl | | 1 | 1.85 | 1.72 | 0.05 |
| 18 | 24/09/96 | Si | Cl | | 1 | 1.50 | 1.37 | 0.05 |
| 18 | 24/09/96 | Si | Cl | | 1 | 1.15 | 1.02 | 0.08 |
| 18 | 24/09/96 | Si | GP | Spe | 1 | 0.90 | 0.77 | 0.1 |
| 18 | 24/09/96 | Si | Sa | Spe | 1 | 0.65 | 0.52 | 0.05 |
| 18 | 24/09/96 | Si | Cl | Spe | 1 | 0.35 | 0.22 | 0.1 |
| 19 | 24/09/96 | Si | GP | | 1 | 0.25 | 0.12 | 0.05 |
| 19 | 24/09/96 | Co | | | 1 | 0.35 | 0.22 | |
| 19 | 24/09/96 | Co | | El | 1 | 0.65 | 0.52 | |
| 19 | 24/09/96 | Si | Cl | Sps | 1 | 1.00 | 0.87 | 0.05 |
| 19 | 24/09/96 | Si | Cl | Sps El | 1 | 1.20 | 1.07 | 0.1 |
| 19 | 24/09/96 | Sa | | Sps | 1 | 1.65 | 1.52 | |
| 19 | 24/09/96 | Sa | | Sps | 1 | 1.75 | 1.62 | |
| 19 | 24/09/96 | Sa | | Sps | 1 | 1.65 | 1.52 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 19 | 24/09/96 | Sa | | Sps | 1 | 1.60 | 1.47 | |
| 19 | 24/09/96 | Sa | | Sps | 1 | 1.60 | 1.47 | |
| 19 | 24/09/96 | Sa | | | 1 | 1.70 | 1.57 | |
| 19 | 24/09/96 | GP | | | 3 | 1.95 | 1.82 | |
| 19 | 24/09/96 | GP | | | 3 | 1.95 | 1.82 | |
| 19 | 24/09/96 | GP | | | 3 | 1.95 | 1.82 | |
| 19 | 24/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 19 | 24/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 19 | 24/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 19 | 24/09/96 | Sa | | | 1 | 1.50 | 1.37 | |
| 19 | 24/09/96 | Sa | | | 1 | 1.45 | 1.32 | |
| 19 | 24/09/96 | Sa | Cl | | 1 | 1.00 | 0.87 | 0.05 |
| 19 | 24/09/96 | Sa | Cl | | 1 | 0.80 | 0.67 | 0.05 |
| 19 | 24/09/96 | Sa | Cl | | 1 | 0.50 | 0.37 | 0.05 |
| 22 | 25/09/96 | Si | Cl | Spe | 1 | 0.30 | 0.17 | 0.05 |
| 22 | 25/09/96 | Si | Cl | Spe | 1 | 0.60 | 0.47 | 0.15 |
| 22 | 25/09/96 | Si | Cl | | 1 | 0.70 | 0.57 | 0.75 |
| 22 | 25/09/96 | Si | Cl | | 1 | 0.80 | 0.67 | 0.75 |
| 22 | 25/09/96 | Si | Cl | El | 3 | 1.00 | 0.87 | |
| 22 | 25/09/96 | Si | Cl | El | 3 | 1.00 | 0.87 | |
| 22 | 25/09/96 | Si | Cl | El | 3 | 1.00 | 0.87 | 0.3 |
| 22 | 25/09/96 | Si | Cl | Sps El | 3 | 1.45 | 1.32 | |
| 22 | 25/09/96 | Si | Cl | Sps El | 3 | 1.45 | 1.32 | |
| 22 | 25/09/96 | Si | Cl | Sps El | 3 | 1.45 | 1.32 | 0.75 |
| 22 | 25/09/96 | Si | Cl | | 3 | 1.90 | 1.77 | |
| 22 | 25/09/96 | Si | Cl | | 3 | 1.90 | 1.77 | |
| 22 | 25/09/96 | Si | Cl | | 3 | 1.90 | 1.77 | 0.15 |
| 22 | 25/09/96 | Si | Cl | Sps | 3 | 2.10 | 1.97 | |
| 22 | 25/09/96 | Si | Cl | Sps | 3 | 2.10 | 1.97 | |
| 22 | 25/09/96 | Si | Cl | Sps | 3 | 2.10 | 1.97 | 0.1 |
| 22 | 25/09/96 | Si | Cl | Sps | 1 | 1.90 | 1.77 | 0.05 |
| 22 | 25/09/96 | Cl | | Sps | 1 | 1.80 | 1.67 | |
| 22 | 25/09/96 | Cl | | Sps | 1 | 1.85 | 1.72 | |
| 22 | 25/09/96 | Si | Cl | | 1 | 2.00 | 1.87 | 0.05 |
| 22 | 25/09/96 | Si | Cl | Sps | 1 | 2.00 | 1.87 | 0.25 |
| 22 | 25/09/96 | Si | Cl | Sps | 1 | 1.50 | 1.37 | 0.2 |
| 22 | 25/09/96 | Si | Cl | Sps | 1 | 1.00 | 0.87 | 0.5 |
| 22 | 25/09/96 | Si | Cl | Gly | 1 | 0.50 | 0.37 | 0.5 |
| 23 | 25/09/96 | Sa | | | 1 | 0.30 | 0.17 | |
| 23 | 25/09/96 | Sa | | | 1 | 0.60 | 0.47 | |
| 23 | 25/09/96 | Sa | | | 1 | 0.70 | 0.57 | |
| 23 | 25/09/96 | GP | | | 1 | 0.80 | 0.67 | |
| 23 | 25/09/96 | GP | | | 1 | 1.00 | 0.87 | |
| 23 | 25/09/96 | GP | | Sps | 1 | 1.20 | 1.07 | |
| 23 | 25/09/96 | GP | | | 3 | 1.70 | 1.57 | |
| 23 | 25/09/96 | GP | | | 3 | 1.70 | 1.57 | |
| 23 | 25/09/96 | GP | | | 3 | 1.70 | 1.57 | |
| 23 | 25/09/96 | GP | | | 3 | 1.90 | 1.77 | |
| 23 | 25/09/96 | GP | | | 3 | 1.90 | 1.77 | |
| 23 | 25/09/96 | GP | | | 3 | 1.90 | 1.77 | |
| 23 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 23 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 23 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 23 | 25/09/96 | GP | | | 3 | 2.20 | 2.07 | |
| 23 | 25/09/96 | GP | | | 3 | 2.20 | 2.07 | |
| 23 | 25/09/96 | GP | | | 3 | 2.20 | 2.07 | |
| 23 | 25/09/96 | GP | | | 1 | 2.15 | 2.02 | |
| 23 | 25/09/96 | GP | | | 1 | 1.90 | 1.77 | |
| 23 | 25/09/96 | Si | Cl | Sag | 1 | 1.80 | 1.67 | 0.05 |
| 23 | 25/09/96 | Si | Cl | | 1 | 1.55 | 1.42 | 0.1 |
| 23 | 25/09/96 | Si | Cl | Phrg Gly | 1 | 0.75 | 0.62 | 0.25 |
| 23 | 25/09/96 | Si | Cl | Phrg | 1 | 0.20 | 0.07 | 0.5 |
| 24 | 25/09/96 | Sa | | Phal | 1 | 0.80 | 0.67 | |
| 24 | 25/09/96 | Sa | | | 1 | 1.20 | 1.07 | |
| 24 | 25/09/96 | Si | Cl | Sps | 1 | 1.45 | 1.32 | 0.05 |
| 24 | 25/09/96 | GP | | | 1 | 1.60 | 1.47 | |
| 24 | 25/09/96 | GP | | | 3 | 1.80 | 1.67 | |
| 24 | 25/09/96 | GP | | | 3 | 1.80 | 1.67 | |
| 24 | 25/09/96 | GP | | | 3 | 1.80 | 1.67 | |
| 24 | 25/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 24 | 25/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 24 | 25/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 24 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 24 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 24 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 24 | 25/09/96 | GP | | Sps | 3 | 1.75 | 1.62 | |
| 24 | 25/09/96 | GP | | Sps | 3 | 1.75 | 1.62 | |
| 24 | 25/09/96 | GP | | Sps | 3 | 1.75 | 1.62 | |
| 24 | 25/09/96 | GP | | Sps | 1 | 1.55 | 1.42 | |
| 24 | 25/09/96 | GP | | Scs | 1 | 1.30 | 1.17 | |
| 24 | 25/09/96 | Cl | | Sc | 1 | 0.90 | 0.77 | |
| 24 | 25/09/96 | GP | | | 1 | 0.80 | 0.67 | |
| 24 | 25/09/96 | GP | | Gly | 1 | 0.60 | 0.47 | |
| 25 | 25/09/96 | Cl | | | 1 | 0.15 | 0.02 | |
| 25 | 25/09/96 | Cl | | | 1 | 0.95 | 0.82 | |
| 25 | 25/09/96 | Sa | | | 1 | 1.10 | 0.97 | |
| 25 | 25/09/96 | Sa | | El | 1 | 1.25 | 1.12 | |
| 25 | 25/09/96 | Sa | | SNu Sps | 1 | 1.35 | 1.22 | |
| 25 | 25/09/96 | Sa | | Sps | 1 | 1.40 | 1.27 | |
| 25 | 25/09/96 | Sa | | Sps SNu | 1 | 1.60 | 1.47 | |
| 25 | 25/09/96 | Sa | | SNu | 1 | 1.65 | 1.52 | |
| 25 | 25/09/96 | Sa | | SNu | 1 | 1.70 | 1.57 | |
| 25 | 25/09/96 | Sa | | SNu | 1 | 1.80 | 1.67 | |
| 25 | 25/09/96 | Sa | | SNu | 3 | 1.85 | 1.72 | |
| 25 | 25/09/96 | Sa | | SNu | 3 | 1.85 | 1.72 | |
| 25 | 25/09/96 | Sa | | SNu | 3 | 1.85 | 1.72 | |
| 25 | 25/09/96 | Sa | | Sps | 3 | 1.70 | 1.57 | |
| 25 | 25/09/96 | Sa | | Sps | 3 | 1.70 | 1.57 | |
| 25 | 25/09/96 | Sa | | Sps | 3 | 1.70 | 1.57 | |
| 25 | 25/09/96 | Sa | | Sps | 1 | 1.70 | 1.57 | |
| 25 | 25/09/96 | Sa | | Sps | 1 | 1.70 | 1.57 | |
| 25 | 25/09/96 | Sa | | SNu | 1 | 1.70 | 1.57 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 25 | 25/09/96 | Sa | | SNu | 1 | 1.60 | 1.47 | |
| 25 | 25/09/96 | Sa | | | 1 | 1.55 | 1.42 | |
| 25 | 25/09/96 | Sa | | Sc | 1 | 1.25 | 1.12 | |
| 25 | 25/09/96 | Cl | | Sc | 1 | 0.50 | 0.37 | |
| 26 | 25/09/96 | Sa | | | 1 | 0.55 | 0.42 | |
| 26 | 25/09/96 | Sa | | Sps Sag | 1 | 0.95 | 0.82 | |
| 26 | 25/09/96 | Sa | | | 1 | 1.10 | 0.97 | |
| 26 | 25/09/96 | Sa | | | 1 | 1.30 | 1.17 | |
| 26 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 26 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 26 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 26 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 26 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 26 | 25/09/96 | GP | | | 3 | 1.85 | 1.72 | |
| 26 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 26 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 26 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 26 | 25/09/96 | Cl | | | 1 | 2.30 | 2.17 | |
| 26 | 25/09/96 | Cl | | | 1 | 2.05 | 1.92 | |
| 26 | 25/09/96 | Sa | | | 1 | 1.85 | 1.72 | |
| 26 | 25/09/96 | Sa | | | 1 | 1.65 | 1.52 | |
| 26 | 25/09/96 | Sa | | Epi | 1 | 0.40 | 0.27 | |
| 27 | 25/09/96 | Si | Cl | | 1 | 0.50 | 0.37 | 0.05 |
| 27 | 25/09/96 | Si | Cl | | 1 | 0.75 | 0.62 | 0.1 |
| 27 | 25/09/96 | Si | Cl | Sps | 1 | 1.20 | 1.07 | 0.05 |
| 27 | 25/09/96 | Sa | | Sps | 1 | 1.30 | 1.17 | |
| 27 | 25/09/96 | GP | | Sps | 1 | 1.35 | 1.22 | |
| 27 | 25/09/96 | GP | | Sps | 1 | 1.55 | 1.42 | |
| 27 | 25/09/96 | GP | | | 1 | 1.55 | 1.42 | |
| 27 | 25/09/96 | GP | | | 3 | 1.75 | 1.62 | |
| 27 | 25/09/96 | GP | | | 3 | 1.75 | 1.62 | |
| 27 | 25/09/96 | GP | | | 3 | 1.75 | 1.62 | |
| 27 | 25/09/96 | GP | | | 1 | 1.75 | 1.62 | |
| 27 | 25/09/96 | GP | | Sps | 1 | 1.75 | 1.62 | |
| 27 | 25/09/96 | GP | | Sps SNu | 1 | 1.75 | 1.62 | |
| 27 | 25/09/96 | GP | | Sps SNu | 1 | 1.80 | 1.67 | |
| 27 | 25/09/96 | GP | | SNu | 1 | 1.80 | 1.67 | |
| 27 | 25/09/96 | GP | | SNu | 1 | 1.60 | 1.47 | |
| 27 | 25/09/96 | GP | | | 1 | 1.25 | 1.12 | |
| 27 | 25/09/96 | Cl | | Sa | 1 | 0.75 | 0.62 | |
| 27 | 25/09/96 | Si | Cl | Phrg | 1 | 0.30 | 0.17 | 0.1 |
| 28 | 25/09/96 | Cl | | | 1 | 0.80 | 0.67 | |
| 28 | 25/09/96 | GP | | Sps | 1 | 1.25 | 1.12 | |
| 28 | 25/09/96 | GP | | Sps | 1 | 1.45 | 1.32 | |
| 28 | 25/09/96 | GP | | | 1 | 2.20 | 2.07 | |
| 28 | 25/09/96 | GP | | | 3 | 1.60 | 1.47 | |
| 28 | 25/09/96 | GP | | | 3 | 1.60 | 1.47 | |
| 28 | 25/09/96 | GP | | | 3 | 1.60 | 1.47 | |
| 28 | 25/09/96 | GP | | | 3 | 1.40 | 1.27 | |
| 28 | 25/09/96 | GP | | | 3 | 1.40 | 1.27 | |
| 28 | 25/09/96 | GP | | | 3 | 1.40 | 1.27 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 28 | 25/09/96 | GP | | | 3 | 1.70 | 1.57 | |
| 28 | 25/09/96 | GP | | | 3 | 1.70 | 1.57 | |
| 28 | 25/09/96 | GP | | | 3 | 1.70 | 1.57 | |
| 28 | 25/09/96 | GP | | | 1 | 1.60 | 1.47 | |
| 28 | 25/09/96 | GP | | Sps | 1 | 1.50 | 1.37 | |
| 28 | 25/09/96 | GP | | | 1 | 1.40 | 1.27 | |
| 28 | 25/09/96 | GP | | Sps | 1 | 1.30 | 1.17 | |
| 28 | 25/09/96 | GP | | | 1 | 1.25 | 1.12 | |
| 28 | 25/09/96 | GP | | | 1 | 1.15 | 1.02 | |
| 28 | 25/09/96 | Cl | | | 1 | 0.70 | 0.57 | |
| 28 | 25/09/96 | Cl | | | 1 | 0.40 | 0.27 | |
| 29 | 25/09/96 | Cl | | | 1 | 0.80 | 0.67 | |
| 29 | 25/09/96 | Cl | | | 1 | 1.40 | 1.27 | |
| 29 | 25/09/96 | GP | | Sps | 1 | 1.60 | 1.47 | |
| 29 | 25/09/96 | GP | | Sps | 1 | 1.75 | 1.62 | |
| 29 | 25/09/96 | GP | | Sps | 1 | 1.80 | 1.67 | |
| 29 | 25/09/96 | GP | | Sps | 1 | 1.90 | 1.77 | |
| 29 | 25/09/96 | GP | | | 1 | 1.95 | 1.82 | |
| 29 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 29 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 29 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 29 | 25/09/96 | GP | | | 1 | 2.15 | 2.02 | |
| 29 | 25/09/96 | GP | | | 1 | 2.15 | 2.02 | |
| 29 | 25/09/96 | GP | | | 1 | 2.05 | 1.92 | |
| 29 | 25/09/96 | GP | | | 1 | 1.65 | 1.52 | |
| 29 | 25/09/96 | GP | | | 1 | 1.65 | 1.52 | |
| 29 | 25/09/96 | GP | | | 1 | 1.55 | 1.42 | |
| 29 | 25/09/96 | Ar | | | 1 | 1.35 | 1.22 | |
| 29 | 25/09/96 | Cl | | SNu | 1 | 1.10 | 0.97 | |
| 29 | 25/09/96 | Cl | | SNu Sps | 1 | 0.90 | 0.77 | |
| 29 | 25/09/96 | Cl | | | 1 | 0.60 | 0.47 | |
| 30 | 25/09/96 | Cl | | | 1 | 0.55 | 0.42 | |
| 30 | 25/09/96 | Si | Cl | | 1 | 1.05 | 0.92 | |
| 30 | 25/09/96 | GP | | Sps | 1 | 1.20 | 1.07 | |
| 30 | 25/09/96 | GP | | Sps | 1 | 1.25 | 1.12 | |
| 30 | 25/09/96 | GP | | | 1 | 1.40 | 1.27 | |
| 30 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 30 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 30 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 30 | 25/09/96 | Cl | | | 3 | 2.20 | 2.07 | |
| 30 | 25/09/96 | Cl | | | 3 | 2.20 | 2.07 | |
| 30 | 25/09/96 | Cl | | | 3 | 2.20 | 2.07 | |
| 30 | 25/09/96 | Cl | | | 3 | 2.20 | 2.07 | |
| 30 | 25/09/96 | Cl | | | 3 | 2.20 | 2.07 | |
| 30 | 25/09/96 | Cl | | | 3 | 2.20 | 2.07 | |
| 30 | 25/09/96 | Cl | | Sa Font | 1 | 2.25 | 2.12 | |
| 30 | 25/09/96 | Cl | | | 1 | 2.05 | 1.92 | |
| 30 | 25/09/96 | Cl | | Sa Font | 1 | 1.90 | 1.77 | |
| 30 | 25/09/96 | Cl | | Sa Font | 1 | 1.50 | 1.37 | |
| 30 | 25/09/96 | Cl | | Font | 1 | 0.40 | 0.27 | |
| 30 | 25/09/96 | Cl | | | 1 | 0.10 | 0 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 31 | 25/09/96 | Cl | | | 1 | 0.90 | 0.77 | |
| 31 | 25/09/96 | Cl | | | 1 | 1.25 | 1.12 | |
| 31 | 25/09/96 | Cl | | | 1 | 1.30 | 1.17 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.40 | 1.27 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.40 | 1.27 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.45 | 1.32 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.50 | 1.37 | |
| 31 | 25/09/96 | GP | | Sps SNu | 1 | 1.75 | 1.62 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.70 | 1.57 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.65 | 1.52 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.70 | 1.57 | |
| 31 | 25/09/96 | GP | | Sps | 1 | 1.70 | 1.57 | |
| 31 | 25/09/96 | GP | | SNu | 1 | 1.70 | 1.57 | |
| 31 | 25/09/96 | GP | | SNu | 1 | 1.65 | 1.52 | |
| 31 | 25/09/96 | GP | | SNu | 1 | 1.45 | 1.32 | |
| 31 | 25/09/96 | GP | | SNu | 1 | 1.35 | 1.22 | |
| 31 | 25/09/96 | Sa | | SNu Sps | 1 | 1.30 | 1.17 | |
| 31 | 25/09/96 | GP | | SNu Sps | 1 | 1.35 | 1.22 | |
| 31 | 25/09/96 | Sa | GP | Sc | 1 | 1.00 | 0.87 | 0.05 |
| 31 | 25/09/96 | Sa | GP | SNu | 1 | 1.30 | 1.17 | 0.1 |
| 31 | 25/09/96 | Si | Cl | Sps | 1 | 1.50 | 1.37 | 0.25 |
| 31 | 25/09/96 | Si | Cl | Sps | 1 | 1.40 | 1.27 | 0.25 |
| 31 | 25/09/96 | Si | Cl | | 1 | 1.00 | 0.87 | 0.35 |
| 31 | 25/09/96 | Cl | | | 1 | 0.10 | 0 | |
| 32 | 25/09/96 | GP | | | 1 | 1.00 | 0.87 | |
| 32 | 25/09/96 | Sa | | | 1 | 1.35 | 1.22 | |
| 32 | 25/09/96 | Cl | | | 1 | 1.90 | 1.77 | |
| 32 | 25/09/96 | GP | | | 1 | 2.10 | 1.97 | |
| 32 | 25/09/96 | GP | | | 1 | 2.10 | 1.97 | |
| 32 | 25/09/96 | Sa | Cl | | 3 | 2.25 | 2.12 | |
| 32 | 25/09/96 | Sa | Cl | | 3 | 2.25 | 2.12 | |
| 32 | 25/09/96 | Sa | Cl | | 3 | 2.25 | 2.12 | 0.05 |
| 32 | 25/09/96 | GP | | Sps | 3 | 2.15 | 2.02 | |
| 32 | 25/09/96 | GP | | Sps | 3 | 2.15 | 2.02 | |
| 32 | 25/09/96 | GP | | Sps | 3 | 2.15 | 2.02 | |
| 32 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 32 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 32 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 32 | 25/09/96 | GP | | Sps | 3 | 2.00 | 1.87 | |
| 32 | 25/09/96 | GP | | Sps | 3 | 2.00 | 1.87 | |
| 32 | 25/09/96 | GP | | Sps | 3 | 2.00 | 1.87 | |
| 32 | 25/09/96 | GP | | | 1 | 2.00 | 1.87 | |
| 32 | 25/09/96 | Sa | Cl | | 1 | 1.95 | 1.82 | 0.05 |
| 32 | 25/09/96 | Cl | | | 1 | 1.60 | 1.47 | |
| 32 | 25/09/96 | Si | Cl | SNu | 1 | 1.50 | 1.37 | 0.1 |
| 32 | 25/09/96 | Cl | | SNu | 1 | 1.00 | 0.87 | |
| 32 | 25/09/96 | Si | Cl | SNu Sps | 1 | 0.75 | 0.62 | 0.05 |
| 32 | 25/09/96 | Cl | | El SNu | 1 | 0.25 | 0.12 | |
| 33 | 25/09/96 | Cl | | | 1 | 1.90 | 1.77 | |
| 33 | 25/09/96 | Cl | | | 1 | 2.10 | 1.97 | |
| 33 | 25/09/96 | Cl | | | 1 | 2.70 | 2.57 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 33 | 25/09/96 | Cl | | | 1 | 2.90 | 2.77 | |
| 33 | 25/09/96 | Cl | | | 3 | 3.50 | 3.37 | |
| 33 | 25/09/96 | Cl | | | 3 | 3.50 | 3.37 | |
| 33 | 25/09/96 | Cl | | | 3 | 3.50 | 3.37 | |
| 33 | 25/09/96 | GP | | | 3 | 3.25 | 3.12 | |
| 33 | 25/09/96 | GP | | | 3 | 3.25 | 3.12 | |
| 33 | 25/09/96 | GP | | | 3 | 3.25 | 3.12 | |
| 33 | 25/09/96 | GP | | | 3 | 1.90 | 1.77 | |
| 33 | 25/09/96 | GP | | | 3 | 1.90 | 1.77 | |
| 33 | 25/09/96 | GP | | | 3 | 1.90 | 1.77 | |
| 33 | 25/09/96 | GP | | | 1 | 1.50 | 1.37 | |
| 33 | 25/09/96 | GP | | | 1 | 1.30 | 1.17 | |
| 33 | 25/09/96 | GP | | | 1 | 1.25 | 1.12 | |
| 33 | 25/09/96 | GP | | | 1 | 1.00 | 0.87 | |
| 33 | 25/09/96 | Sa | | | 1 | 1.00 | 0.87 | |
| 33 | 25/09/96 | Cl | | | 1 | 0.75 | 0.62 | |
| 34 | 25/09/96 | Si | Cl | | 1 | 1.00 | 0.87 | 0.25 |
| 34 | 25/09/96 | Si | Cl | Sps | 1 | 1.55 | 1.42 | 0.2 |
| 34 | 25/09/96 | Si | Cl | Sps El | 1 | 1.85 | 1.72 | 0.2 |
| 34 | 25/09/96 | Cl | | | 1 | 2.25 | 2.12 | |
| 34 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 34 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 34 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 34 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 34 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 34 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 34 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 34 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 34 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 34 | 25/09/96 | Cl | | Sps | 3 | 1.55 | 1.42 | |
| 34 | 25/09/96 | Cl | | Sps | 3 | 1.55 | 1.42 | |
| 34 | 25/09/96 | Cl | | Sps | 3 | 1.55 | 1.42 | |
| 34 | 25/09/96 | Cl | | Sps SNu | 1 | 1.25 | 1.12 | |
| 34 | 25/09/96 | Cl | | Sps | 1 | 1.25 | 1.12 | |
| 34 | 25/09/96 | Cl | | Sps | 1 | 1.00 | 0.87 | |
| 34 | 25/09/96 | Cl | | | 1 | 0.70 | 0.57 | |
| 34 | 25/09/96 | Cl | | | 1 | 0.35 | 0.22 | |
| 35 | 25/09/96 | Cl | | Sps El | 1 | 1.40 | 1.27 | |
| 35 | 25/09/96 | Sa | | Sps El | 1 | 1.80 | 1.67 | |
| 35 | 25/09/96 | Sa | | SNu Sps El | 1 | 1.85 | 1.72 | |
| 35 | 25/09/96 | GP | | SNu Sps | 1 | 1.80 | 1.67 | |
| 35 | 25/09/96 | Sa | | SNu Sps | 1 | 1.80 | 1.67 | |
| 35 | 25/09/96 | Cl | | SNu Sps | 1 | 1.80 | 1.67 | |
| 35 | 25/09/96 | Sa | | SNu Sps | 1 | 1.85 | 1.72 | |
| 35 | 25/09/96 | GP | | SNu Sps | 1 | 1.95 | 1.82 | |
| 35 | 25/09/96 | GP | | Sps | 1 | 2.00 | 1.87 | |
| 35 | 25/09/96 | GP | | Sps | 1 | 1.95 | 1.82 | |
| 35 | 25/09/96 | GP | | | 1 | 1.85 | 1.72 | |
| 35 | 25/09/96 | GP | | Sps | 3 | 1.75 | 1.62 | |
| 35 | 25/09/96 | GP | | Sps | 3 | 1.75 | 1.62 | |
| 35 | 25/09/96 | GP | | Sps | 3 | 1.75 | 1.62 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 35 | 25/09/96 | GP | | SNu Sps | 3 | 1.60 | 1.47 | |
| 35 | 25/09/96 | GP | | SNu Sps | 3 | 1.60 | 1.47 | |
| 35 | 25/09/96 | GP | | SNu Sps | 3 | 1.60 | 1.47 | |
| 35 | 25/09/96 | GP | | Sps | 1 | 1.60 | 1.47 | |
| 35 | 25/09/96 | GP | | Sps | 1 | 1.55 | 1.42 | |
| 35 | 25/09/96 | GP | | SNu Sps | 1 | 1.50 | 1.37 | |
| 35 | 25/09/96 | Cl | | Sps | 1 | 1.55 | 1.42 | |
| 35 | 25/09/96 | Cl | | El | 1 | 1.15 | 1.02 | |
| 35 | 25/09/96 | Cl | | El | 1 | 0.75 | 0.62 | |
| 35 | 25/09/96 | Si | Cl | | 1 | 0.5 | 0.37 | 0.05 |
| 36 | 25/09/96 | Si | Cl | Sps Phrg | 1 | 1.50 | 1.37 | 0.15 |
| 36 | 25/09/96 | Cl | | Sps | 1 | 1.65 | 1.52 | |
| 36 | 25/09/96 | Sa | | Sps | 1 | 1.75 | 1.62 | |
| 36 | 25/09/96 | GP | | Sps | 1 | 1.70 | 1.57 | |
| 36 | 25/09/96 | Cl | | Sps | 1 | 1.60 | 1.47 | |
| 36 | 25/09/96 | Sa | | Sps | 1 | 1.75 | 1.62 | |
| 36 | 25/09/96 | GP | | Sps | 1 | 1.95 | 1.82 | |
| 36 | 25/09/96 | Sa | | | 1 | 2.00 | 1.87 | |
| 36 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 36 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 36 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 36 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 36 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 36 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 36 | 25/09/96 | GP | | Sps | 1 | 2.35 | 2.22 | |
| 36 | 25/09/96 | GP | | Sps | 1 | 2.30 | 2.17 | |
| 36 | 25/09/96 | GP | | SNu | 1 | 2.25 | 2.12 | |
| 36 | 25/09/96 | GP | | SNu | 1 | 2.20 | 2.07 | |
| 36 | 25/09/96 | GP | | SNu | 1 | 2.05 | 1.92 | |
| 36 | 25/09/96 | GP | | SNu | 1 | 1.75 | 1.62 | |
| 36 | 25/09/96 | Cl | | SNu | 1 | 1.45 | 1.32 | |
| 36 | 25/09/96 | Cl | | | 1 | 0.30 | 0.17 | |
| 37 | 25/09/96 | Cl | | Phrg | 1 | 1.00 | 0.87 | |
| 37 | 25/09/96 | Cl | | SNu | 1 | 1.50 | 1.37 | |
| 37 | 25/09/96 | GP | | SNu | 1 | 1.65 | 1.52 | |
| 37 | 25/09/96 | GP | | SNu | 1 | 1.75 | 1.62 | |
| 37 | 25/09/96 | GP | | SNu | 1 | 1.85 | 1.72 | |
| 37 | 25/09/96 | GP | | | 1 | 2.00 | 1.87 | |
| 37 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 37 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 37 | 25/09/96 | GP | | | 3 | 2.05 | 1.92 | |
| 37 | 25/09/96 | GP | | SNu | 1 | 2.00 | 1.87 | |
| 37 | 25/09/96 | GP | | | 1 | 1.95 | 1.82 | |
| 37 | 25/09/96 | GP | | | 1 | 1.95 | 1.82 | |
| 37 | 25/09/96 | GP | | | 1 | 1.95 | 1.82 | |
| 37 | 25/09/96 | GP | | | 1 | 1.90 | 1.77 | |
| 37 | 25/09/96 | Si | GP | Sps | 1 | 1.80 | 1.67 | 0.05 |
| 37 | 25/09/96 | GP | | Sps | 1 | 1.80 | 1.67 | |
| 37 | 25/09/96 | GP | | Sps | 1 | 1.70 | 1.57 | |
| 37 | 25/09/96 | GP | | Sps | 1 | 1.75 | 1.62 | |
| 37 | 25/09/96 | Si | Cl | Sps | 1 | 1.75 | 1.62 | 0.05 |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 37 | 25/09/96 | Cl | | | 1 | 1.00 | 0.87 | |
| 38 | 25/09/96 | Cl | | SNu | 1 | 1.25 | 1.12 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 1.85 | 1.72 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 2.00 | 1.87 | |
| 38 | 25/09/96 | GP | | | 1 | 2.05 | 1.92 | |
| 38 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 38 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 38 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 38 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 38 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 38 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 38 | 25/09/96 | GP | | | 1 | 2.10 | 1.97 | |
| 38 | 25/09/96 | GP | | | 1 | 2.05 | 1.92 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 1.90 | 1.77 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 1.95 | 1.82 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 1.80 | 1.67 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 1.75 | 1.62 | |
| 38 | 25/09/96 | GP | | Sps | 1 | 1.65 | 1.52 | |
| 38 | 25/09/96 | Si | Cl | Sps | 1 | 1.65 | 1.52 | 0.05 |
| 38 | 25/09/96 | Cl | | Sc | 1 | 0.20 | 0.07 | |
| 38 | 25/09/96 | Si | Cl | Sc | 1 | 0.30 | 0.17 | 0.5 |
| 39 | 25/09/96 | Cl | | SNu Sc | 1 | 1.00 | 0.87 | |
| 39 | 25/09/96 | GP | | | 1 | 1.75 | 1.62 | |
| 39 | 25/09/96 | GP | | | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | | 1 | 2.15 | 2.02 | |
| 39 | 25/09/96 | GP | | | 1 | 2.15 | 2.02 | |
| 39 | 25/09/96 | Si | GP | Sps | 1 | 2.10 | 1.97 | 0.05 |
| 39 | 25/09/96 | GP | | Sps | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 39 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 39 | 25/09/96 | GP | | | 3 | 2.15 | 2.02 | |
| 39 | 25/09/96 | GP | | Sps | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | Sps | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | Sps | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | SNu | 1 | 2.10 | 1.97 | |
| 39 | 25/09/96 | GP | | Sps | 1 | 2.05 | 1.92 | |
| 39 | 25/09/96 | GP | | Sps | 1 | 2.05 | 1.92 | |
| 39 | 25/09/96 | Si | GP | Sps | 1 | 1.65 | 1.52 | 0.05 |
| 39 | 25/09/96 | Si | Cl | Sps | 1 | 1.25 | 1.12 | 0.05 |
| 39 | 25/09/96 | Si | GP | | 1 | 0.75 | 0.62 | 0.15 |
| 39 | 25/09/96 | Cl | | | 1 | 0.50 | 0.37 | |
| 39 | 25/09/96 | Cl | | | 1 | 0.20 | 0.07 | |
| 39 | 25/09/96 | Si | Cl | | 1 | 0.20 | 0.07 | 0.05 |
| 40 | 25/09/96 | Cl | | | 1 | 0.10 | 0 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.15 | 0.02 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.30 | 0.17 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.40 | 0.27 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.45 | 0.32 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.50 | 0.37 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.70 | 0.57 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 40 | 25/09/96 | Cl | | | 1 | 0.80 | 0.67 | |
| 40 | 25/09/96 | Cl | | | 1 | 0.95 | 0.82 | |
| 40 | 25/09/96 | Si | Cl | | 1 | 1.90 | 1.77 | 0.1 |
| 40 | 25/09/96 | Si | Cl | | 1 | 2.00 | 1.87 | 0.05 |
| 40 | 25/09/96 | GP | | | 1 | 2.00 | 1.87 | |
| 40 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 40 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 40 | 25/09/96 | GP | | | 3 | 2.10 | 1.97 | |
| 40 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 40 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 40 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 40 | 25/09/96 | GP | | | 3 | 2.50 | 2.37 | |
| 40 | 25/09/96 | GP | | | 3 | 2.50 | 2.37 | |
| 40 | 25/09/96 | GP | | | 3 | 2.50 | 2.37 | |
| 40 | 25/09/96 | GP | | | 3 | 2.45 | 2.32 | |
| 40 | 25/09/96 | GP | | | 3 | 2.45 | 2.32 | |
| 40 | 25/09/96 | GP | | | 3 | 2.45 | 2.32 | |
| 40 | 25/09/96 | GP | | | 1 | 2.40 | 2.27 | |
| 40 | 25/09/96 | GP | | | 1 | 2.30 | 2.17 | |
| 40 | 25/09/96 | Cl | | | 1 | 2.20 | 2.07 | |
| 40 | 25/09/96 | Si | Cl | | 1 | 2.05 | 1.92 | 0.15 |
| 40 | 25/09/96 | Si | Cl | | 1 | 1.50 | 1.37 | 0.15 |
| 41 | 25/09/96 | Cl | | | 1 | 0.50 | 0.37 | |
| 41 | 25/09/96 | Cl | | | 1 | 0.60 | 0.47 | |
| 41 | 25/09/96 | Cl | | | 1 | 2.35 | 2.22 | |
| 41 | 25/09/96 | Cl | | | 1 | 2.45 | 2.32 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 41 | 25/09/96 | GP | | | 3 | 2.20 | 2.07 | |
| 41 | 25/09/96 | GP | | | 3 | 2.20 | 2.07 | |
| 41 | 25/09/96 | GP | | | 3 | 2.20 | 2.07 | |
| 41 | 25/09/96 | GP | | | 1 | 2.15 | 2.02 | |
| 41 | 25/09/96 | GP | | | 1 | 2.00 | 1.87 | |
| 41 | 25/09/96 | GP | | Sps | 1 | 2.00 | 1.87 | |
| 41 | 25/09/96 | Sa | | Sps | 1 | 1.80 | 1.67 | |
| 41 | 25/09/96 | Si | Cl | Sps | 1 | 1.50 | 1.37 | 0.2 |
| 41 | 25/09/96 | Cl | | | 1 | 0.25 | 0.12 | |
| 41 | 25/09/96 | Cl | | | 1 | 0.10 | 0 | |
| 42 | 25/09/96 | Si | GP | | 1 | 0.15 | 0.02 | 0.05 |
| 42 | 25/09/96 | Cl | | | 1 | 0.60 | 0.47 | |
| 42 | 25/09/96 | Cl | | Sps | 1 | 1.25 | 1.12 | |
| 42 | 25/09/96 | GP | | Sps | 1 | 1.70 | 1.57 | |
| 42 | 25/09/96 | Sa | | | 1 | 1.50 | 1.37 | |
| 42 | 25/09/96 | Sa | | | 1 | 2.00 | 1.87 | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 42 | 25/09/96 | Sa | | | 1 | 2.15 | 2.02 | |
| 42 | 25/09/96 | Sa | | | 3 | 2.40 | 2.27 | |
| 42 | 25/09/96 | Sa | | | 3 | 2.40 | 2.27 | |
| 42 | 25/09/96 | Sa | | | 3 | 2.40 | 2.27 | |
| 42 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 42 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 42 | 25/09/96 | GP | | | 3 | 2.40 | 2.27 | |
| 42 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 42 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 42 | 25/09/96 | GP | | | 3 | 2.25 | 2.12 | |
| 42 | 25/09/96 | Sa | | | 3 | 1.95 | 1.82 | |
| 42 | 25/09/96 | Sa | | | 3 | 1.95 | 1.82 | |
| 42 | 25/09/96 | Sa | | | 3 | 1.95 | 1.82 | |
| 42 | 25/09/96 | GP | | Sps | 1 | 1.95 | 1.82 | |
| 42 | 25/09/96 | Sa | | Sps | 1 | 1.75 | 1.62 | |
| 42 | 25/09/96 | Sa | | Sps | 1 | 1.75 | 1.62 | |
| 42 | 25/09/96 | Sa | | Sps SNu | 1 | 1.60 | 1.47 | |
| 42 | 25/09/96 | Sa | | | 1 | 1.50 | 1.37 | |
| 42 | 25/09/96 | Cl | | | 1 | 0.45 | 0.32 | |
| 42 | 25/09/96 | Cl | | | 1 | 0.40 | 0.27 | |
| 42 | 25/09/96 | Cl | | | 1 | 0.45 | 0.32 | |
| 42 | 25/09/96 | Cl | | | 1 | 0.25 | 0.12 | |
| 43 | 25/09/96 | Cl | | | 1 | 0.60 | 0.47 | |
| 43 | 25/09/96 | Cl | | | 1 | 1.25 | 1.12 | |
| 43 | 25/09/96 | Cl | | | 1 | 1.75 | 1.62 | |
| 43 | 25/09/96 | GP | | Sps | 1 | 1.85 | 1.72 | |
| 43 | 25/09/96 | GP | | Sps | 1 | 1.90 | 1.77 | |
| 43 | 25/09/96 | GP | | Sps | 1 | 1.95 | 1.82 | |
| 43 | 25/09/96 | GP | | Sps | 1 | 2.10 | 1.97 | |
| 43 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 43 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 43 | 25/09/96 | GP | | | 3 | 2.30 | 2.17 | |
| 43 | 25/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 43 | 25/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 43 | 25/09/96 | GP | | | 3 | 2.00 | 1.87 | |
| 43 | 25/09/96 | GP | | Sps | 3 | 1.80 | 1.67 | |
| 43 | 25/09/96 | GP | | Sps | 3 | 1.80 | 1.67 | |
| 43 | 25/09/96 | GP | | Sps | 3 | 1.80 | 1.67 | |
| 43 | 25/09/96 | GP | | | 1 | 1.75 | 1.62 | |
| 43 | 25/09/96 | Cl | | | 1 | 1.65 | 1.52 | |
| 43 | 25/09/96 | Cl | | SNu Sps | 1 | 1.25 | 1.12 | |
| 43 | 25/09/96 | Cl | | SNu | 1 | 0.90 | 0.77 | |
| 43 | 25/09/96 | GP | | | 1 | 0.50 | 0.37 | |
| 43 | 25/09/96 | Sa | | | 1 | 0.40 | 0.27 | |
| 43 | 25/09/96 | Sa | | Poly | 1 | 0.20 | 0.07 | |
| 44 | 26/09/96 | Si | GP | Sc | 1 | 0.60 | | 0.25 |
| 44 | 26/09/96 | GP | | Sps El | 1 | 0.90 | | |
| 44 | 26/09/96 | GP | | Sc | 1 | 1.20 | | |
| 44 | 26/09/96 | GP | | Sps | 1 | 1.30 | | |
| 44 | 26/09/96 | Si | GP | Sps | 1 | 1.40 | | 0.1 |
| 44 | 26/09/96 | GP | | Sps | 1 | 1.45 | | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 44 | 26/09/96 | GP | | Sps El | 1 | 1.60 | | |
| 44 | 26/09/96 | GP | | | 1 | 1.60 | | |
| 44 | 26/09/96 | GP | | | 1 | 1.65 | | |
| 44 | 26/09/96 | GP | | | 1 | 1.70 | | |
| 44 | 26/09/96 | GP | | SNu | 1 | 1.70 | | |
| 44 | 26/09/96 | GP | | | 1 | 1.75 | | |
| 44 | 26/09/96 | GP | | SNu | 1 | 1.70 | | |
| 44 | 26/09/96 | GP | | SNu | 1 | 1.65 | | |
| 44 | 26/09/96 | GP | | SNu Sps | 1 | 1.60 | | |
| 44 | 26/09/96 | GP | | Sps | 1 | 1.50 | | |
| 44 | 26/09/96 | GP | | Sps | 1 | 1.40 | | |
| 44 | 26/09/96 | GP | | Sps | 1 | 1.35 | | |
| 44 | 26/09/96 | GP | | Sps | 1 | 0.90 | | |
| 45 | 26/09/96 | Cl | | Phal | 1 | 1.75 | | |
| 45 | 26/09/96 | GP | | | 1 | 2.00 | | |
| 45 | 26/09/96 | Cl | | | 1 | 2.00 | | |
| 45 | 26/09/96 | GP | | | 3 | 2.30 | | |
| 45 | 26/09/96 | GP | | | 3 | 2.30 | | |
| 45 | 26/09/96 | GP | | | 3 | 2.30 | | |
| 45 | 26/09/96 | GP | | | 3 | 2.00 | | |
| 45 | 26/09/96 | GP | | | 3 | 2.00 | | |
| 45 | 26/09/96 | GP | | | 3 | 2.00 | | |
| 45 | 26/09/96 | GP | | | 3 | 1.65 | | |
| 45 | 26/09/96 | GP | | | 3 | 1.65 | | |
| 45 | 26/09/96 | GP | | | 3 | 1.65 | | |
| 45 | 26/09/96 | GP | | | 1 | 1.45 | | |
| 45 | 26/09/96 | GP | | | 1 | 1.35 | | |
| 45 | 26/09/96 | GP | | | 1 | 1.25 | | |
| 45 | 26/09/96 | GP | | | 1 | 1.20 | | |
| 45 | 26/09/96 | Sa | | | 1 | 1.00 | | |
| 45 | 26/09/96 | Cl | | | 1 | 0.75 | | |
| 45 | 26/09/96 | Cl | | | 1 | 0.50 | | |
| 46 | 26/09/96 | Ar | | Fo | 1 | 0.50 | | |
| 46 | 26/09/96 | Sa | | | 1 | 1.00 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.20 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.45 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.65 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.75 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.75 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.75 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.70 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.65 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.50 | | |
| 46 | 26/09/96 | GP | | | 1 | 1.45 | | |
| 46 | 26/09/96 | GP | | Sps | 1 | 1.4 | | |
| 46 | 26/09/96 | GP | | Sps | 1 | 1.3 | | |
| 46 | 26/09/96 | GP | | Sps | 1 | 1.25 | | |
| 46 | 26/09/96 | Cl | | Sps | 1 | 1.2 | | |
| 46 | 26/09/96 | Cl | | Sps | 1 | 0.9 | | |
| 47 | 26/09/96 | Cl | | Gly Ca | 1 | 0.20 | | |
| 47 | 26/09/96 | GP | | | 1 | 0.55 | | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 47 | 26/09/96 | GP | | | 1 | 1.00 | | |
| 47 | 26/09/96 | GP | | | 1 | 1.15 | | |
| 47 | 26/09/96 | GP | | | 1 | 1.70 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.70 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.70 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.70 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.90 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.90 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.90 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.85 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.85 | | |
| 47 | 26/09/96 | GP | | | 3 | 1.85 | | |
| 47 | 26/09/96 | GP | | | 1 | 1.80 | | |
| 47 | 26/09/96 | GP | | | 1 | 1.70 | | |
| 47 | 26/09/96 | GP | | | 1 | 1.50 | | |
| 47 | 26/09/96 | GP | | | 1 | 1.30 | | |
| 47 | 26/09/96 | GP | | Sps | 1 | 1.25 | | |
| 47 | 26/09/96 | Cl | | Sps | 1 | 1.05 | | |
| 47 | 26/09/96 | Cl | | Sps | 1 | 0.80 | | |
| 48 | 26/09/96 | Cl | | | 1 | 0.55 | | |
| 48 | 26/09/96 | Cl | | | 1 | 0.70 | | |
| 48 | 26/09/96 | Cl | | | 1 | 0.85 | | |
| 48 | 26/09/96 | Cl | | | 1 | 0.95 | | |
| 48 | 26/09/96 | Sa | | | 1 | 1.00 | | |
| 48 | 26/09/96 | Sa | | | 1 | 1.10 | | |
| 48 | 26/09/96 | GP | | | 1 | 1.30 | | |
| 48 | 26/09/96 | GP | | | 3 | 1.75 | | |
| 48 | 26/09/96 | GP | | | 3 | 1.75 | | |
| 48 | 26/09/96 | GP | | | 3 | 1.75 | | |
| 48 | 26/09/96 | GP | | | 3 | 2.20 | | |
| 48 | 26/09/96 | GP | | | 3 | 2.20 | | |
| 48 | 26/09/96 | GP | | | 3 | 2.20 | | |
| 48 | 26/09/96 | GP | | | 3 | 2.45 | | |
| 48 | 26/09/96 | GP | | | 3 | 2.45 | | |
| 48 | 26/09/96 | GP | | | 3 | 2.45 | | |
| 48 | 26/09/96 | GP | | | 1 | 2.20 | | |
| 48 | 26/09/96 | Cl | | | 1 | 1.75 | | |
| 48 | 26/09/96 | Cl | | | 1 | 0.80 | | |
| 48 | 26/09/96 | Cl | | | 1 | 0.15 | | |
| 49 | 26/09/96 | Cl | | Gly | 1 | 0.15 | | |
| 49 | 26/09/96 | GP | | | 1 | 0.20 | | |
| 49 | 26/09/96 | GP | | | 1 | 0.25 | | |
| 49 | 26/09/96 | GP | | | 1 | 0.55 | | |
| 49 | 26/09/96 | GP | | | 1 | 0.75 | | |
| 49 | 26/09/96 | GP | | Sps | 1 | 1.00 | | |
| 49 | 26/09/96 | GP | | Sps | 1 | 1.30 | | |
| 49 | 26/09/96 | GP | | Sps | 1 | 1.60 | | |
| 49 | 26/09/96 | GP | | | 1 | 1.70 | | |
| 49 | 26/09/96 | GP | | | 1 | 1.75 | | |
| 49 | 26/09/96 | Cl | | | 1 | 1.80 | | |
| 49 | 26/09/96 | GP | | | 3 | 1.55 | | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 49 | 26/09/96 | GP | | | 3 | 1.55 | | |
| 49 | 26/09/96 | GP | | | 3 | 1.55 | | |
| 49 | 26/09/96 | GP | | | 3 | 1.40 | | |
| 49 | 26/09/96 | GP | | | 3 | 1.40 | | |
| 49 | 26/09/96 | GP | | | 3 | 1.40 | | |
| 49 | 26/09/96 | GP | | | 1 | 1.30 | | |
| 49 | 26/09/96 | GP | | | 1 | 1.25 | | |
| 49 | 26/09/96 | GP | | Sps | 1 | 1.25 | | |
| 49 | 26/09/96 | GP | | Sps | 1 | 1.25 | | |
| 49 | 26/09/96 | GP | | Sps | 1 | 1.10 | | |
| 49 | 26/09/96 | GP | | | 1 | 1.10 | | |
| 49 | 26/09/96 | GP | | | 1 | 1.10 | | |
| 49 | 26/09/96 | Cl | | Sps | 1 | 1.00 | | |
| 49 | 26/09/96 | Cl | | | 1 | 0.50 | | |
| 50 | 26/09/96 | Cl | | Sc | 1 | 0.25 | | |
| 50 | 26/09/96 | Cl | | Sc | 1 | 0.40 | | |
| 50 | 26/09/96 | Cl | | Sc | 1 | 0.50 | | |
| 50 | 26/09/96 | GP | | | 1 | 1.05 | | |
| 50 | 26/09/96 | GP | | | 1 | 1.10 | | |
| 50 | 26/09/96 | GP | | Sps | 1 | 1.30 | | |
| 50 | 26/09/96 | GP | | | 1 | 1.45 | | |
| 50 | 26/09/96 | GP | | SNu | 1 | 1.50 | | |
| 50 | 26/09/96 | GP | | | 1 | 1.65 | | |
| 50 | 26/09/96 | GP | | SNu | 1 | 1.75 | | |
| 50 | 26/09/96 | GP | | | 1 | 1.75 | | |
| 50 | 26/09/96 | GP | | | 1 | 1.80 | | |
| 50 | 26/09/96 | GP | | | 3 | 1.80 | | |
| 50 | 26/09/96 | GP | | Sps | 1 | 1.80 | | |
| 50 | 26/09/96 | GP | | Sps | 1 | 1.75 | | |
| 50 | 26/09/96 | GP | | Sps | 1 | 1.75 | | |
| 50 | 26/09/96 | Cl | | Sps | 1 | 1.75 | | |
| 50 | 26/09/96 | Cl | | Sps | 1 | 1.65 | | |
| 50 | 26/09/96 | Cl | | | 1 | 1.10 | | |
| 50 | 26/09/96 | Cl | | | 1 | 0.15 | | |
| 51 | 26/09/96 | Cl | | | 1 | 0.85 | | |
| 51 | 26/09/96 | Cl | | | 1 | 1.00 | | |
| 51 | 26/09/96 | Cl | | | 1 | 1.30 | | |
| 51 | 26/09/96 | Cl | | | 1 | 1.75 | | |
| 51 | 26/09/96 | Cl | | | 1 | 1.90 | | |
| 51 | 26/09/96 | Cl | | | 1 | 2.70 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.65 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.65 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.65 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.60 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.60 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.60 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.30 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.30 | | |
| 51 | 26/09/96 | GP | | | 3 | 2.30 | | |
| 51 | 26/09/96 | GP | | | 3 | 1.80 | | |
| 51 | 26/09/96 | GP | | | 3 | 1.80 | | |

| Transect | Date | Substrate 1 | Substrate 2 | MacroPhytes | Interval | Depth | corr.depth | Depth Subst 2 |
|---|---|---|---|---|---|---|---|---|
| 51 | 26/09/96 | GP | | | 3 | 1.80 | | |
| 51 | 26/09/96 | GP | | El | 1 | 1.70 | | |
| 51 | 26/09/96 | Si | Cl | Sps | 1 | 1.30 | | 0.1 |
| 51 | 26/09/96 | Cl | | Sps | 1 | 1.05 | | |
| 51 | 26/09/96 | Cl | | | 1 | 0.60 | | |
| 52 | 26/09/96 | Cl | | Phal | 1 | 0.20 | | |
| 52 | 26/09/96 | Cl | | | 1 | 1.40 | | |
| 52 | 26/09/96 | GP | | | 1 | 1.95 | | |
| 52 | 26/09/96 | GP | | | 1 | 2.50 | | |
| 52 | 26/09/96 | GP | | | 3 | 2.50 | | |
| 52 | 26/09/96 | GP | | | 3 | 2.50 | | |
| 52 | 26/09/96 | GP | | | 3 | 2.50 | | |
| 52 | 26/09/96 | GP | | | 3 | 1.85 | | |
| 52 | 26/09/96 | GP | | | 3 | 1.85 | | |
| 52 | 26/09/96 | GP | | | 3 | 1.85 | | |
| 52 | 26/09/96 | GP | | Sps | 1 | 1.40 | | |
| 52 | 26/09/96 | GP | | Sps | 1 | 1.30 | | |
| 52 | 26/09/96 | GP | | Sps | 1 | 1.05 | | |
| 52 | 26/09/96 | GP | | | 1 | 0.90 | | |
| 52 | 26/09/96 | Ar | | Fo | 1 | 0.55 | | |
| 52 | 26/09/96 | Ar | | Fo | 1 | 0.40 | | |

## Appendix II

River Habitat Survey - data sheets and descriptive summaries of the five sites surveyed in the Buscot area (June 1996)

## A BACKGROUND MAP-BASED INFORMATION

NOTE: This output only contains data input to the database at the IFE

Please check the form and highlight any corrections. Tick the box if you make ANY corrections. ☐

If you consider any ommitted data important please indicate

## B FIELD SURVEY DETAILS

Reference site number: **13104**

---

Grid reference: **SU 224990** River: **THAMES**

Date: **18/6** /1996 Time: **8.32** Surveyor: **GC** Accred. code: **PF10**

Adverse conditions? No **X** Yes _

Bed of river visible? No _ Part. **X** Entire. _

Photograph: general character? No _ Yes **X**

Photograph: special feature No Yes

Surveyed from: Left _ Right **X** Channel _

## C PREDOMINANT VALLEY FORM

_ shallow vee _ concave/bowl

_ deep vee **X** symmetrical

_ gorge _ asymmetrical

---

Terraced valley? No **X** Yes _

## D NUMBER OF RIFFLES, POOLS AND POINT BARS

| | | | |
|---|---|---|---|
| Riffles | **0** | Unvegetated point bar | **0** |
| Pools | **0** | Vegetated point bar | **0** |

**Output created by IFE, Wareham on 15/04/1997**

Spot check 1 is at: upstream end X downstream end _

| E PHYSICAL ATTRIBUTES | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LEFT BANK Fences** | | | | | | | | | | | |
| Material | GS | EA | EA | EA | SP | EA | SP | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | RI | NO | RI | NO | NO | NO | |
| Bank feature(s) | EC | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| **CHANNEL** | | | | | | | | | | | |
| Channel substrate | SI | SI | SI | SI | SI | SA | SA | SI | SI | SI | |
| Substrate shape | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| Flow type | NP | NP | NP | NP | NP | NP | NP | NP | NP | NP | |
| Channel modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Channel feature(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| **RIGHT BANK Fences** | | | | | | | | | | | |
| Material | GS | EA | SP | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | RI | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | SC | NO | NO | NO | NO | NO | NO | SC | NO | NO | |
| **F BANKTOP LAND USE AND VEGETATION STRUCTURE** | | | | | | | | | | | |
| LAND USE WITHIN 5m OF BANKTOP (L) | IG | IG | IG | IG | SC | SU | SU | TL | TL | TL | |
| LEFT BANK-TOP | U | U | S | U | S | U | B | U | S | U | |
| LEFT BANK FACE | B | S | U | U | B | U | B | U | U | S | |
| RIGHT BANK FACE | S | U | B | U | S | S | U | U | U | U | |
| RIGHT BANK-TOP | U | U | B | S | U | S | S | U | U | U | |
| LAND USE WITHIN 5m OF BANK TOP (R) | IG | IG | IG | IG | SU | BL | BL | IG | IG | IG | |
| **G CHANNEL VEGETATION TYPES** | | | | | | | | | | | |
| NONE | | | | | | | | | | | |
| Liverworts/mosses/lichens | | | | | | | | | | | |
| Emergent broad-leaved herbs | / | | | | | | | | | | / |
| Emergent reeds/sedges/rushes | | / | / | / | / | / | / | / | | / | / |
| Floating-leaved (rooted) | | | | | | | | | | | |
| Free-floating | | | | | | | | | | | |
| Amphibious | | | | | | | | | / | | / |
| Submerged broad-leaved | | / | | | | | | | | / | / |
| Submerged fine/linear-leaved | | | | | | | | / | / | / | / |
| Filamentous algae | / | / | | | | | | / | | | / |

## H LAND USE WITHIN 50m OF BANKTOP

| | L | R | | L | R |
|---|---|---|---|---|---|
| Broadleaf/mixed woodland (BL) | | / | Rough pasture (RP) | | |
| Coniferous plantation (CP) | | | Improved/semi-improved grass (IG) | E | E |
| Orchard (OR) | | | Tilled land (TL) | E | |
| Moorland/heath (MH) | | | Wetland (eg bog, marsh, fen)(WL) | | |
| Scrub (SC) | / | | Open water (OW) | | |
| Tall herbs (TH) | | | Suburban/urban development (SU) | / | / |

## I BANK PROFILES

| **Natural/unmodified** | L | R | **Artificial/modified** | L | R |
|---|---|---|---|---|---|
| Vertical/undercut | / | | Resectioned | | |
| Vertical + toe | | | Reinforced - whole bank | E | / |
| Steep >45 | E | E | Reinforced - top only | | |
| Gentle | / | | Reinforced - toe only | | |
| Composite | | | Artificial two-stage | | |
| | | | Poached | | |
| | | | Embanked | | |
| | | | Set-back embankments | | |

## J EXTENT OF TREES AND ASSOCIATED FEATURES

**TREE**

| | Left | Right |
|---|---|---|
| None | _ | _ |
| Isolated/scattered | X | _ |
| Regularly spaced, single | _ | _ |
| Occasional clumps | _ | X |
| Semi-continuous | _ | _ |
| Continuous | _ | _ |

**ASSOCIATED FEATURES**

| | None | Present | E (>33%) |
|---|---|---|---|
| Shading of channel | _ | X | _ |
| Overhanging boughs | _ | X | _ |
| Exposed bankside roots | X | _ | _ |
| Underwater tree roots | X | _ | _ |
| Fallen trees | X | _ | _ |
| Coarse woody debris | X | _ | _ |

## K EXTENT OF CHANNEL FEATURES

| | None | Present | E |
|---|---|---|---|
| Waterfall(s) | X | _ | _ |
| Cascade(s) | X | _ | _ |
| Rapid(s) | X | _ | _ |
| Riffle(s) | X | _ | _ |
| Run(s) | X | _ | _ |
| Boil(s) | X | _ | _ |
| Glide(s) | X | _ | _ |
| Pool(s) | X | _ | _ |

| | None | Present | E (>33%) |
|---|---|---|---|
| Marginal deadwater | _ | X | _ |
| Exposed bedrock | X | _ | _ |
| Exposed boulders | X | _ | _ |
| Unvegetated mid-channel bar(s) | X | _ | _ |
| Vegetated mid-channel bar(s) | X | _ | _ |
| Mature island(s) | X | _ | _ |
| Unvegetated side bar(s) | X | _ | _ |
| Vegetated side bar(s) | X | _ | _ |

Indicate predominant flow sequence: No perceptible

## L CHANNEL DIMENSIONS

| LEFT BANK | | Banktop width (m) | 27 | RIGHT BANK | |
|---|---|---|---|---|---|
| Banktop height(m) | .6 | Water width (m) | 27 | Banktop height (m) | .4 |
| Embanked height (m) | 0 | Water depth (m) | -- | Embanked height (m) | 0 |

If trashline lower than break in slope, indicate: height (m) = 0 width (m) = 0

Bed material at site is: consolidated _ unconsolidated Xunknown _

Location of measurement is: riffle _ run or glide _ other _

## M ARTIFICIAL FEATURES

None _ Number of Culverts = 0 Weirs = 1 Outfalls = 0 Fords = 0
Footbridges = 0 Roadbridges = 1 Other = 0

Is water impounded by weir/dam? No _ Yes, <33% of site _ >33% of site _

## N EVIDENCE OF RECENT MANAGEMENT

None X Dredging _ Mowing _ Weed-cutting _
Enhancement _ Other? _

## O FEATURES OF SPECIAL INTEREST

None X
Waterfalls >5m high _ Artificial open water _ Bog _ Other _
Braided/side channels _ Natural open water _ Car _
Debris dam _ Water meadow _ Marsh _
Leafy debris _ Fen _ Flush _

## P CHOKED CHANNEL

Is 33% or more of the channel choked with vegetation? NO X YES _

## Q NOTABLE NUISANCE PLANTS **(Others: 1 = nettles, 2 = rhododendron, 3 = bracken, 4 = ground elder, 5 = bramble, + more)**

None _ Giant hogweed _ Himalayan balsam _ Japanese knotweed Other? P1

## R OVERALL CHARACTERISTICS **(Comments may have been paraphrased!)**

Major impacts:

Land Management:

Animals:

Other significant observations:

## S ALDERS

Alders? None _ Present X Extensive _ Diseased alders? None X Present _ Extensive _

## A BACKGROUND MAP-BASED INFORMATION

NOTE: This output only contains data input to the database at the IFE

Please check the form and highlight any corrections. Tick the box if you make ANY corrections. ☐

If you consider any ommitted data important please indicate

## B FIELD SURVEY DETAILS

Reference site number: **13105**

Grid reference: **SU 225984** River: **THAMES**

Date: **18/6** /1996 Time: **10.05** Surveyor: **GC** Accred. code: **PF10**

Adverse conditions? No **X** Yes _

Bed of river visible? No _ Part. **X** Entire. _

Photograph: general character? No _ Yes **X**

Photograph: special feature No Yes

Surveyed from: Left **X** Right _ Channel _

## C PREDOMINANT VALLEY FORM

| | | | |
|---|---|---|---|
| _ | shallow vee | _ | concave/bowl |
| _ | deep vee | **X** | symmetrical |
| _ | gorge | _ | asymmetrical |

Terraced valley? No **X** Yes _

## D NUMBER OF RIFFLES, POOLS AND POINT BARS

| | | | |
|---|---|---|---|
| Riffles | **0** | Unvegetated point bar | **0** |
| Pools | **0** | Vegetated point bar | **1** |

Spot check 1 is at: upstream end **X** downstream end _

## E PHYSICAL ATTRIBUTES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **LEFT BANK Fences** | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| Bank feature(s) | SC | SC | SC | VP | NO | SC | SC | NO | NO | NO |
| **CHANNEL** | | | | | | | | | | |
| Channel substrate | NV | CL | NV | NV | SI | CL | CL | CL | CL | SI |
| Substrate shape | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Flow type | NP | NP | NP | NP | NP | NP | NP | NP | NP | NP |
| Channel modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| Channel feature(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| **RIGHT BANK Fences** | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO |
| Bank feature(s) | SC | SC | SC | NO | EC | EC | SC | SC | SC | NO |

## F BANKTOP LAND USE AND VEGETATION STRUCTURE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LAND USE WITHIN 5m OF BANKTOP (L) | IG | IG | IG | IG | IG | IG | IG | IG | IG | IG |
| LEFT BANK-TOP | U | U | U | U | U | U | S | U | U | U |
| LEFT BANK FACE | S | S | U | U | S | U | S | U | U | U |
| RIGHT BANK FACE | S | S | U | U | B | S | S | U | S | S |
| RIGHT BANK-TOP | U | U | U | U | U | U | U | S | U | S |
| LAND USE WITHIN 5m OF BANK TOP (R) | IG | IG | IG | IG | SU | IG | IG | IG | SU | SU |

## G CHANNEL VEGETATION TYPES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NONE | | | / | | | | / | | | | / |
| Liverworts/mosses/lichens | | | | | | | | | | | |
| Emergent broad-leaved herbs | | | | | | | | | | | |
| Emergent reeds/sedges/rushes | / | | | / | | | | | / | / | / |
| Floating-leaved (rooted) | | | | | | | | | | | |
| Free-floating | | | | | | | | | | | |
| Amphibious | | | | / | / | / | | | | | / |
| Submerged broad-leaved | | | | | | | | / | | | / |
| Submerged fine/linear-leaved | | | | | | | | / | | | / |
| Filamentous algae | | / | | | / | | | | / | / | / |

## H LAND USE WITHIN 50m OF BANKTOP

| | L | R | | L | R |
|---|---|---|---|---|---|
| Broadleaf/mixed woodland (BL) | | | Rough pasture (RP) | | |
| Coniferous plantation (CP) | | | Improved/semi-improved grass (IG) | E | E |
| Orchard (OR) | | | Tilled land (TL) | | |
| Moorland/heath (MH) | | | Wetland (eg bog, marsh, fen)(WL) | | |
| Scrub (SC) | | | Open water (OW) | | |
| Tall herbs (TH) | | | Suburban/urban development (SU) | | / |

## I BANK PROFILES

| **Natural/unmodified** | L | R | **Artificial/modified** | L | R |
|---|---|---|---|---|---|
| Vertical/undercut | E | E | Resectioned | | |
| Vertical + toe | | | Reinforced - whole bank | | |
| Steep >45 | / | / | Reinforced - top only | | |
| Gentle | | / | Reinforced - toe only | | |
| Composite | | | Artificial two-stage | | |
| | | | Poached | | |
| | | | Embanked | | |
| | | | Set-back embankments | | |

## J EXTENT OF TREES AND ASSOCIATED FEATURES

| **TREE** | Left | Right |
|---|---|---|
| None | _ | _ |
| Isolated/scattered | X | _ |
| Regularly spaced, single | _ | _ |
| Occasional clumps | _ | X |
| Semi-continuous | _ | _ |
| Continuous | _ | _ |

| **ASSOCIATED FEATURES** | None | Present | E (>33%) |
|---|---|---|---|
| Shading of channel | _ | X | _ |
| Overhanging boughs | _ | X | _ |
| Exposed bankside roots | _ | X | _ |
| Underwater tree roots | X | _ | _ |
| Fallen trees | X | _ | _ |
| Coarse woody debris | X | _ | _ |

## K EXTENT OF CHANNEL FEATURES

| | None | Present | E |
|---|---|---|---|
| Waterfall(s) | X | _ | _ |
| Cascade(s) | X | _ | _ |
| Rapid(s) | X | _ | _ |
| Riffle(s) | X | _ | _ |
| Run(s) | X | _ | _ |
| Boil(s) | X | _ | _ |
| Glide(s) | X | _ | _ |
| Pool(s) | X | _ | _ |

| | None | Present | E (>33%) |
|---|---|---|---|
| Marginal deadwater | _ | X | _ |
| Exposed bedrock | X | _ | _ |
| Exposed boulders | X | _ | _ |
| Unvegetated mid-channel bar(s) | X | _ | _ |
| Vegetated mid-channel bar(s) | X | _ | _ |
| Mature island(s) | X | _ | _ |
| Unvegetated side bar(s) | X | _ | _ |
| Vegetated side bar(s) | X | _ | _ |

Indicate predominant flow sequence: No perceptible

## L CHANNEL DIMENSIONS

| LEFT BANK | | Banktop width (m) | 23 | RIGHT BANK | |
|---|---|---|---|---|---|
| Banktop height(m) | .8 | Water width (m) | 23 | Banktop height (m) | .8 |
| Embanked height (m) | 0 | Water depth (m) | -- | Embanked height (m) | 0 |

If trashline lower than break in slope, indicate: height (m) = 0 width (m) = 0

Bed material at site is: consolidated _ unconsolidated _ unknown X

Location of measurement is: riffle _ run or glide _ other _

## M ARTIFICIAL FEATURES

None X Number of Culverts = 0 Weirs = 0 Outfalls = 0 Fords = 0
Footbridges = 0 Roadbridges = 0 Other = 0

Is water impounded by weir/dam? No _ Yes, <33% of site _ >33% of site _

## N EVIDENCE OF RECENT MANAGEMENT

None X Dredging _ Mowing _ Weed-cutting _
Enhancement _ Other? _

## O FEATURES OF SPECIAL INTEREST

None X
Waterfalls >5m high _ Artificial open water _ Bog _ Other _
Braided/side channels _ Natural open water _ Car _
Debris dam _ Water meadow _ Marsh _
Leafy debris _ Fen _ Flush _

## P CHOKED CHANNEL

Is 33% or more of the channel choked with vegetation? NO X YES _

## Q NOTABLE NUISANCE PLANTS

**(Others: 1 = nettles, 2 = rhododendron, 3 = bracken, 4 = ground elder, 5 = bramble, + more)**

None _ Giant hogweed _ Himalayan balsam _ Japanese knotweed _ Other? **P1**

## R OVERALL CHARACTERISTICS

**(Comments may have been paraphrased!)**

Major impacts:

Land Management:

Animals:

Other significant observations:

## S ALDERS

Alders? None X Present _ Extensive _ Diseased alders? None X Present _ Extensive _

## A BACKGROUND MAP-BASED INFORMATION

NOTE: This output only contains data input to the database at the IFE

Please check the form and highlight any corrections. Tick the box if you make ANY corrections. ☐

If you consider any ommitted data important please indicate

## B FIELD SURVEY DETAILS

Reference site number: **13106**

Grid reference: **SU 234982** River: **THAMES**

Date: **18/6** /1996 Time: **11.02** Surveyor: **GC** Accred. code: **PF10**

Adverse conditions? No **X** Yes _

Bed of river visible? No _ Part. **X** Entire. _

Photograph: general character? No _ Yes **X**

Photograph: special feature No Yes

Surveyed from: Left **X** Right _ Channel _

## C PREDOMINANT VALLEY FORM

_ shallow vee

_ concave/bowl

_ deep vee

**X** symmetrical

_ gorge

_ asymmetrical

Terraced valley? No **X** Yes _

## D NUMBER OF RIFFLES, POOLS AND POINT BARS

Riffles **0** Unvegetated point bar **0**

Pools **0** Vegetated point bar **0**

Spot check 1 is at: upstream end X downstream end _

## E PHYSICAL ATTRIBUTES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LEFT BANK Fences** | | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | NO | NO | NO | VS | NO | VS | SC | NO | VS | VS | |
| **CHANNEL** | | | | | | | | | | | |
| Channel substrate | CL | NV | SA | NV | NV | NV | SA | SA | SA | NV | |
| Substrate shape | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| Flow type | NP | NP | NP | NP | NP | NP | NP | NP | NP | NP | |
| Channel modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| *Channel feature(s)* | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| **RIGHT BANK Fences** | | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | SC | VS | NO | EC | EC | NO | SC | NO | NO | NO | |

## F BANKTOP LAND USE AND VEGETATION STRUCTURE

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| LAND USE WITHIN 5m OF BANKTOP (L) | IG | IG | TL | TL | TL | TL | TL | TL | TL | TL |
| LEFT BANK-TOP | U | U | U | U | U | U | U | U | U | U |
| LEFT BANK FACE | S | U | U | U | U | U | U | U | U | U |
| RIGHT BANK FACE | U | U | U | B | U | U | U | U | U | U |
| RIGHT BANK-TOP | U | U | U | U | U | U | U | U | U | U |
| LAND USE WITHIN 5m OF BANK TOP (R) | TL | TL | TL | TL | TL | TL | TL | TL | TL | TH |

## G CHANNEL VEGETATION TYPES

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NONE | | | | | | | | | | | |
| Liverworts/mosses/lichens | | | | | | | | | | | |
| Emergent broad-leaved herbs | | | | | | | | | | | |
| Emergent reeds/sedges/rushes | / | / | / | / | / | / | / | / | / | / | / |
| Floating-leaved (rooted) | | | | | | | | | | | |
| Free-floating | | | | | | | | | | | |
| Amphibious | | | | | | | | | | | |
| Submerged broad-leaved | | | | | | | | | | | |
| Submerged fine/linear-leaved | | | | | | | / | / | / | | / |
| Filamentous algae | / | / | / | | | | / | E | / | / | / |

## H LAND USE WITHIN 50m OF BANKTOP

| | L | R | | L | R |
|---|---|---|---|---|---|
| Broadleaf/mixed woodland (BL) | | | Rough pasture (RP) | | |
| Coniferous plantation (CP) | | | Improved/semi-improved grass (IG) | / | |
| Orchard (OR) | | | Tilled land (TL) | E | E |
| Moorland/heath (MH) | | | Wetland (eg bog, marsh, fen)(WL) | | |
| Scrub (SC) | | | Open water (OW) | | |
| Tall herbs (TH) | | / | Suburban/urban development (SU) | | |

## I BANK PROFILES

| **Natural/unmodified** | L | R | **Artificial/modified** | L | R |
|---|---|---|---|---|---|
| Vertical/undercut | E | E | Resectioned | | |
| Vertical + toe | | | Reinforced - whole bank | | |
| Steep >45 | E | E | Reinforced - top only | | |
| Gentle | | | Reinforced - toe only | | |
| Composite | | | Artificial two-stage | | |
| | | | Poached | | |
| | | | Embanked | | |
| | | | Set-back embankments | | |

## J EXTENT OF TREES AND ASSOCIATED FEATURES

**TREE**

| | Left | Right |
|---|---|---|
| None | _ | _ |
| Isolated/scattered | X | X |
| Regularly spaced, single | _ | _ |
| Occasional clumps | _ | _ |
| Semi-continuous | _ | _ |
| Continuous | _ | _ |

**ASSOCIATED FEATURES**

| | None | Present | E (>33%) |
|---|---|---|---|
| Shading of channel | _ | X | _ |
| Overhanging boughs | _ | X | _ |
| Exposed bankside roots | X | _ | _ |
| Underwater tree roots | X | _ | _ |
| Fallen trees | X | _ | _ |
| Coarse woody debris | X | _ | _ |

## K EXTENT OF CHANNEL FEATURES

| | None | Present | E |
|---|---|---|---|
| Waterfall(s) | X | _ | _ |
| Cascade(s) | X | _ | _ |
| Rapid(s) | X | _ | _ |
| Riffle(s) | X | _ | _ |
| Run(s) | X | _ | _ |
| Boil(s) | X | _ | _ |
| Glide(s) | X | _ | _ |
| Pool(s) | X | _ | _ |

| | None | Present | E (>33%) |
|---|---|---|---|
| Marginal deadwater | _ | X | _ |
| Exposed bedrock | _ | X | _ |
| Exposed boulders | X | _ | _ |
| Unvegetated mid-channel bar(s) | X | _ | _ |
| Vegetated mid-channel bar(s) | X | _ | _ |
| Mature island(s) | X | _ | _ |
| Unvegetated side bar(s) | X | _ | _ |
| Vegetated side bar(s) | X | _ | _ |

Indicate predominant flow sequence: No perceptible

## L CHANNEL DIMENSIONS

| LEFT BANK | | Banktop width (m) | 30 | RIGHT BANK | |
|---|---|---|---|---|---|
| Banktop height(m) | 1 | Water width (m) | 28 | Banktop height (m) | 1 |
| Embanked height (m) | 0 | Water depth (m) | -- | Embanked height (m) | 0 |

If trashline lower than break in slope, indicate: height (m) = **0** width (m) = **0**

Bed material at site is: consolidated _ unconsolidated Xunknown _

Location of measurement is: riffle _ run or glide _ other _

## M ARTIFICIAL FEATURES

None **X** Number of Culverts = **0** Weirs = **0** Outfalls = **0** Fords = **0**
Footbridges = **0** Roadbridges = **0** Other = **0**

Is water impounded by weir/dam? No **X** Yes, <33% of site _ >33% of site _

## N EVIDENCE OF RECENT MANAGEMENT

None **X** Dredging _ Mowing _ Weed-cutting _
Enhancement _ Other? _

## O FEATURES OF SPECIAL INTEREST

None **X**

Waterfalls >5m high _ Artificial open water _ Bog _ Other _
Braided/side channels _ Natural open water _ Car _
Debris dam _ Water meadow _ Marsh _
Leafy debris _ Fen _ Flush _

## P CHOKED CHANNEL

Is 33% or more of the channel choked with vegetation? NO **X** YES _

## Q NOTABLE NUISANCE PLANTS

**(Others: 1 = nettles, 2 = rhododendron, 3 = bracken, 4 = ground elder, 5 = bramble, + more,**

None _ Giant hogweed _ Himalayan balsam _ Japanese knotweed _ Other? **P1**

## R OVERALL CHARACTERISTICS

**(Comments may have been paraphrased!)**

Major impacts:

Land Management:

Animals: **KINGFISHER**

Other significant observations:

## S ALDERS

Alders? None **X** Present _ Extensive _ Diseased alders? None **X** Present _ Extensive _

## A BACKGROUND MAP-BASED INFORMATION

NOTE: This output only contains data input to the database at the IFE

Please check the form and highlight any corrections. Tick the box if you make ANY corrections. ☐

If you consider any ommitted data important please indicate

## B FIELD SURVEY DETAILS

Reference site number: **13107**

Grid reference: **SU 242982** River: **THAMES**

Date: **18/6** /1996 Time: **13.03** Surveyor: **GC** Accred. code: **PF10**

Adverse conditions? No **X** Yes _

Bed of river visible? No _ Part. **X** Entire. _

Photograph: general character? No _ Yes **X**

Photograph: special feature No Yes

Surveyed from: Left **X** Right _ Channel _

## C PREDOMINANT VALLEY FORM

_ shallow vee _ concave/bowl

_ deep vee **X** symmetrical

_ gorge _ asymmetrical

Terraced valley? No **X** Yes _

## D NUMBER OF RIFFLES, POOLS AND POINT BARS

Riffles **0** Unvegetated point bar **0**

Pools **0** Vegetated point bar **0**

**Output created by IFE, Wareham on 15/04/1997**

Spot check 1 is at: upstream end X downstream end _

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **E PHYSICAL ATTRIBUTES** | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| **LEFT BANK Fences** | | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | SC | SC | EC | SC | SC | NO | SC | SC | SC | SC | |
| **CHANNEL** | | | | | | | | | | | |
| Channel substrate | NV | NV | NV | NV | NV | NV | NV | NV | NV | NV | |
| Substrate shape | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| Flow type | NP | NP | NP | NP | NP | NP | NP | NP | NP | NP | |
| Channel modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Channel feature(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| **RIGHT BANK Fences** | | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | SC | SC | NV | NV | SC | SC | SC | SC | SC | NO | |
| **F BANKTOP LAND USE AND VEGETATION STRUCTURE** | | | | | | | | | | | |
| | | | | | | | | | | | |
| LAND USE WITHIN 5m OF BANKTOP (L) | IG | IG | IG | IG | IG | IG | IG | IG | IG | IG | |
| LEFT BANK-TOP | S | U | U | U | U | U | U | U | U | U | |
| LEFT BANK FACE | U | U | S | U | U | U | U | U | U | U | |
| RIGHT BANK FACE | U | U | C | S | U | U | U | S | S | S | |
| RIGHT BANK-TOP | U | U | C | C | S | S | U | S | S | S | |
| LAND USE WITHIN 5m OF BANK TOP (R) | TL | BL | BL | BL | TL | TL | TL | TL | TL | TL | |
| **G CHANNEL VEGETATION TYPES** | | | | | | | | | | | |
| NONE | | | | | | | | | | | |
| Liverworts/mosses/lichens | | | | | | | | | | | |
| Emergent broad-leaved herbs | | | | | | | | | | | |
| Emergent reeds/sedges/rushes | / | / | | / | | | | | | | / |
| Floating-leaved (rooted) | | | | | | / | | / | | / | / |
| Free-floating | | | | | | | | | | | |
| Amphibious | | / | | | | / | | | | | / |
| Submerged broad-leaved | | | | | | | E | / | | | / |
| Submerged fine/linear-leaved | | / | / | / | / | | | / | / | | / |
| Filamentous algae | / | / | / | / | / | / | / | / | / | / | / |

## H LAND USE WITHIN 50m OF BANKTOP

| | L | R | | L | R |
|---|---|---|---|---|---|
| Broadleaf/mixed woodland (BL) | | E | Rough pasture (RP) | | |
| Coniferous plantation (CP) | | | Improved/semi-improved grass (IG) | E | |
| Orchard (OR) | | | Tilled land (TL) | | E |
| Moorland/heath (MH) | | | Wetland (eg bog, marsh, fen)(WL) | | |
| Scrub (SC) | | | Open water (OW) | | |
| Tall herbs (TH) | | | Suburban/urban development (SU) | | |

## I BANK PROFILES

| **Natural/unmodified** | L | R | **Artificial/modified** | L | R |
|---|---|---|---|---|---|
| Vertical/undercut | E | E | Resectioned | | |
| Vertical + toe | | | Reinforced - whole bank | | |
| Steep >45 | / | / | Reinforced - top only | | |
| Gentle | | | Reinforced - toe only | | |
| Composite | | | Artificial two-stage | | |
| | | | Poached | | |
| | | | Embanked | | |
| | | | Set-back embankments | | |

## J EXTENT OF TREES AND ASSOCIATED FEATURES

**TREE**

| | Left | Right |
|---|---|---|
| None | _ | _ |
| Isolated/scattered | X | _ |
| Regularly spaced, single | _ | _ |
| Occasional clumps | _ | _ |
| Semi-continuous | _ | X |
| Continuous | _ | _ |

**ASSOCIATED FEATURES**

| | None | Present | E (>33%) |
|---|---|---|---|
| Shading of channel | _ | X | _ |
| Overhanging boughs | _ | X | _ |
| Exposed bankside roots | X | _ | _ |
| Underwater tree roots | X | _ | _ |
| Fallen trees | X | _ | _ |
| Coarse woody debris | _ | X | _ |

## K EXTENT OF CHANNEL FEATURES

| | None | Present | E |
|---|---|---|---|
| Waterfall(s) | X | _ | _ |
| Cascade(s) | X | _ | _ |
| Rapid(s) | X | _ | _ |
| Riffle(s) | X | _ | _ |
| Run(s) | X | _ | _ |
| Boil(s) | X | _ | _ |
| Glide(s) | X | _ | _ |
| Pool(s) | X | _ | _ |

| | None | Present | E (>33%) |
|---|---|---|---|
| Marginal deadwater | _ | X | _ |
| Exposed bedrock | X | _ | _ |
| Exposed boulders | X | _ | _ |
| Unvegetated mid-channel bar(s) | X | _ | _ |
| Vegetated mid-channel bar(s) | X | _ | _ |
| Mature island(s) | X | _ | _ |
| Unvegetated side bar(s) | X | _ | _ |
| Vegetated side bar(s) | X | _ | _ |

Indicate predominant flow sequence: No perceptible

## L CHANNEL DIMENSIONS

| LEFT BANK | | Banktop width (m) | 26 | RIGHT BANK | |
|---|---|---|---|---|---|
| Banktop height(m) | 1.4 | Water width (m) | 25 | Banktop height (m) | 1.4 |
| Embanked height (m) | 0 | Water depth (m) | -- | Embanked height (m) | 0 |

If trashline lower than break in slope, indicate: height (m) = 0 width (m) = 0

Bed material at site is: consolidated _ unconsolidated _ unknown X

Location of measurement is: riffle _ run or glide _ other _

## M ARTIFICIAL FEATURES

None X Number of Culverts = 0 Weirs = 0 Outfalls = 0 Fords = 0
Footbridges = 0 Roadbridges = 0 Other = 0

Is water impounded by weir/dam? No X Yes, <33% of site _ >33% of site _

## N EVIDENCE OF RECENT MANAGEMENT

None X Dredging _ Mowing _ Weed-cutting _
Enhancement _ Other? _

## O FEATURES OF SPECIAL INTEREST

None X

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Waterfalls >5m high | _ | Artificial open water | _ | Bog | _ | Other | _ |
| Braided/side channels | _ | Natural open water | _ | Car | _ | | |
| Debris dam | _ | Water meadow | _ | Marsh | _ | | |
| Leafy debris | _ | Fen | _ | Flush | _ | | |

## P CHOKED CHANNEL

Is 33% or more of the channel choked with vegetation? NO X YES _

## Q NOTABLE NUISANCE PLANTS (Others: 1 = nettles, 2 = rhododendron, 3 = bracken, 4 = ground elder, 5 = bramble, + more)

None _ Giant hogweed _ Himalayan balsam _ Japanese knotweed _ Other? P1

## R OVERALL CHARACTERISTICS (Comments may have been paraphrased!)

Major impacts:

Land Management:

Animals: CHUB

Other significant observations:

## S ALDERS

Alders? None X Present _ Extensive _ Diseased alders? None X Present _ Extensive _

## A BACKGROUND MAP-BASED INFORMATION

NOTE: This output only contains data input to the database at the IFE

Please check the form and highlight any corrections. Tick the box if you make ANY corrections. ☐

If you consider any ommitted data important please indicate

## B FIELD SURVEY DETAILS

Reference site number: **13108**

Grid reference: **SU 252988** River: **THAMES**

Date: **18/6** /1996 Time: **12.56** Surveyor: **GC** Accred. code: **PF10**

Adverse conditions? No **X** Yes _

Bed of river visible? No _ Part. **X** Entire. _

Photograph: general character? No _ Yes **X**

Photograph: special feature No Yes

Surveyed from: Left **X** Right _ Channel _

## C PREDOMINANT VALLEY FORM

_ shallow vee _ concave/bowl

_ deep vee **X** symmetrical

_ gorge _ asymmetrical

Terraced valley? No **X** Yes _

## D NUMBER OF RIFFLES, POOLS AND POINT BARS

| | | | |
|---|---|---|---|
| Riffles | **0** | Unvegetated point bar | **0** |
| Pools | **0** | Vegetated point bar | **0** |

**Output created by IFE, Wareham on 15/04/1997**

Spot check 1 is at: upstream end X downstream end _

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **E PHYSICAL ATTRIBUTES** | | | | | | | | | | | |
| **LEFT BANK Fences** | | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | SC | SC | NO | SC | SC | NO | SC | NO | SC | NO | |
| **CHANNEL** | | | | | | | | | | | |
| Channel substrate | SI | SI | NV | CL | CL | NV | CL | SA | SI | NV | |
| Substrate shape | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| Flow type | NP | NP | NP | NP | NP | NP | NP | NP | NP | NP | |
| Channel modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Channel feature(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| **RIGHT BANK Fences** | | | | | | | | | | | |
| Material | EA | EA | EA | EA | EA | EA | EA | EA | EA | EA | |
| Bank modification(s) | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | |
| Bank feature(s) | SC | SC | SC | SC | SC | SC | SC | SC | SC | SC | |
| **F BANKTOP LAND USE AND VEGETATION STRUCTURE** | | | | | | | | | | | |
| LAND USE WITHIN 5m OF BANKTOP (L) | IG | IG | IG | IG | IG | IG | IG | IG | IG | SU | |
| LEFT BANK-TOP | U | U | U | U | U | U | U | U | U | U | |
| LEFT BANK FACE | S | U | U | U | U | U | U | S | U | U | |
| RIGHT BANK FACE | S | S | U | U | U | U | U | U | U | U | |
| RIGHT BANK-TOP | U | S | U | U | U | U | U | U | U | U | |
| LAND USE WITHIN 5m OF BANK TOP (R) | TL | TL | TL | IG | IG | IG | IG | IG | TH | TH | |
| **G CHANNEL VEGETATION TYPES** | | | | | | | | | | | |
| NONE | | | | | | | | | | | |
| Liverworts/mosses/lichens | | | | | | | | | | | |
| Emergent broad-leaved herbs | | | | | | / | | | | | / |
| Emergent reeds/sedges/rushes | / | / | / | / | / | | / | / | / | | / |
| Floating-leaved (rooted) | | | | | | | | | | | |
| Free-floating | | | | | | | | | | | |
| Amphibious | | | | | | / | | | | | / |
| Submerged broad-leaved | | | / | | | | | | | | / |
| Submerged fine/linear-leaved | | | / | | / | | / | | | | / |
| Filamentous algae | / | E | / | / | / | | / | / | / | / | / |

## H LAND USE WITHIN 50m OF BANKTOP

| | L | R | | L | R |
|---|---|---|---|---|---|
| Broadleaf/mixed woodland (BL) | | | Rough pasture (RP) | | |
| Coniferous plantation (CP) | | | Improved/semi-improved grass (IG) | E | E |
| Orchard (OR) | | | Tilled land (TL) | | E |
| Moorland/heath (MH) | | | Wetland (eg bog, marsh, fen)(WL) | | |
| Scrub (SC) | | | Open water (OW) | | |
| Tall herbs (TH) | | / | Suburban/urban development (SU) | / | |

## I BANK PROFILES

| **Natural/unmodified** | L | R | **Artificial/modified** | L | R |
|---|---|---|---|---|---|
| Vertical/undercut | E | E | Resectioned | | |
| Vertical + toe | | | Reinforced - whole bank | / | |
| Steep >45 | / | / | Reinforced - top only | | |
| Gentle | / | / | Reinforced - toe only | | |
| Composite | | | Artificial two-stage | | |
| | | | Poached | | |
| | | | Embanked | | |
| | | | Set-back embankments | | |

## J EXTENT OF TREES AND ASSOCIATED FEATURES

**TREE**

| | Left | Right |
|---|---|---|
| None | _ | _ |
| Isolated/scattered | X | X |
| Regularly spaced, single | _ | _ |
| Occasional clumps | _ | _ |
| Semi-continuous | _ | _ |
| Continuous | _ | _ |

**ASSOCIATED FEATURES**

| | None | Present | E (>33%) |
|---|---|---|---|
| Shading of channel | X | _ | _ |
| Overhanging boughs | X | _ | _ |
| Exposed bankside roots | X | _ | _ |
| Underwater tree roots | X | _ | _ |
| Fallen trees | X | _ | _ |
| Coarse woody debris | X | _ | _ |

## K EXTENT OF CHANNEL FEATURES

| | None | Present | E |
|---|---|---|---|
| Waterfall(s) | X | _ | _ |
| Cascade(s) | X | _ | _ |
| Rapid(s) | X | _ | _ |
| Riffle(s) | X | _ | _ |
| Run(s) | X | _ | _ |
| Boil(s) | X | _ | _ |
| Glide(s) | X | _ | _ |
| Pool(s) | X | _ | _ |

| | None | Present | E (>33%) |
|---|---|---|---|
| Marginal deadwater | _ | X | _ |
| Exposed bedrock | X | _ | _ |
| Exposed boulders | X | _ | _ |
| Unvegetated mid-channel bar(s) | X | _ | _ |
| Vegetated mid-channel bar(s) | X | _ | _ |
| Mature island(s) | X | _ | _ |
| Unvegetated side bar(s) | X | _ | _ |
| Vegetated side bar(s) | X | _ | _ |

Indicate predominant flow sequence: No perceptible

## L CHANNEL DIMENSIONS

| LEFT BANK | | Banktop width (m) | 23 | RIGHT BANK | |
|---|---|---|---|---|---|
| Banktop height(m) | 1 | Water width (m) | 23 | Banktop height (m) | 1 |
| Embanked height (m) | 0 | Water depth (m) | -- | Embanked height (m) | 0 |

If trashline lower than break in slope, indicate: height (m) = 0 width (m) = 0

Bed material at site is: consolidated _ unconsolidated _ unknown X

Location of measurement is: riffle _ run or glide _ other _

## M ARTIFICIAL FEATURES

None X Number of Culverts = 0 Weirs = 0 Outfalls = 0 Fords = 0
Footbridges = 0 Roadbridges = 0 Other = 0

Is water impounded by weir/dam? No X Yes, <33% of site _ >33% of site _

## N EVIDENCE OF RECENT MANAGEMENT

None X Dredging _ Mowing _ Weed-cutting _
Enhancement _ Other? _

## O FEATURES OF SPECIAL INTEREST

None X
Waterfalls >5m high _ Artificial open water _ Bog _ Other _
Braided/side channels _ Natural open water _ Car _
Debris dam _ Water meadow _ Marsh _
Leafy debris _ Fen _ Flush _

## P CHOKED CHANNEL

Is 33% or more of the channel choked with vegetation? NO X YES _

## Q NOTABLE NUISANCE PLANTS (Others: 1 = nettles, 2 = rhododendron, 3 = bracken, 4 = ground elder, 5 = bramble, + more)

None _ Giant hogweed _ Himalayan balsam _ Japanese knotweed _ Other? P1

## R OVERALL CHARACTERISTICS (Comments may have been paraphrased!)

Major impacts:

Land Management:

Animals:

Other significant observations:

## S ALDERS

Alders? None X Present _ Extensive _ Diseased alders? None X Present _ Extensive _

**RHS Summary for the River THAMES (Site No.: 13104) NGR: SU 224990**

The survey was completed by GC (PF10) on 18/6/1996 and was conducted from the right bank. It was not affected by adverse conditions and the bed was partially visible. A general character photograph was taken, but a special feature photograph was not.

The predominant valley form was recorded as symmetrical floodplain, and no riffles, no pools, no unvegetated point bars and no vegetated point bars were recorded.

**Physical Attributes:** The bank material was predominantly earth with sheet piling and gravel/sand also present. There were predominantly no bank modifications, but reinforced was recorded. There were predominantly no bank features, but stable earth cliff and eroding cliff were recorded. Bank profiles; on the left bank steep (>45) and reinforced - whole bank were recorded as extensive and vertical/undercut and gentle were recorded as present. On the right bank steep (>45) was recorded as extensive and reinforced - whole bank was recorded as present.

The channel substrate was predominantly silt/mud with sand also recorded. The predominant flow type was no perceptible. There were no channel modifications recorded at the spot checks. There were no channel features recorded at the spot checks. Extent of channel flow types; none were recorded as extensive and marginal deadwater was recorded as present. Other channel features; none were recorded as extensive and none were recorded as present.

**Landuse:** The banktop landuse within 5m was predominantly improved grass with tilled land and suburban/urban also present. Land use within 50m; on the left bank improved grass and tilled land were recorded as extensive and scrub and suburban/urban were recorded as present. On the right bank improved grass was recorded as extensive and broadleaf/mixed woodland and suburban/urban were recorded as present.

**Vegetation:** The banktop vegetation structure was; 10% bare; 60% uniform; 30% simple and 0% complex. The bankface vegetation structure was; 20% bare; 55% uniform; 25% simple and 0% complex. No nuisance species were recorded at the site.

The predominant channel vegetation type was emergent reeds/rushes with emergent broad-leaved, amphibious, submerged broad-leaved, submerged fine-leaved and filamentous algae also present.

**Trees:** On the left bank isolated/scattered trees were recorded and on the right bank trees were recorded as occasional clumps. Features associated with trees; none were recorded as extensive and shading of channel and overhanging boughs were recorded as present. Alders were present at the site

**Channel Dimensions:** The river was ? m deep with a water width of 27m and a banktop width of 27m. The banktop height was .4m to .6m. Bed material at the site was unconsolidated and the measurement location was a

**Additional Features:** A weir and roadbridge were recorded as artificial features. There was no evidence of recent management. There were no features of special interest recorded.

**Overall Characteristics:**

Major impacts noted were; None recorded.

Land management at the site; None recorded.

These animals were observed; None recorded.

The surveyor commented that;

**RHS Summary for the River THAMES (Site No.: 13105) NGR: SU 225984**

The survey was completed by GC (PF10) on 18/6/1996 and was conducted from the left bank. It was not affected by adverse conditions and the bed was partially visible. A general character photograph was taken, but a special feature photograph was not.

The predominant valley form was recorded as symmetrical floodplain, and no riffles, no pools, no unvegetated point bars and 1 vegetated point bars were recorded.

**Physical Attributes:** The bank material was predominantly earth. There were no bank modifications recorded at the spot checks. The predominant bank feature was stable earth cliff with none and eroding cliff also present. Bank profiles; on the left bank vertical/undercut was recorded as extensive and steep (>45) was recorded as present. On the right bank vertical/undercut was recorded as extensive and steep (>45) and gentle were recorded as present.

The channel substrate was predominantly clay with not visible and silt/mud also recorded. The predominant flow type was no perceptible. There were no channel modifications recorded at the spot checks. There were no channel features recorded at the spot checks. Extent of channel flow types; none were recorded as extensive and marginal deadwater was recorded as present. Other channel features; none were recorded as extensive and none were recorded as present.

**Landuse:** The banktop landuse within 5m was predominantly improved grass with suburban/urban also present. Land use within 50m; on the left bank improved grass was recorded as extensive and none were recorded as present. On the right bank improved grass was recorded as extensive and suburban/urban was recorded as present.

**Vegetation:** The banktop vegetation structure was; 0% bare; 85% uniform; 15% simple and 0% complex. The bankface vegetation structure was; 5% bare; 45% uniform; 50% simple and 0% complex. No nuisance species were recorded at the site.

Channel vegetation was recorded at 80% of the spot checks. The predominant channel vegetation type was emergent reeds/rushes with amphibious, submerged broad-leaved, submerged fine-leaved and filamentous algae also present.

**Trees:** On the left bank isolated/scattered trees were recorded and on the right bank trees were recorded as occasional clumps. Features associated with trees; none were recorded as extensive and shading of channel, overhanging boughs and exposed bankside roots were recorded as present.

**Channel Dimensions:** The river was ? m deep with a water width of 23m and a banktop width of 23m. The banktop height was .8m. Bed material at the site was and the measurement location was a

**Additional Features:** There were no artificial features recorded. There was no evidence of recent management. There were no features of special interest recorded.

**Overall Characteristics:**

Major impacts noted were; None recorded.

Land management at the site; None recorded.

These animals were observed; None recorded.

The surveyor commented that;

**RHS Summary for the River THAMES (Site No.: 13106) NGR: SU 234982**

The survey was completed by GC (PF10) on 18/6/1996 and was conducted from the left bank. It was not affected by adverse conditions and the bed was partially visible. A general character photograph was taken, but a special feature photograph was not.

The predominant valley form was recorded as symmetrical floodplain, and no riffles, no pools, no unvegetated point bars and no vegetated point bars were recorded.

**Physical Attributes:** The bank material was predominantly earth. There were no bank modifications recorded at the spot checks. There were predominantly no bank features, but vegetated side bar and stable earth cliff were recorded. Bank profiles; on the left bank vertical/undercut and steep (>45) were recorded as extensive and none were recorded as present. On the right bank vertical/undercut and steep (>45) were recorded as extensive and none were recorded as present.

The channel substrate was predominantly not visible with sand and clay also recorded. The predominant flow type was no perceptible. There were no channel modifications recorded at the spot checks. There were no channel features recorded at the spot checks. Extent of channel flow types; none were recorded as extensive and marginal deadwater was recorded as present. Other channel features; none were recorded as extensive and exposed bedrock was recorded as present.

**Landuse:** The banktop landuse within 5m was predominantly tilled land with improved grass and tall herbs also present. Land use within 50m; on the left bank tilled land was recorded as extensive and improved grass was recorded as present. On the right bank tilled land was recorded as extensive and tall herbs were recorded as present..

**Vegetation:** The banktop vegetation structure was; 0% bare; 100% uniform; 0% simple and 0% complex. The bankface vegetation structure was; 5% bare; 90% uniform; 5% simple and 0% complex. No nuisance species were recorded at the site.

The predominant channel vegetation type was emergent reeds/rushes with submerged fine-leaved and filamentous algae also present.

**Trees:** On the left bank isolated/scattered trees were recorded and on the right bank trees were recorded as isolated/scattered. Features associated with trees; none were recorded as extensive and shading of channel and overhanging boughs were recorded as present.

**Channel Dimensions:** The river was ? m deep with a water width of 28m and a banktop width of 30m. The banktop height was 1m. Bed material at the site was unconsolidated and the measurement location was a

**Additional Features:** There were no artificial features recorded. There was no evidence of recent management. There were no features of special interest recorded.

**Overall Characteristics:**

Major impacts noted were; None recorded.

Land management at the site; None recorded.

These animals were observed; KINGFISHER,

The surveyor commented that;

**RHS Summary for the River THAMES (Site No.: 13107) NGR: SU 242982**

The survey was completed by GC (PF10) on 18/6/1996 and was conducted from the left bank. It was not affected by adverse conditions and the bed was partially visible. A general character photograph was taken, but a special feature photograph was not.

The predominant valley form was recorded as symmetrical floodplain, and no riffles, no pools, no unvegetated point bars and no vegetated point bars were recorded.

**Physical Attributes:** The bank material was predominantly earth. There were no bank modifications recorded at the spot checks. The predominant bank feature was stable earth cliff with not visible and none also present. Bank profiles; on the left bank vertical/undercut was recorded as extensive and steep (>45) was recorded as present. On the right bank vertical/undercut was recorded as extensive and steep (>45) was recorded as present.

The channel substrate was predominantly not visible. The predominant flow type was no perceptible. There were no channel modifications recorded at the spot checks. There were no channel features recorded at the spot checks. Extent of channel flow types; none were recorded as extensive and marginal deadwater was recorded as present. Other channel features; none were recorded as extensive and none were recorded as present.

**Landuse:** The banktop landuse within 5m was predominantly improved grass with tilled land and broadleaf/mixed woodland also present. Land use within 50m; on the left bank improved grass was recorded as extensive and none were recorded as present. On the right bank broadleaf/mixed woodland and tilled land were recorded as extensive and none were recorded as present.

**Vegetation:** The banktop vegetation structure was; 0% bare; 60% uniform; 30% simple and 10% complex. The bankface vegetation structure was; 0% bare; 70% uniform; 25% simple and 5% complex. No nuisance species were recorded at the site.

The predominant channel vegetation type was filamentous algae with emergent reeds/rushes, floating leaved (rooted), amphibious, submerged broad-leaved and submerged fine-leaved also present.

**Trees:** On the left bank isolated/scattered trees were recorded and on the right bank trees were recorded as semi-continuous. Features associated with trees; none were recorded as extensive and shading of channel, overhanging boughs and coarse woody debris were recorded as present.

**Channel Dimensions:** The river was ? m deep with a water width of 25m and a banktop width of 26m. The banktop height was 1.4m. Bed material at the site was and the measurement location was a

**Additional Features:** There were no artificial features recorded. There was no evidence of recent management. There were no features of special interest recorded.

**Overall Characteristics:**

Major impacts noted were; None recorded.

Land management at the site; None recorded.

These animals were observed; CHUB,

The surveyor commented that;

**RHS Summary for the River THAMES (Site No.: 13108) NGR: SU 252988**

The survey was completed by GC (PF10) on 18/6/1996 and was conducted from the left bank. It was not affected by adverse conditions and the bed was partially visible. A general character photograph was taken, but a special feature photograph was not.

The predominant valley form was recorded as symmetrical floodplain, and no riffles, no pools, no unvegetated point bars and no vegetated point bars were recorded.

**Physical Attributes:** The bank material was predominantly earth. There were no bank modifications recorded at the spot checks. The predominant bank feature was stable earth cliff with none also present. Bank profiles; on the left bank vertical/undercut was recorded as extensive and steep (>45), gentle and reinforced - whole bank were recorded as present. On the right bank vertical/undercut was recorded as extensive and steep (>45) and gentle were recorded as present.

The channel substrate was predominantly not visible with silt/mud and clay also recorded. The predominant flow type was no perceptible. There were no channel modifications recorded at the spot checks. There were no channel features recorded at the spot checks. Extent of channel flow types; none were recorded as extensive and marginal deadwater was recorded as present. Other channel features; none were recorded as extensive and none were recorded as present.

**Landuse:** The banktop landuse within 5m was predominantly improved grass with tilled land and tall herbs also present. Land use within 50m; on the left bank improved grass was recorded as extensive and suburban/urban was recorded as present. On the right bank improved grass and tilled land were recorded as extensive and tall herbs were recorded as present.

**Vegetation:** The banktop vegetation structure was; 0% bare; 95% uniform; 5% simple and 0% complex. The bankface vegetation structure was; 0% bare; 80% uniform; 20% simple and 0% complex. No nuisance species were recorded at the site.

The predominant channel vegetation type was filamentous algae with emergent broad-leaved, emergent reeds/rushes, amphibious, submerged broad-leaved and submerged fine-leaved also present.

**Trees:** On the left bank isolated/scattered trees were recorded and on the right bank trees were recorded as isolated/scattered. Features associated with trees; none were recorded as extensive and none were recorded as present.

**Channel Dimensions:** The river was ? m deep with a water width of 23m and a banktop width of 23m. The banktop height was 1m. Bed material at the site was and the measurement location was a

**Additional Features:** There were no artificial features recorded. There was no evidence of recent management. There were no features of special interest recorded.

**Overall Characteristics:**

Major impacts noted were; None recorded.

Land management at the site; None recorded.

These animals were observed; None recorded.

The surveyor commented that;

# Appendix III

River Thames discharge and velocity profiles at Buscot
(The Environment Agency data)

N.R.A. THAMES REGION

CURRENT METER GAUGING PROGRAM V 2.1

RIVER : THAMES AT AT BUSCOT
FROM 13:00 TO 13:40 HRS ON [redacted] 12.1.94
GAUGE READING * ORIGIN AT LEFT BANK
METER NO : 1024 TECH : RB

| | | |
|---|---|---|
| TOTAL FLOW | 42.622 | M3/SEC i.e. 3682.56 Ml/d |
| C.S. AREA | 39.100 | SQ. METRES |
| WATER SPAN | 19.400 | METRES |
| WETTED PERIMETER | 21.191 | METRES |
| HYDRAULIC RADIUS | 1.845 | METRES |
| MEAN VELOCITY | 1.090 | METRES/SEC |

| DEPARTURE NUMBER | DEPARTURE METRES | DEPTH METRES | MEAN VELOCITY METRES/SEC |
|---|---|---|---|
| BANK | .00 | .30 | |
| 1 | 1.60 | 1.30 | .784 |
| 2 | 2.40 | 1.40 | .991 |
| 3 | 4.40 | 2.10 | 1.062 |
| 4 | 6.40 | 2.45 | 1.205 |
| 5 | 8.40 | 2.45 | 1.256 |
| 6 | 10.40 | 2.50 | 1.272 |
| 7 | 12.40 | 2.50 | 1.198 |
| 8 | 14.40 | 2.40 | 1.197 |
| 9 | 16.40 | 2.05 | .958 |
| 10 | 18.40 | 1.40 | .603 |
| BANK | 19.40 | .68 | |

NO. OF VELOCITY MEASUREMENTS: 30 ALL WITHIN RATING

N.R.A. THAMES REGION

CURRENT METER GAUGING PROGRAM V 2.1

RIVER : THAMES AT AT BUSCOT
FROM 13:00 TO 13:40 HRS ON 12 JANUARY 1994
GAUGE READING * ORIGIN AT LEFT BANK
METER NO : 1024 TECH : RB

TABLE OF POINT VELOCITIES

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPARTURE | 1.60 | 2.40 | 4.40 | 6.40 | 8.40 | 10.40 | 12.40 | 14.40 | 16.40 | 18.40 |
| DEPTH | .20 | .20 | .20 | .20 | .20 | .20 | .20 | .20 | .20 | .20 |
| VELOCITY | .839 | 1.067 | 1.242 | 1.333 | 1.424 | 1.398 | 1.385 | 1.236 | 1.002 | .514 |
| DEPTH | .60 | .60 | 1.00 | 1.10 | 1.10 | 1.20 | 1.20 | 1.10 | .90 | .70 |
| VELOCITY | .911 | 1.177 | 1.210 | 1.346 | 1.404 | 1.398 | 1.365 | 1.398 | 1.145 | .716 |
| DEPTH | 1.00 | 1.10 | 1.90 | 2.10 | 2.20 | 2.30 | 2.30 | 2.20 | 1.80 | 1.20 |
| VELOCITY | .807 | .969 | .781 | 1.099 | 1.041 | 1.073 | .865 | .989 | .813 | .683 |
| BED DEPTH | 1.30 | 1.40 | 2.10 | 2.45 | 2.45 | 2.50 | 2.50 | 2.40 | 2.05 | 1.40 |

N.R.A. THAMES REGION

CURRENT METER GAUGING PROGRAM V 2.1

RIVER : THAMES AT AT BUSCOT
FROM 13:45 TO 14:05 HRS ON [redacted] 12-1-94
GAUGE READING * ORIGIN AT RIGHT BANK
METER NO : 1024 TECH : RB

| | | |
|---|---|---|
| TOTAL FLOW | 46.412 | M3/SEC i.e. 4010.04 Ml/d |
| C.S. AREA | 38.990 | SQ. METRES |
| WATER SPAN | 19.400 | METRES |
| WETTED PERIMETER | 21.165 | METRES |
| HYDRAULIC RADIUS | 1.842 | METRES |
| MEAN VELOCITY | 1.190 | METRES/SEC |

| DEPARTURE NUMBER | DEPARTURE METRES | DEPTH METRES | MEAN VELOCITY METRES/SEC |
|---|---|---|---|
| BANK | .00 | .68 | |
| 1 | 1.00 | 1.40 | .729 |
| 2 | 3.00 | 2.05 | .969 |
| 3 | 5.00 | 2.40 | 1.262 |
| 4 | 7.00 | 2.50 | 1.378 |
| 5 | 9.00 | 2.50 | 1.372 |
| 6 | 11.00 | 2.45 | 1.411 |
| 7 | 13.00 | 2.45 | 1.301 |
| 8 | 15.00 | 2.10 | 1.164 |
| 9 | 17.00 | 1.40 | 1.034 |
| 10 | 17.60 | 1.30 | .924 |
| BANK | 19.40 | .30 | |

NO. OF VELOCITY MEASUREMENTS: 10 ALL WITHIN RATING

N.R.A. THAMES REGION

CURRENT METER GAUGING PROGRAM V 2.1

RIVER : THAMES AT AT BUSCOT
FROM 13:45 TO 14:05 HRS ON 12 JANUARY 1994
GAUGE READING * ORIGIN AT RIGHT BANK
METER NO : 1024 TECH : RB

TABLE OF POINT VELOCITIES

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DEPARTURE | 1.00 | 3.00 | 5.00 | 7.00 | 9.00 | 11.00 | 13.00 | 15.00 | 17.00 | 17.60 |
| DEPTH | .80 | 1.25 | 1.40 | 1.50 | 1.50 | 1.45 | 1.45 | 1.30 | .85 | .80 |
| VELOCITY | .729 | .969 | 1.262 | 1.378 | 1.372 | 1.411 | 1.301 | 1.164 | 1.034 | .924 |
| BED DEPTH | 1.40 | 2.05 | 2.40 | 2.50 | 2.50 | 2.45 | 2.45 | 2.10 | 1.40 | 1.30 |

N.R.A. THAMES REGION

CURRENT METER GAUGING PROGRAM V 2.1

RIVER : THAMES AT BUSCOT
FROM 13:45 TO 14:35 HRS [redacted] 6·3·96
GAUGE READING ST H=0.014 ORIGIN AT RIGHT BANK
METER NO : 85555 TECH : JES

| | | | | |
|---|---|---|---|---|
| TOTAL FLOW | 10.808 | M3/SEC i.e. | 933.77 | Ml/d |
| C.S. AREA | 37.448 | SQ. METRES | | |
| WATER SPAN | 21.500 | METRES | | |
| WETTED PERIMETER | 22.915 | METRES | | |
| HYDRAULIC RADIUS | 1.634 | METRES | | |
| MEAN VELOCITY | .289 | METRES/SEC | | |

| DEPARTURE NUMBER | DEPARTURE METRES | DEPTH METRES | MEAN VELOCITY METRES/SEC |
|---|---|---|---|
| BANK | .00 | .13 | |
| 1 | 1.00 | .41 | .019 |
| 2 | 2.00 | 1.00 | .029 |
| 3 | 3.00 | 1.48 | .112 |
| 4 | 5.00 | 1.98 | .269 |
| 5 | 7.00 | 2.11 | .333 |
| 6 | 9.00 | 2.19 | .333 |
| 7 | 11.00 | 2.27 | .353 |
| 8 | 13.00 | 2.22 | .344 |
| 9 | 15.00 | 1.94 | .336 |
| 10 | 17.00 | 1.82 | .310 |
| 11 | 18.00 | 1.78 | .309 |
| 12 | 19.00 | 1.52 | .267 |
| 13 | 20.00 | 1.37 | .237 |
| 14 | 20.50 | 1.26 | .185 |
| BANK | 21.50 | .66 | |

NO. OF VELOCITY MEASUREMENTS: 60
NO. BELOW RATING: 4
NO. ABOVE RATING: 0

N.R.A. THAMES REGION

CURRENT METER GAUGING PROGRAM V 2.1

RIVER : THAMES AT BUSCOT
FROM 14:35 TO 15:15 HRS
GAUGE READING H=.011
METER NO : 85555

[redacted] 6.3.96
ORIGIN AT LEFT BANK
TECH : JBS

| | | | | |
|---|---|---|---|---|
| TOTAL FLOW | 10.835 | M3/SEC i.e. | 936.19 | Ml/d |
| C.S. AREA | 37.685 | SQ. METRES | | |
| WATER SPAN | 21.500 | METRES | | |
| WETTED PERIMETER | 22.979 | METRES | | |
| HYDRAULIC RADIUS | 1.640 | METRES | | |
| MEAN VELOCITY | .288 | METRES/SEC | | |

| DEPARTURE NUMBER | DEPARTURE METRES | DEPTH METRES | MEAN VELOCITY METRES/SEC |
|---|---|---|---|
| BANK | .00 | .66 | |
| 1 | .50 | 1.20 | .018 |
| 2 | .80 | 1.28 | .181 |
| 3 | 1.50 | 1.40 | .231 |
| 4 | 2.50 | 1.54 | .273 |
| 5 | 3.50 | 1.77 | .296 |
| 6 | 5.50 | 1.85 | .331 |
| 7 | 7.50 | 2.02 | .349 |
| 8 | 9.50 | 2.27 | .348 |
| 9 | 11.50 | 2.22 | .325 |
| 10 | 13.50 | 2.11 | .334 |
| 11 | 15.50 | 2.11 | .327 |
| 12 | 17.50 | 1.80 | .222 |
| 13 | 18.50 | 1.51 | .112 |
| 14 | 19.50 | 1.01 | .047 |
| BANK | 21.50 | .13 | |

NO. OF VELOCITY MEASUREMENTS: 62
NO. BELOW RATING: 4
NO. ABOVE RATING: 0