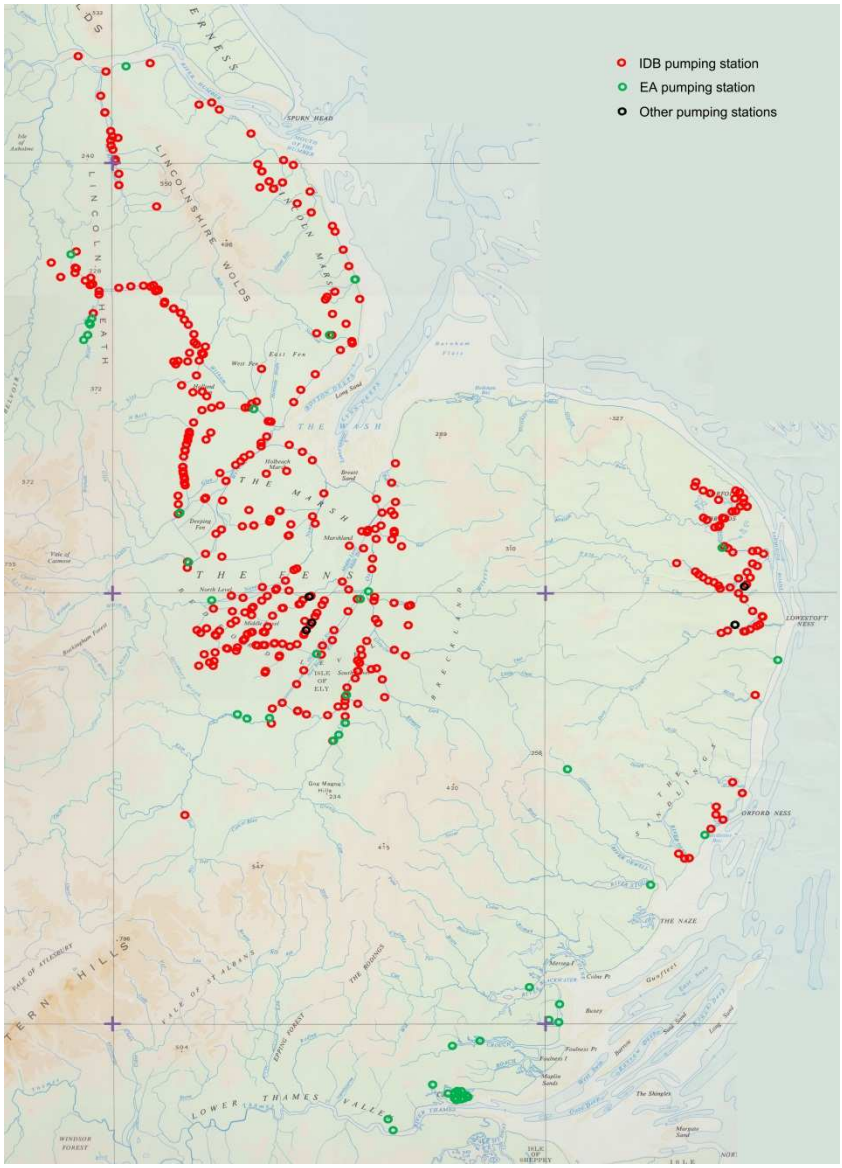
Environment Agency, Anglian Region

Prioritising pumping stations for facilities for the passage of eels and other fish



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Cover picture. Distribution of the 447 land-drainage pumping stations in Anglian Region, colour coded according to operator.

Contents

1 INTRODUCTION

1.1 Background

Obstructions to fish migration have existed in our rivers and waterways for many hundreds of years, in the form of weirs, mills, sluices and pumping stations. However, they represent a particular issue at the present time for several reasons:-

- The Water Framework Directive (WFD) requires that all waters are in either Good Ecological Status or Good Ecological Potential. This includes allowing an appropriate level of free movement of fish throughout catchments;

- The Eel Regulations require that appropriate passage facilities are installed at a wide range of river structures;

- Modern designs of sluices and other water control mechanisms are often less amenable to fish passage that earlier structures which were often leaky and relatively inefficient;

- Eel recruitment is currently very low, and the population apparently in steep decline. While obstructions to migration are not thought to be the primary cause of this decline it is likely that they have contributed. The Environment Agency are currently doing all they can to maximise the freshwater survival of the species as there is little that can be done to help during the marine phase.

An assessment and prioritisation exercise with respect to fish passage has recently been conducted on flow gauging structures throughout the region, involving several hundred sites. This report covers pumping stations as part of a larger project covering all relevant Flood and Coastal Erosion Risk Management (FCRM) structures.

Until now there has been no single list of pumping stations, and no information on exactly how many there were in the region. A total of 447 land-drainage pumping stations have now been identified for Anglian Region, and relevant information for prioritising fisheries action gathered.

1.2 Terms of Reference

It was agreed that the investigation should have the following aims and approach:-

Assessment of the problem. An assessment of the numbers and distribution of land darinage pumping stations in Anglian Region, including their passability and the extent and fisheries potential of the areas affected. This will also allow prioritisation for remedial action.

The experience with the equivalent exercise covering gauging sites highlit the great importance of, and difficulty in establishing, a reliable and complete database of sites, their location and their relevant attributes. This will be a priority for this investigation.

Development of priority assessments. Given the numbers of sites involved and the potential costs and resource implications of addressing all identified issues, a method

of prioritisation is essential. This will include a methodology to assess the extent of obstruction represented by the structures (not all structures are totally impassable for all of the time), and an approach to identifying the relevant importance of the areas of waterway that are affected; generally structures affecting a large area of potentially productive fishery may be considered a higher priority for remedial action that one affecting a small area of less productive water. For freshwater fish the WFD status of the area being drained is relevant to the prioritisation process.

Possible remedial measures. This will include an assessment of available approaches to easing fish passage at the various types of structure involved, including a generic approach to costs.

1.3 The importance of a good data set

When conducting an exercise such as this, where the contractor's personal knowledge of the many sites involved is thin, good basic data is an absolute requirement. At the very least one needs to know something about each site; its location, the watercourse it is on, the type of equipment involved and how it is operated, and something about the extent and quality of the habitat that lies either side of it.

Astonishingly, no such database existed. The Association of Drainage Authorities, of which all the Internal Drainage Boards (IDB's) covered by this exercise are members, has an initiative to develop a database of all assets. They generously allowed access to this developing database, but it is far from complete. However, this, followed by extensive contact with most of the 77 IDB's in the region, allowed completion of a reliable database of all 391 IDB pumping stations in the region. The assistance, interest and patience of the many IDB personnel who were contacted are very gratefully acknowledged.

Some difficulty was experienced identifying all Environment Agency (EA) owned and operated pumping stations. A national database used as an input to an internal EA project looking at prioritising eel passage identified only 38, but the final number arrived at as a result of this exercise is 51; this excludes stations used for inter-river transfers for water resources purposes.

Getting these two databases to their present status dominated the progress of this project, and has involved dissipation of the majority of the resources available. This was naively considered to be the starting point for the investigation.

A further problem is presented by the lack of information on fishery status for much of the region with respect to the WFD – this is considered essential for prioriting funding for ameliorative measures for coarse fish. This is discussed further in Section 4.3.

2 THE BIOLOGICAL BACKGROUND

2.1 Overview

There are two main groups of fish to consider with respect to migration and passage past pumping stations in Anglian Region.

First, eels can thrive throughout the river wherever they can gain access.

Second, cyprinids and other coarse fish, although not generally considered to be migratory, make functional migrations during their life cycles. Being able to complete appropriate redistribution is essential to the sustainable development of the fish community.

Although there are both brown and sea trout occurring in many rivers in the region, they generally do not thrive in the low-lying areas that are typically drained by pumping. They are considered no further here.

2.2 Eels

In common with most other parts of the species range, eel numbers are now much reduced in Anglian Region. Recruitment is well down throughout the distribution range and the species is now listed as "critically endangered" in the IUCN Red List. Widespread factors are probably implicated, and obstruction to migration is probably not a major factor in the decline. However, ensuring safe and readily-accessed passage facilities at all structures, with screening of unsafe routes as appropriate, is considered to be a potentially important contribution to maximising survival and production of what stock is left.

2.3 Coarse fish

Freedom of access is important for stocks of even those species generally considered "non-migratory" for several reasons, including:-

- It allows the fish populations to exploit the available habitat efficiently and effectively.

- Fish generally require different environmental conditions for different stages of their life cycle including spawning and egg incubation, juvenile growing, and adult holding and growing. While appropriate conditions for all life history stages may be available within a short reach, in other cases they are not. In many species there are widespread movements between winter and summer habitats, and significant movements between daytime and night-time habitats.

- Juvenile fish generally experience a downstream drift due to their limited swimming powers and inability to re-ascend head-loss structures over which they have been carried. Most species incorporate an upstream migration for spawning or at some other stage in the life cycle which compensates for this.

- Migration and aggregation to spawn allow a greater degree of genetic mixing between fish from different parts of the river system. Severely fragmented populations are likely to experience genetic drift, local depletion and extinction, and other undesirable effects of small effective population numbers.

The extent to which fish migrate varies considerably between species. Peter (1998) recorded upstream migrations of over 300 km for barbel, 50-200 km for bream and chub, but only a matter of tens of metres for bullhead. Diel movements of many hundreds of metres have been recorded for dace (Clough and Ladle 1997) and barbel (Lucas and Baras 2001). It is therefore desirable that coarse fish have free access throughout the river. Equally, however, having entirely free upstream access at all times is much less important for coarse fish than it is for migratory salmonids, and having upstream passage possible for part of the population for some of the time would overcome most of the potential problems discussed above.

The most critical of the movements are upstream migrations before spawning, and the timing of these is relevant to planning passage facilities. Upstream migration of coarse fish is more driven by water temperature than by flows. Two studies from Europe provide useful data. On the Dyje River in the Czech Republic, upstream-migrant cyprinids started to appear in a fish pass around April 20 when water temperatures rose above 8^{o}C. Maximum numbers occurred between the end of April and the end of May, with few thereafter (Lucas and Baras 2001).

Prignon *et al* (1998) noted that more than 90% of the upstream migration of cyprinids in the River Meuse in Belgium took place in the spring, mainly at water temperatures between 10 and 15^{o}C. Migration of roach and dace took place between mid-March and mid-May, with bream and barbel rather later, from mid-May to July.

The months March to June are therefore taken as the months when upstream migration facilities for non-salmonids are most important.

Lobon-Cervia *et al* (1996) observed dace moving upstream from a main river into small shallow tributaries to spawn. In a study of the movements of adult dace in the River Frome, Clough *et al* (1998) radio tracked spent fish from the shallow spawning areas in a side-stream, down into the main river, and into the slow-flowing lower reaches of tributaries. They suggested that the fish had sought out areas of low flow to recover from the exertions of spawning. Clough and Ladle (1997) radio-tracked adult dace and noted that they spent most of the daylight hours in a small side channel, but each night migrated 245 to 680 m upstream into the main river, returning to the daytime areas at dawn.

Lightfoot and Strevens (1984) observed a significant downstream movement of 0+ roach on the Avon in late summer, starting in early August, peaking about the end of September, falling to low levels by early November. These fish averaged around 30 mm in length. Later observations by these authors were reported in Solomon (1992); these indicated a slightly earlier timing of downstream movement, suggesting some level of inter-annual variation. Lightfoot and Jones (1979) also noted that roach became scarce in their study area on the river Hull (a Yorkshire chalkstream) at a length of around 30 mm and suggested that a functional redistribution had taken

place. These authors also noted a compensatory upstream migration of 0+ roach corresponding with the first lift in flow in the autumn, after which little movement of juveniles took place over winter. Brown (1979) also reported an upstream movement of 0+ cyprinids between August and October in East Anglian rivers.

Bullheads are generally considered to be poor at overcoming weirs and other structures, but they are one of the most sedentary of British freshwater fish species, with measured migrations of just tens of metres compared to tens of kilometres for many cyprinids (Peter 1988). They are well-distributed throughout the many catchments in Anglian Region despite the presence of obstructions in the form of mills having been in place for many hundreds of years. Almost nothing is known of effective ways to allow passage on this species over obstructions. Similar comments apply to stone loach (which are widespread in the Region) and spined loach (which are nationally rare but occur in several Anglian rivers).

3 THE ISSUES

3.1 General description

Anglian Region has more than 450 pumping stations, the greatest number of any of the EA regions. Although a few are used for inter-river transfers for water resource purposes, a total of 447 are there to drain areas that do not drain efficiently by gravity run-off. This reflects the extensive areas of naturally low-lying land in the region, much of which is below mean sea level. As the land has been drained for agriculture, so the surface layers have shrunk, lowering the ground and further increasing the requirement for pumping.

The total area drained by pumps operated by the IDB's in the region is calculated as 413,895 ha (4139 km^2). This is less than the total obtained by adding up all the individual pumping station catchment areas as that total has to be adjusted for double and treble pumping, and for areas drained by more than one station. The equivalent figure for the EA PS is about 158,750 ha (1588 km^2).

Much low-lying ground is drained by gravity, through structures fitted with sluices, flaps or doors which allow seaward flow but prevent landward flow when the receiving water level or tide level exceeds that of the area being drained. Pumps are employed mainly where such gravity drainage is inadequate, insufficiently reliable or impossible due to level differences. Many pumping stations incorporate provision for gravity drainage to be used when levels allow. For example, 26 of the 34 pumping stations in the Black Sluice IDB area have provision for gravity drainage, with proportions draining this way ranging from negligible to 95% of seaward flow. In contrast, there is virtually no gravity drainage possible at the 70+ pumping stations in the Middle Level area of the fens.

Rainfall, and thus the requirement for pumping, is not of course constant or even reliably variable. However, the pumping capacity must be adequate to deal with potential flood conditions, which means that running at full capacity for long periods may be a rare event. Indeed, stations are specified and designed to try and avoid such a requirement, as pumps may occasionally break down or be out of service for maintenance. In April 1998 the largest pumping station in the Region, that at St Germans on the Middle Level system, was required to run at its full capacity of 70m^3/sec for 52 hours continuously. The IDB's pumping water into the Middle Level were asked to stop pumping for part of this period to help balance water levels and prevent serious flooding. This event was the catalyst for of a new replacement station with a capacity of 100 m^3/sec, which was commissioned in April 2010.

Prior to the 1940's it was general practice to specify pumping capacity equivalent to 0.25" of rain per day falling over the area to be drained (McLeod, 1959). However, following very damaging flooding in the spring of 1947, this was increased by 50% to 0.375" of rain; this is equivalent to a capacity of 1.1 m^3/sec per 1000 ha. The old St German's PS had installed capacity equivalent to 1.0 m^3/sec, and the new station 1.43 m^3/sec per 1000 ha.

Analysis of the volumes pumped each year from 2001-2010 at the 30 pumping stations in the Lindsey Marsh DB area indicates that on average the pumps are run at

a rate equivalent to about 5% of the total installed capacity. In fact, when pumps are operated they are usually run at close to full capacity, and a lower rate of pumping is achieved by intermittent operation. Many stations have more than one pump, and one alone is operated under most pumping scenarios. The extent of pumping varies considerably between years; the mean annual pumping rates for 2001 to 2010 for Lindsey Marsh DB and the Middle Level PS at St Germans are shown in Figures 3.1 and 3.2.

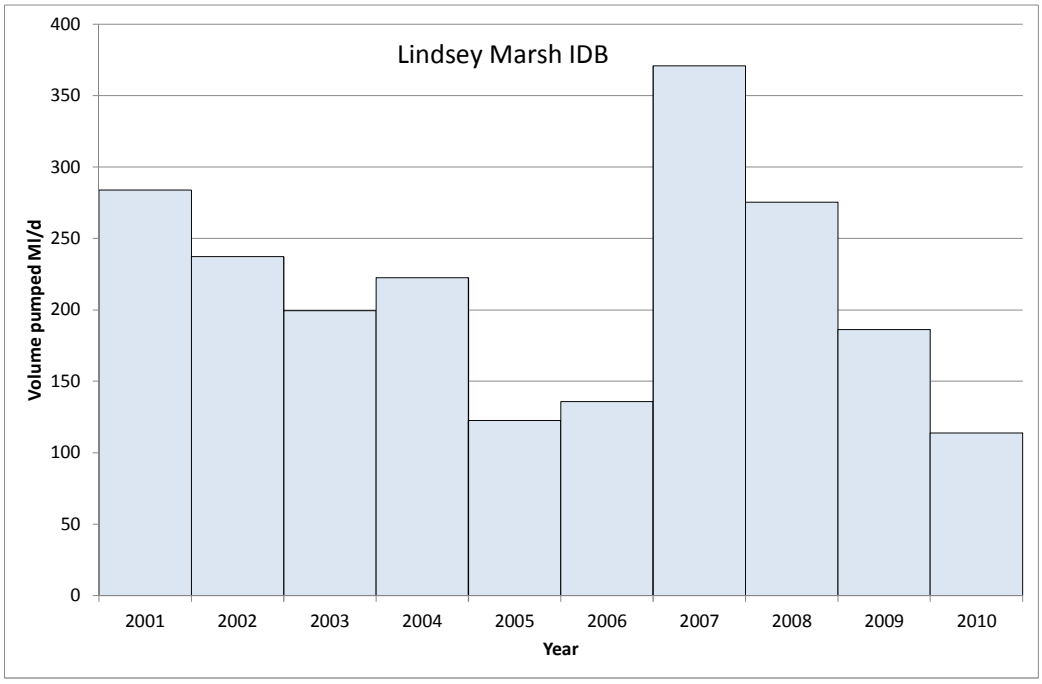

Figure 3.1. Mean annual pumping rate in the 30 Pumping Stations operated by the Lindsey Marsh DB, 2001-2010.

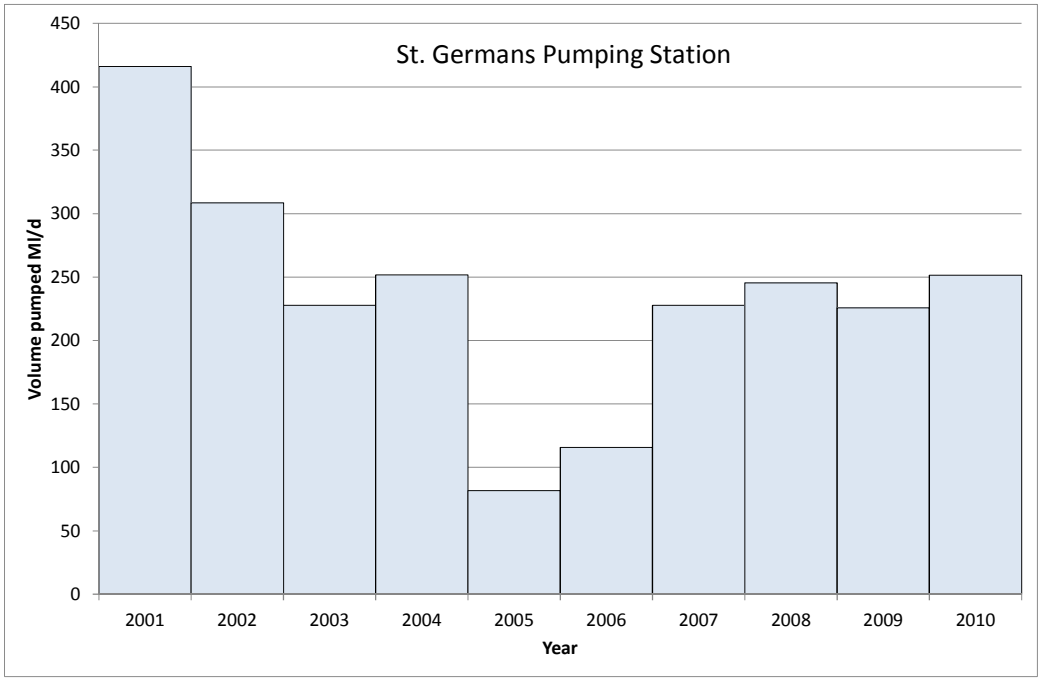

Figure 3.2. Mean annual pumping rate at the St Germans Pumping Station, 2001-2010. Data supplied by the Middle Level Commissioners.

There is about a five-fold difference in the volumes pumped between the driest year in the series (2005) and the wettest (2001) at St Germans PS. Considering the 67-year period 1944 to 2010, the year with the lowest rate of pumping was 1997 (averaging of the order of 60 Ml/d) and the highest was 1969 (averaging of the order of 750 Ml/d), a range of the order of twelve-fold.

(NB. The figures quoted above for volume pumped at the old St Germans PS are approximate as they are based upon the pump-hours run and the mean rate per pump of 1100 tons per minute. Further, the figures for pump-hours run in 1969 and 2005 are derived from a graph. The figures for the new St Germans PS (from April 2010 onwards) and for Lindsey Marsh DB stations were supplied as volumes pumped, although these too are derived from pump running-time and should be considered approximate).

The volume pumped also varies with the time of year. The mean monthly pumping rate at the St Germans pumping Station is shown in Figure 3.3.

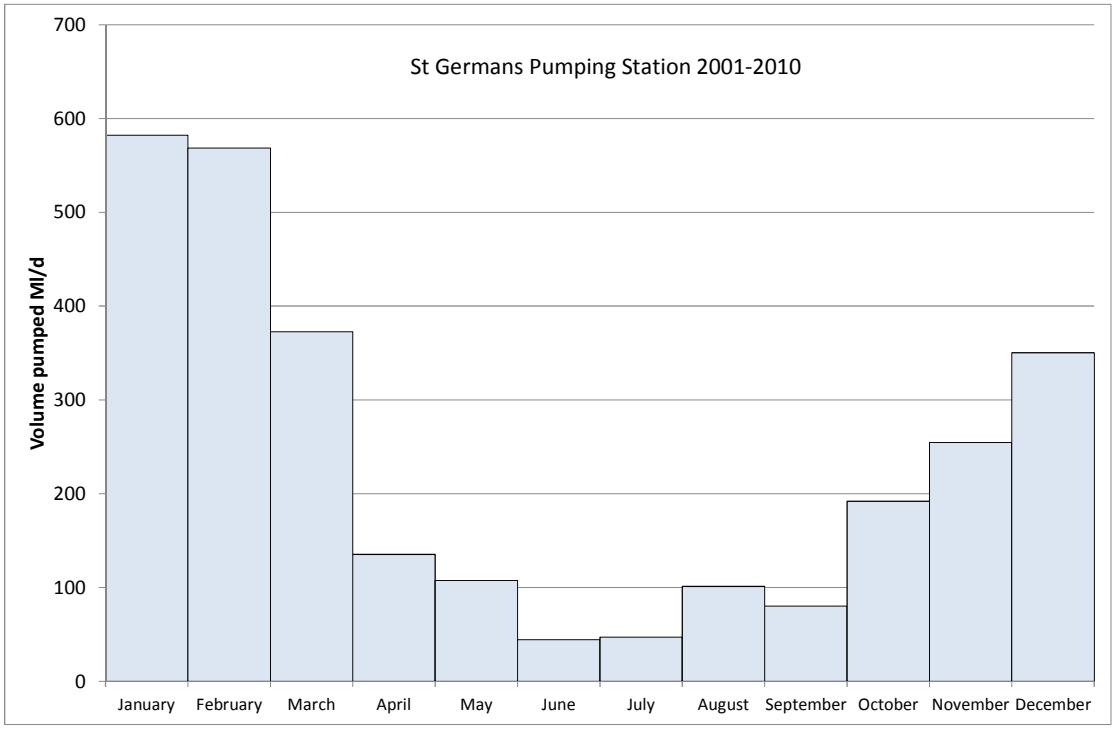

Figure 3.3. Mean monthly pumping rates at the St Germans Pumping Station for the ten year period 2001-2010.

At times of low flow and little rain, reverse flow is undertaken at some pumping stations via siphons or sluice gates, for agricultural purposes. This is extensively practised in the Middle Level system, and the Middle Level Commissioners announce when such practices are allowable, depending upon water supply and levels throughout the system. Dry-weather water level management is not only important for irrigation, but also for maintaining minor watercourses as “wet fencing”.

How much potential fish habitat lies landwards of pumping stations? This can be difficult to assess without detailed individual surveys, but a general estimate was made in an earlier EA project examining eel passage at pumping stations and tidal

flaps (Solomon 2010). It was estimated that within the 2656 km^2 catchment areas of nine IDB's in Lincolnshire there was of the order of 50 km^2 of water, about 2% of the area. This is about three times the average proportion of water for England and Wales as a whole. If we assume that this proportion holds for other pumped catchments, the total water area landwards of IDB pumping stations in Anglian Region is of the order of 8278 ha (83 km^2), and for EA pumping stations 3176 ha (32 km^2).

3.2 The Middle Level system

The Middle Level is a complex system of waterways and pumping stations that has evolved over several hundred years. In 1490 the Bishop of Ely, John Moreton, constructed a nearly-straight 19km channel to take the water from the convoluted course of the River Nene directly to sea; this channel became known as Moreton's Leam. In the 17th century, the Dutch engineer Cornelius Vermuyden was contracted to drain the fens. He was responsible for constructing the Old Bedford River, the New Bedford River, the Forty Foot, the Twenty Foot and the Sixteen Foot Rivers. Water from the fens was carried in the Middle Level Main Drain to St Germans on the tidal Ouse, where the low tide level allowed gravity drainage. However, by the early 20th century, lowered ground levels due to peat shrinkage caused by land drainage, and increased expectations of water level management meant that gravity drainage alone was no longer viable and a large pumping station was commissioned at St Germans. This became operational in 1934, and had three pumps and a gravity outfall sluice. By 1951 gravity drainage was no longer possible at all, and a fourth pump was installed in the gravity outfall bay. The capacity of the pumping station at this time was about 70 m^3/sec, and from this time onwards every drop of water draining to the sea from the 70,000 ha catchment was pumped at this station. As drainage demands become greater this station was considered inadequate, a view strengthened by the events of April 1998 described above. A new station was commissioned in April 2010; this has six pumps with a combined capacity of 100 m^3/sec.

The Middle Level system is shown in the map in Figure 3.4. While some of the water arrives in the Middle Level system by gravity drainage from higher land, most is pumped from still-lower levels by the pumping stations operated by one of the many IDB's in the area. A schematic diagram of the Middle Level system is shown in Figure 3.5. Fifty four stations pump from IDB areas directly into waterways forming what is known as the "St Germans Pond"; that is, interconnected waterways at the landward level at St Germans PS. Waterways forming St Germans Pond include the Middle Level Main Drain, Sixteen Foot River, Twenty Foot River, Forty Foot River, Old River Nene (East of Lodes End Lock), Old Pophams Eau, Whittlesey Dyke, Kings Dyke, Ramsey High Lode, Hardings Drain, and Bevills Leam (East of Bevills Leam PS). In addition, water is pumped to St Germans Pond by Bevills Leam PS from a further interconnected set of waterways known as "Bevills Leam Pond"; these waterways include Monks Lode, Yaxley Lode, Old River Nene (West of Lodes End Lock), Black Ham Drain, Great Raveley Drain, Catchwater Drain and Bevills Leam (West of Bevills Leam PS). In turn, 16 IDB pumping stations pump water into Bevills Leam from lower-lying land. Thus all water reaching the sea from almost 20,000 ha of land is pumped three times; by an IDB pump into Bevills Leam Pond, by Bevills Leam PS into St Germans Pond, and by St Germans PS into the tidal Great Ouse.

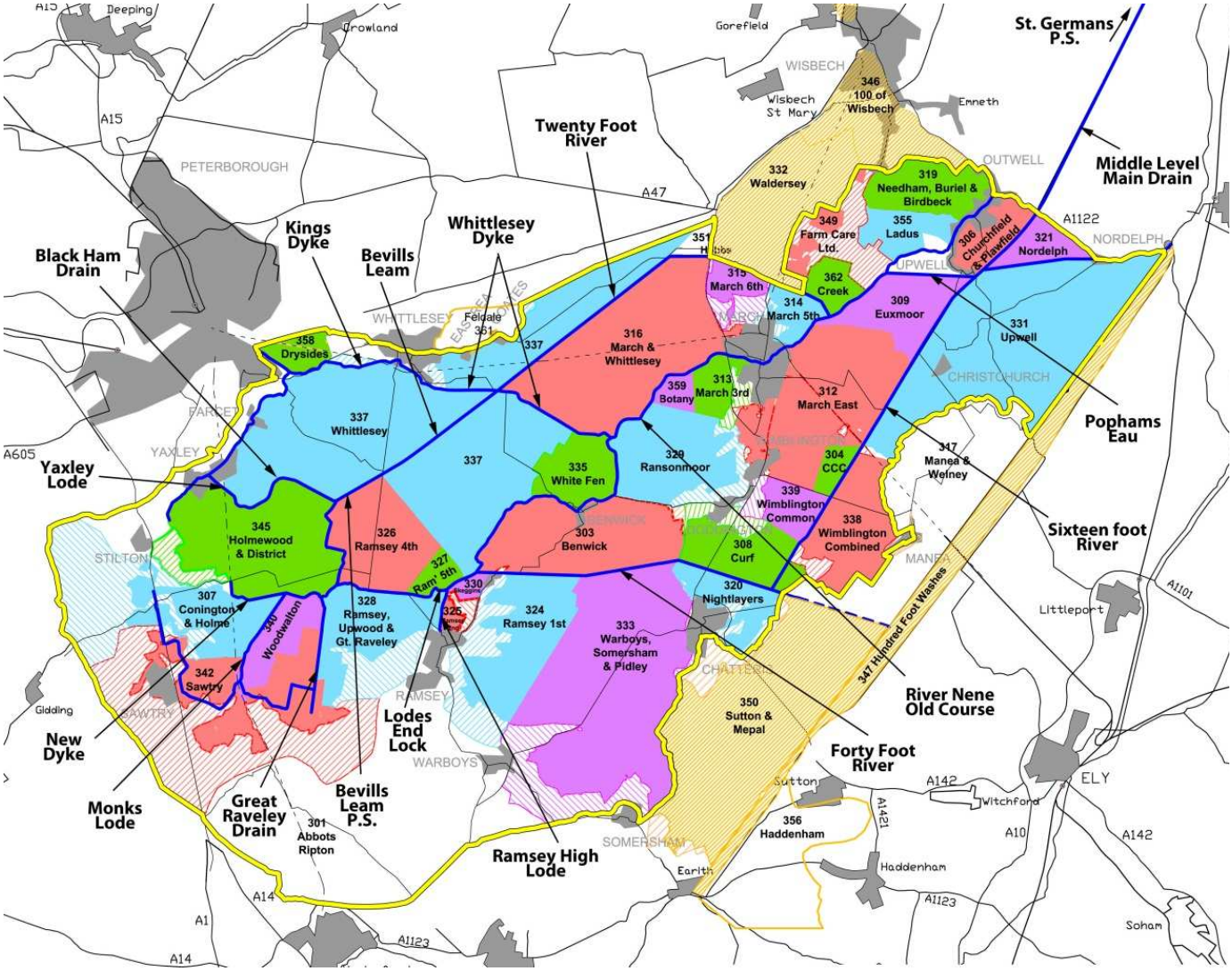

Figure 3.4. Map of the Middle level System, based on a map from the Middle Level Commissioners website. The thick yellow line outlines the catchment area that is pumped by St Germans Pumping Station. Areas in solid colour are drained to the Bevills Leam Pond or the St Germans Pond by pumping; areas that are hatched or white drain to these ponds by gravity, before being pumped seawards.

3.3 Seawards passage at pumping stations

Pumping stations represent an obstruction to the free movement of fish in both directions. The issues have been considered in some depth elsewhere (Solomon 2010) so only some general principles are presented here.

Unlike many still waters, there is generally a high turnover of water within pumped catchments, with considerable volumes of water being pumped seawards each year, albeit on a discontinuous basis. Locating and migrating to "the way out" is generally not a problem for fish in such situations; rather the problem lies in locating and using a safe route past the pumping station itself. Generally, most of the water is removed from the catchment by being passed through a pump, though some gravity drainage does occur at some stations when levels allow.

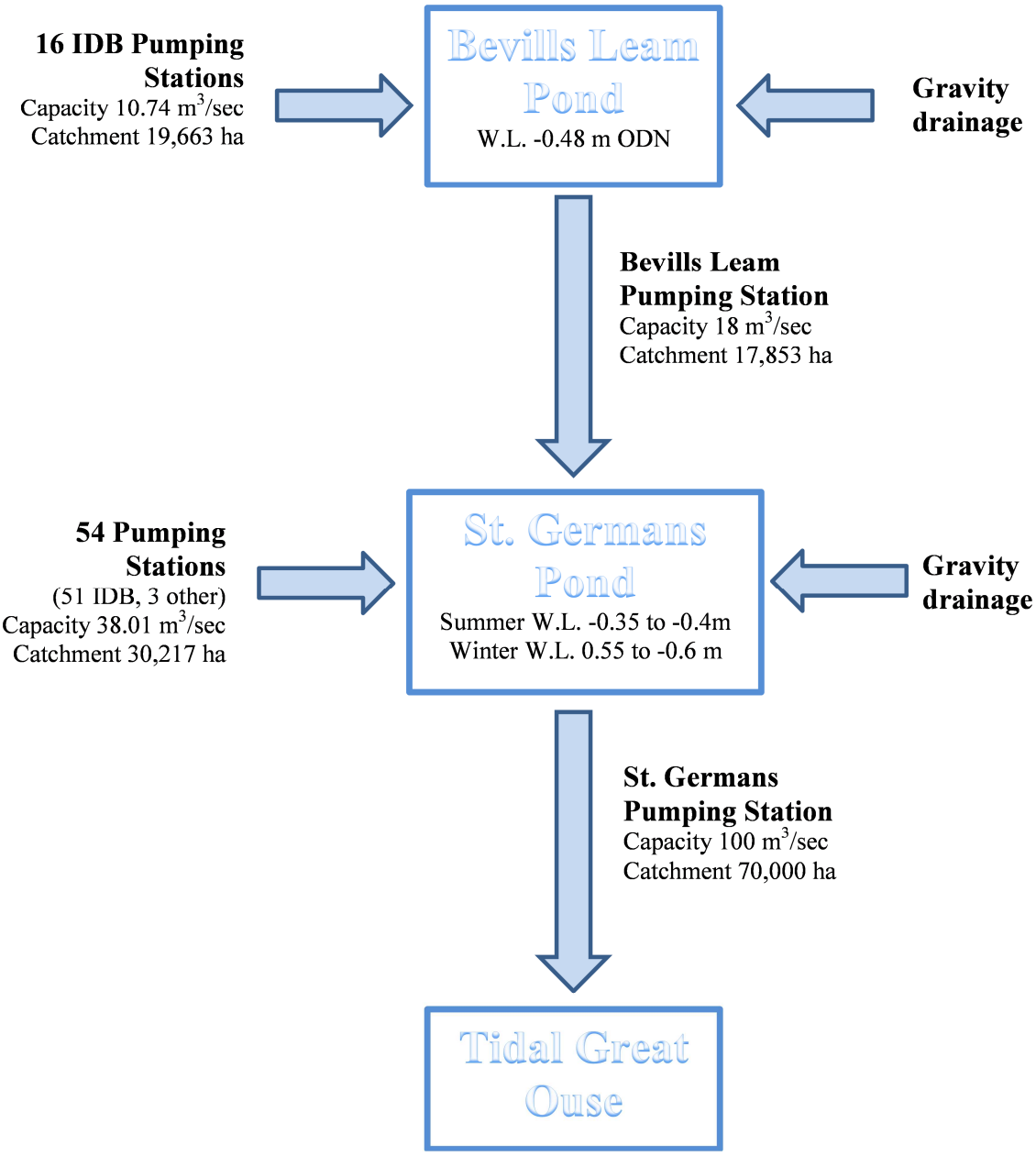

Figure 3.5. Schematic diagram of the Middle Level system.

Passage through most land-drainage pumps is a potentially very hazardous activity for long fish such as adult eels and large cyprinids, due to collision with the blades of the impeller, and being "pinched" between the blade tip and the pump casing. With respect to damage by collision with blade leading-edges, a study by Amaral *et al* (2008) in North America noted that collisions up to about 5 m/sec caused little damage; but at speeds in excess of this, rates of damage increased sharply, especially for fish that were long relative to the blade thickness, such as eels. Blade speeds generally exceed this velocity by a considerable margin in most axial and centrifugal pumps. However, lower absolute velocities are generally found in Archimedes screw pumps, and this, coupled with the large "path-length" of the water flowing into each

chamber combine to make such pumps relatively fish-friendly. Some issues can still occur in standard Archimedes screw pumps, but some modern designs overcome even these issues and there are also a number of other "fish-friendly" pump technologies available (Solomon 2010).

A lack of evidence in the form of observed dead fish is not a reliable indicator that passage through any particular pump or set of pumps is not a problem. Solomon (2010) describes an investigation in the Netherlands where very large diameter (about 4 m) axial flow turbines turning at 60 rpm were assumed to be benign for fish passage. However, detailed investigation showed that mortality of adult eels passing through these pumps was around 40%. Higher mortality rates are likely in smaller pumps with a higher revolution rate.

As already mentioned, some gravity drainage takes place at times at some stations. This represents a potentially safe route seawards for fish such as adult eels, and its use is to be encouraged whenever it is feasible. However, it is generally only possible at times of low to medium flow when the level in the receiving waters is low. Most silver eel emigration takes place on stormy nights with elevated flow, exactly the conditions under which the pumps will be running and gravity drainage is not possible.

A situation known to give rise to fish deaths in pumping stations concerns the habit of many fish, including eels, of seeking out deep and dark locations – presumably for shelter and safety. Large numbers of fish may gather in the sumps of pumping stations while the pumps are not running – often the only really deep and dark habitat in an otherwise rather featureless channel. Large numbers of these fish may be drawn into the pumps as soon as they are switched on. To try to prevent this, fish scaring devices have been developed, which are switched on a few minutes before the pumps, to cause the fish to leave the sump. Alternatively, a "soft start" can be considered, whereby the pumps are switched on at low revolutions for a few minutes – enough to make a noise and disperse the fish, without causing them to be drawn into the pumps. These options are discussed further in Section 8.

3.4 Landwards passage at pumping stations

Most lowland drainages contain eels, including many of those drained by pumping stations. In some cases it is difficult to see how they could have gained entry, but possibilities include the following:-

- when high seaward levels cause overtopping of flood banks of other structures;
- at stations where water is allowed to flow landwards on occasions for irrigation and wet fencing purposes;
- when levels each side of the pumping station are about equal, entry may be possible by a number of routes;
- with leakage flow through banks and around structures.

However, in most situations such routes do not represent a level of recruitment that optimises production, and additional facilities are desirable.

Similar comments apply to coarse fish, although in contrast to eels there may be healthy breeding stocks "landlocked" within the pumping station catchment. However interchange of stock in both directions is considered desirable, unless conditions downstrteam of the station are unsuitable, for example where the station discharges to salt water.

3.5 Ideal solutions

In considering ideal solutions for fish passage issues at pumping stations, there is a wide range of situations with respect to the type of catchments and receiving waters, and fish stocks. The situation is summarised below in Table 3.1.

Table 3.1. Ideal fisheries solutions at pumping stations.

Situation	Ideal solution	
	Coarse fish	**Eels**
Small pumped catchment, naturally insignificant stocks of coarse fish and eels	No action required	
Significant catchment and stocks of coarse fish, few eels, draining to salt water	Prevent/discourage all fish passage, in both directions	
Significant catchment and stocks of coarse fish and eels, draining to salt water	Prevent all passage	Encourage safe passage, u/s & d/s
Significant catchment and stocks of coarse fish, with or without eels, draining to another significant freshwater body	Encourage safe passage, u/s and d/s, or failing that, discourage coarse fish passage/encourage eel passage.	

The situation where the requirements for eels and coarse fish are different poses a particular challenge, particularly for downstream migrants. Options for remedial action are discussed in Section 8.

4 DATABASES OF SITES

4.1 This investigation

In this study, a total of 447 land drainage pumping stations have been identified within the Anglian Region of the Environment Agency. Of these, 391 are owned and operated by 77 Internal Drainage Boards; 51 by the Environment Agency (Northern Area 15, Central Area 10, Eastern Area 27), and 5 by other operators. The list excludes stations that pump water for inter-river transfers for water resource purposes.

The database of sites is shown in Appendix Table 1. Information included is as follows:-

Operator (name of Internal Drainage Board, EA Area or other operator)
Name of pumping station
NGR of station
Capacity of pumps (m^3/sec)
Number of pumps
Catchment area drained (ha)
Name of receiving water
Type of receiving waterbody (tidal or non-tidal)
WFD waterbody number
WFD waterbody fisheries status
Priority banding with respect to adult eel passage facilities
Priority banding with respect to adult eel screening facilities
Priority banding with respect to elver passage facilities
Priority banding with respect to coarse fish screening facilities

Other information on the sites is included in the Excel spreadsheet of station details; a copy will be submitted to the Environment Agency.

The location of all pumping stations is shown in the map in Figure 4.1. They are colour coded to show ownership (IDB, EA and other).

In Section 5 the attributes of these 447 pumping stations are assessed to derive priority bands with respect to a range of fish passage issues.

4.2 The national initiative

There is currently a national initiative to prioritise pumping stations (and power station intakes) with respect to requirements for passage and screening facilities in relation to the eel regulations. A preliminary output was circulated to regions in September 2011.

There are a number of limitations to the national initiative that, it is hoped, the present study overcomes. These are:-

- The total site list for the national initiative was incomplete, with only (as far as it was possible to tell) 324 locations in Anglian Region; the number in our study is 447. The full list from this study has of course been forwarded for inclusion in the national initiative.

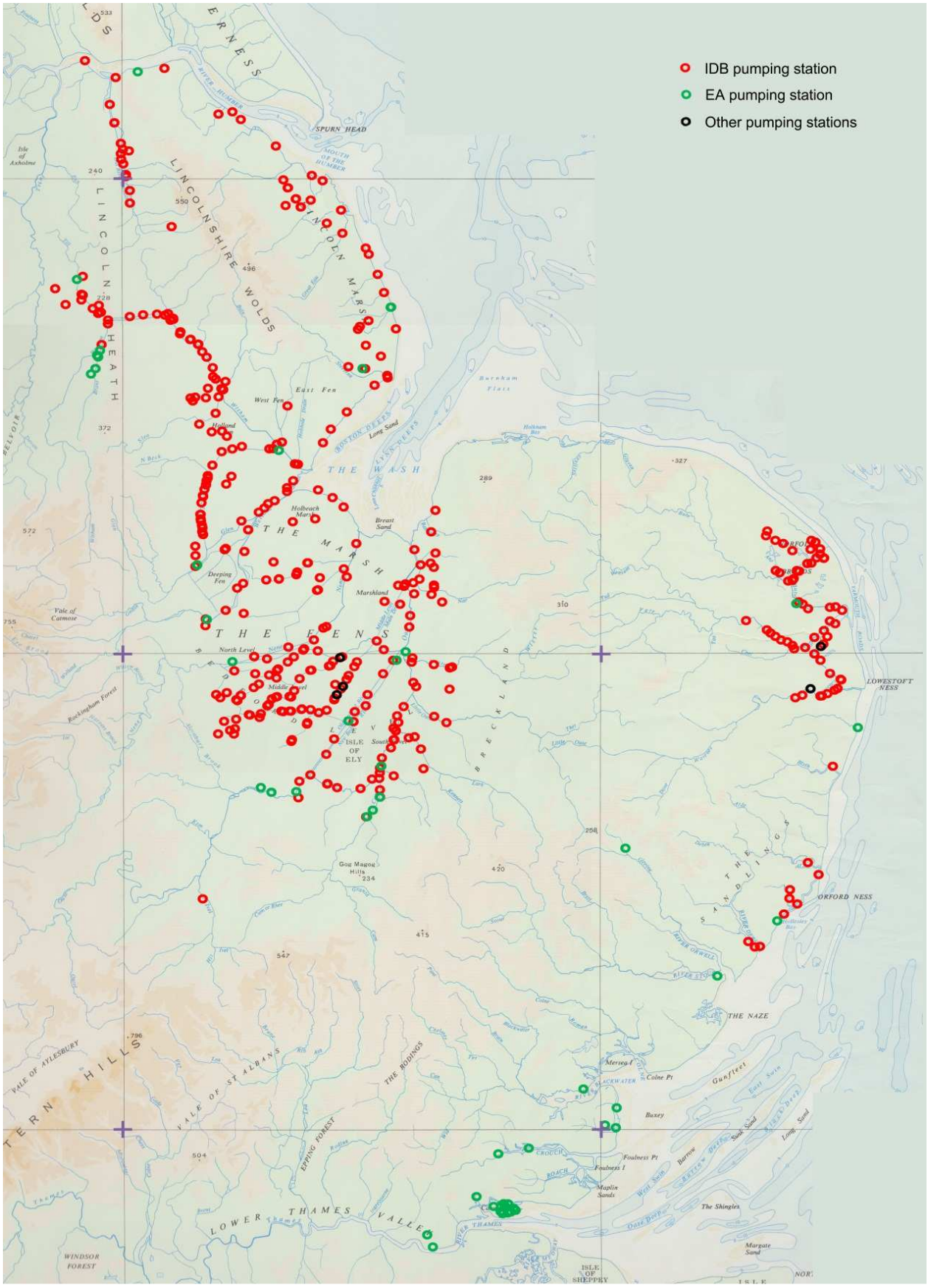

Figure 4.1. Location of all 447 land-drainage pumping stations in Anglian Region. Red = IDB stations (n=391); Green = EA stations (n=52); Black = stations operated by others (n=5).

- The national initiative used distance from tidal limit and suitability for eels as determined by Environment Agency Fish Classification Scheme (FSC2) model to determine priority. It did not include any assessment of the area covered. Thus the smallest pumped catchment (0.4 ha) is as likely to achieve a priority rating as the largest (70,000 ha).

- Although "suitability for eels" was apparently a criterion, several urban catchments (for example those on Canvey Island) were afforded priority.

- The national initiative results in sites being either "priority" or "not priority", with no further gradation. Our study affords six levels of priority, which allows those that will benefit most from attention to be targeted first.

It is therefore recommended that our approach is used to forward prioritisation within the Anglian Region.

4.3 Water Framework Directive

The WFD requires that all inland waters are in High or Good Ecological Status (or in the case of heavily modified water bodies, High or Good Ecological Potential) by the year 2015. To that end all water courses should have been assigned to a WFD waterbody, complete with a 12-digit numbers, and the fisheries status assessed alongside other ecological and WQ indicators. The fisheries status (2010) of the location of the 443 IDB and EA pumping stations on the EA database is shown in Table 4.1.

Table 4.1. Distribution of fisheries assessments for the 442 IDB and EA pumping station sites in the EA database.

WFD 2010 fisheries assessment	Number of sites
High	56
Good	99
Moderate	82
Poor	27
"No data"	134
Blank	45
Total	**442**

"No data" is as written in the EA database. Blank means just that – there is no information in the relevant cell. The significance of the difference between "no data" and blank is elusive.

As WFD funding is directed at bringing waterbodies with fisheries of moderate or lower status up to at least "good" status, it apparently cannot be used for protection of fisheries that are already of "good" or "high" status. A status of "moderate" or below is therefore required in one or more of the WFD waterbodies affected by the PS for the site to be put on any priority list with respect to WFD.

5 SETTING PRIORITIES FOR PUMPING STATIONS

5.1 Introduction

Clearly, pumping stations present problems for fisheries that are different to those presented by sluices and other flood risk management assets, and must be dealt-with separately. As already discussed, the issues with respect to eels are different from those for coarse fish, so again separate treatment is required.

5.2 Eels

5.2.1 General approach

This section deals with the issue of seaward passage of adult eels; landward passage of elvers is covered below in Section 5.3. The approach taken here to setting priorities for adult eels is a two-stage one; first, the importance of the pumping station catchment for eels is established, and second, local factors are then used to modify the importance index to derive priority.

5.2.2 Importance index

The importance index is derived from the product of a score for extent of available area landwards of the site, and a score for distance from tidal limit. This "importance index" is used as an input to deriving priority both for provision of safe routes of passage, and screening of pump intakes. The scoring systems used for the two inputs to the importance index are now described.

Extent of available habitat. As already discussed, we rarely have a direct measure of the extent of available habitat landwards of pumping station sites. Catchment area (CA) is the most realistic surrogate in this situation. There is a huge range; the catchment areas IDB pumping stations in the region range from 0.4 ha (Chapel Basin PS in the Lindsey Marsh DB area) to 70,000 ha (St Germans PS). Clearly, with respect to overall benefit to eel populations as a whole, larger catchments would be a higher priority weighting than smaller ones. The scoring system for catchment area is indicated in Table 5.1.

Table 5.1. Scoring system for catchment area. The numbers in brackets in red in the EA column represent the stations with unknown CA values allocated on the basis of pump capacity – see below.

		Number of pumping stations in region			
Catchment area ha	**Score**	**IDB**	**EA**	**Others**	**Total**
0-100	0	20	14	1	35
101-500	1	129	8	1	138
501-1000	2	105	12	1	118
1001-2000	3	60	2	0	62
2001-5000	4	63	6	0	73
5001-20,000	5	10	7	0	17
20,000+	6	2	1	0	3
Unknown	-	2	1	2	0
Totals		**391**	**51**	**5**	**447**

Distance from tidal water. Areas pumped directly into tidal water are scored more highly than those at some distance, on the basis that they are likely to be used to a greater extent by eels.

Table 5.2. Scoring system for distance from tidal limit (TL).

		Number of pumping stations in region			
Distance from TL (km)	**Score**	**IDB**	**EA**	**Others**	**Total**
Discharge to tidal water	5	105	24	2	131
Up to 20	4	131	16	0	147
20-50	3	140	6	3	149
More than 50	1	15	6	0	21
Totals		**391**	**51**	**5**	**447**

5.2.3 Use of local factors to derive a priority index

In the absence of any modifying local factors, the importance score is the priority score for both provision of bypass facilities, and for pump screening. The local factors, all of which reduce priority, are as follows:

Quality of available habitat. This can be difficult to quantify, but urban catchments are generally less productive than rural areas; at this stage, this aspect is limited to downgrading the priority for drainage areas known to be predominantly urban in nature, dividing the importance score by 4 to produce the priority score.

Type of pump. Some types of pump are more fish-friendly than others; for example Archimedes screw pumps and Hydrostal pumps. Again this factor is applied by dividing the importance score by 4 when one of these pump types is installed.

Presence of a viable bypass route. Many pumping stations have an alternative gravity drainage facility which is used when relative water levels allow. Presence of such a safe passage route removes the requirement for provision of any other safe route. However, unless the great majority of the flow is discharged by gravity, presence of a bypass does not remove the requirement for screening of the pump intakes to prevent passage.

With respect to requirement for an additional bypass route, ideally more than 50% discharge by gravity removes any requirement (i.e. reduces priority score to zero), and discharge of less than 50%, but more than a trivial part, by gravity leads to a halving of the priority score. However, as we do not have a reliable assessment of the volume or seasonality of gravity discharge for many stations with a bypass, for the time being the presence of any bypass reduces the priority score by a factor of four.

Presence of a bypass, unless it discharges the great majority of the flow (over 75%) does not remove the requirement for screening of the pump intakes. No “presence of

bypass" adjustment is therefore made to the score with respect to screening requirement.

In many cases, while there is a bypass route actually installed, it is little used by virtue of convention, infrequency of relative water levels that allow its deployment, or siltation of the channel or structure. Such a situation means that the importance score stands as the priority score for both bypass and screening purposes. However, such a provision may be worth exploring as an ameliorative measure.

Bypass status would also have a fundamental impact upon the recommended ameliorative action. If there is a safe alternative route available at times, a total deterrent to passing through the pump would be appropriate. If the only way out is via the pump, then encouraging passage via this route would be the only option if the eels were to contribute to the spawning stock, even if they experienced significant losses.

5.3 Elvers

The criteria for elver passage prioritisation are a little different. These are:-

Extent of available habitat. As above.

Quality of available habitat. As above.

Distance from tidal water. As above.

Status of emigration facilities for adult eels. Before passage facilities for elvers are installed, it is prudent to consider how the adult eels are going to get out. If the only available route is, and is likely to remain, through the pumps, then it may be better to discourage rather than encourage colonisation by elvers. With elver numbers in decline it may be better to encourage those that are available to colonise areas from which safe adult emigration is available or will be provided soon. This should take the form of a local over-ride; an example is discussed in Section 7.4.

5.4 Coarse fish

As discussed in Section 3.5, the situation is rather different for coarse fish compared to eels. Passage into salt water, far from being an absolute requirement for contributing to the spawning stock as it is for eels, represents a loss to the stock and is to be avoided wherever possible. On the other hand, where there are healthy stocks of coarse fish both upstream and downstream of the pumping station some exchange between the two is desirable in the long term, though not essential in the short term. Where the status of the populations on either side of the pumping station is poorer than on the other, there may be scope for one to contribute to the other if safe passage were possible.

Overall, however, it is suggested that passage through pumps is to be discouraged at all times at all stations; where allowing movements across this boundary is considered important this would be addressed by a local over-ride and would be site specific. Priority for screening against coarse fish passage is therefore based upon the

catchment area upstream of the station. This is modified in the same way as the eel screening requirement by reducing the score where the catchment is largely urban (and thus poor coarse fish habitat) or where a fish-friendly pump is installed. Funding of such screening under WFD provisions will also be dependent upon the fish population status in one or more of the waterbodies affected being below "good"; however, this is not considered a fundamental criterion. The priority list therefore contains a column giving the WFD classification for the waterbody from which the water is being pumped. The latter is complicated by the lack of fish classification which applies to 180 of the 442 IDB and EA pumping stations sites.

5.5 Local over-rides

The rather mechanistic process described above will produce a list of sites in each priority band. A most important next step is to have local EA and IDB staff consider each listing and review its validity. Factors that may be expected to modify priority banding include:-

Insufficient or inaccurate inputs for local factors. For many stations, information on the extent of bypass discharge, "fish-friendliness" of the pumps, and quality of the available habitat is lacking or unreliable at this initial screening stage of this process. Consideration of each apparently high-priority case by local knowledgeable staff is important in ensuring that the final list for action represents the best possible assessment.

Known fish-kill history. Although fish kills by pumps may go un-noticed, in some cases they are apparent and a known history of fish being killed would be rated as a higher priority. Equally, however, lack of evidence or information on fish kills should not in itself be used to downgrade priorities.

Known or expected abundance of eels. Some pumped catchments clearly have abundant eels, and would be rated as a priority. The national initiative uses "likelihood of eels by FCS2" as an input. It is uncertain how this operates. This issue would appear to be covered by the distance from tidal limit input, and the "urban catchment" over-ride. Otherwise all the catchments being considered here are at low altitude and are highly eutrophic, so are likely to be ideal eel habitat.

Three situations where local over-rides are clearly appropriate are described in Section 7.

6 RESULTS

6.1 Important note

The results presented must be considered preliminary. They are derived through a rather mechanistic approach that cannot take into account all local factors that might influence prioritisation. It is essential that this initial assessment is reviewed by local staff to consider any additional local factors that may be relevant; the most likely is a judgement that the catchment is largely urban and not very suitable for eel production, which would greatly reduce the priority. These local considerations are discussed further in Section 7.

6.2 Overview

As described in Section 5, each site is prioritised for action to provide bypass facilities for adult eels (eel bypass), exclusion/diversion facilities for adult eels (eel screen), passage facilities for elvers (elver pass), and exclusion/diversion facilities for coarse fish (coarse screen). The priority is categorised from A (highest priority) through to F (no action justified). The assessments for all 442 pumping stations are given in Appendix 1. The numbers of pumping stations falling into each priority band for each category of facility are shown in Table 6.1. Priority lists for each type of facility are discussed in Section 6.3 to 6.6.

Table 6.1. Priority band distribution for recommended facilities at all IDB and EA pumping stations.

	Number of pumping stations in category			
Priority Band	**Eel bypass**	**Eel screen**	**Elver pass**	**Coarse screen**
A	28	35	35	20
B	64	79	80	66
C	111	143	143	66
D	81	77	78	116
E	96	66	65	139
F	62	42	41	35
Totals	**442**	**442**	**442**	**442**

6.3 Priority sites for adult eel bypass facilities

The complete assessment of all pumping stations is presented in Appendix 1, giving details of each installation, and the factors that resulted in its particular priority assessment.

A list of the 96 stations that fall into priority Bands A and B with respect to bypass arrangements is shown in Table 6.3.

Table 6.2. List of pumping stations with an A or B priority band for provision of eel bypass facilities . All priority A stations are highlit. The priority band for these stations is also shown with respect to provision of other facilities.

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Eel bypass	Eel screen	Elver pass	Coarse screen
n	Black Sluice IDB	Wyberton Marsh	Haven	y	**B**	B	B	C
n	EA Northern	Croft Lane PS	Steeping River	n	**B**	B	B	C
n	EA Northern	Till FAS PS	River Till	n	**B**	B	B	C
n	Lindsey Marsh DB	Anderby standby	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Boygrift	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Grainthorpe	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Ingoldmells	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Saltfleet	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Burgh Sluice	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Gibraltar Point	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Porters Sluice	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Trusthorpe	Woldgrift	n	**B**	B	B	B
n	North Level IDB	Cross Guns	Tidal Nene	y	**A**	A	A	A
n	North Level IDB	Dog in a Doublet (1)	Tidal Nene	y	**A**	A	A	B
n	North Level IDB	Dog in a Doublet (2)	Tidal Nene	y	**A**	A	A	B
n	North Level IDB	Tydd	Tidal Nene	y	**A**	A	A	A
n	North Level IDB	Mouth Lane	Tidal Nene	y	**B**	B	B	C
n	North Level IDB	Newborough	River Welland	n	**B**	B	B	B
n	North Level IDB	Poplars	North Level Main	n	**B**	B	B	C
n	North Level IDB	Postland	River Welland	n	**B**	B	B	B
n	South Holland IDB	Fleet Haven	Tidal creek	y	**A**	A	A	B
n	South Holland IDB	Lawyers	Tidal creek	y	**A**	A	A	B
n	South Holland IDB	Little Holland	S Holland Main Dr	n	**A**	A	A	A
n	South Holland IDB	Dawsmere	Tidal creek	y	**B**	B	B	C
n	South Holland IDB	Fleet Fen	S Holland Main Dr	n	**B**	B	B	B
n	South Holland IDB	Peartree Hill	S Holland Main Dr	n	**B**	B	B	C
n	South Holland IDB	Wisemans	S Holland Main Dr	n	**B**	B	B	B
n	Upper Witham IDB	Boultham	Witham	n	**B**	B	B	B
n	Upper Witham IDB	Coulson Road	Witham	n	**B**	B	B	B
n	Well& & Deepings IDB	Adventurers	Vernatts drain	n	**A**	A	A	A
n	Well& & Deepings IDB	Deeping St Nicholas	Vernatts Drain	n	**A**	A	A	A
n	Well& & Deepings IDB	Bourne South Fen	River Glen	n	**B**	B	B	C
n	Well& & Deepings IDB	Fourth Ditrict	Vernatts Drain	n	**B**	B	B	C
n	Well& & Deepings IDB	Pinchbeck Marsh 1954	Blue Gowt Outfall	n	**B**	B	B	C
n	Well& & Deepings IDB	Riddington	Blue Gowt Outfall	n	**B**	B	B	C
n	Witham 1st District IDB	Blankney	River Witham	n	**B**	B	B	B
n	Witham 1st District IDB	Chapel Hill	Kyme Eau	n	**B**	B	B	C
n	Witham 1st District IDB	Farroway	Billinghay Skirth	n	**B**	B	B	B
n	Witham 1st District IDB	Timberland	River Witham	n	**B**	B	B	B
n	Witham 3rd District IDB	Duckpool	Duckpool Catchwater	n	**B**	B	B	B
n	Witham 3rd District IDB	Southrey	River Witham	n	**B**	B	B	B
n	Witham 4th District IDB	Lade Bank	Lower Hobhole Drain	n	**A**	A	A	A
n	Witham 4th District IDB	Wrangle	The Wash	y	**A**	A	A	B
c	Burnt Fen IDB	Whitehall	Ten Mile River	n	**A**	A	A	A
c	Burnt Fen IDB	Lark	River Lark	n	**B**	B	B	B
c	Downham & Stow Bardolph IDD	Stow Fen	Tidal Ouse	y	**A**	A	A	B
c	EA Central	Welches Dam PS	Ouse/Hundred Foot	n	**A**	A	A	A

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Eel bypass	Eel screen	Elver pass	Coarse screen
c	EA Central	Welmore Lake PS	New Bedford River	y	**A**	A	A	B
c	East of Ouse, Polver & Nar IDD	Puny	Relief Channel	n	**B**	B	B	B
c	Haddenham Level DCA	Haddenham	River Great Ouse	n	**B**	B	B	B
c	Haddenham Level DCA	Sutton Gault	Hundred Foot River	y	**B**	B	B	C
c	Holmewood & District IDB	Whittlesey Mere	Bevills Leam (BL)	n	**B**	B	B	B
c	King's Lynn IDB	Eau Brink	Tidal Gt Ouse	y	**A**	A	A	B
c	King's Lynn IDB	Islington	Straight Mile	n	**A**	A	A	A
c	King's Lynn IDB	Pierrepoint	Tidal Nar	y	**A**	A	A	B
c	King's Lynn IDB	Wolferton	The Wash	y	**A**	A	A	B
c	King's Lynn IDB	Crabbs Abbey	Tidal Gt Ouse	y	**B**	B	B	C
c	King's Lynn IDB	Green Bank	Mill Basin	n	**B**	B	B	B
c	King's Lynn IDB	Kings Reach	Middleton Stop Drain	n	**B**	B	B	C
c	Littleport & Downham IDB	Hundred Foot	Hundred Foot River	y	**A**	A	A	B
c	Littleport & Downham IDB	Oxlode	Hundred Foot River	y	**A**	A	A	B
c	Littleport & Downham IDB	Ten Mile	Ten Mile River	n	**B**	B	B	B
c	Manea & Welney DCA	Glenhouse	Old Bedford	n	**B**	B	B	B
c	Middle Fen & Mere IDB	New Mill	River Lark	n	**B**	B	B	B
c	Middle Fen & Mere IDB	Overfall	River Great Ouse	n	**B**	B	B	B
c	Middle Fen & Mere IDB	Prickwillow	River Great Ouse	n	**B**	B	B	B
c	Middle Level Comm.	St Germans	Tidal Gt Ouse	y	**A**	A	A	A
c	Middle Level Comm.	Bevills Leam	Bevills Leam	n	**B**	B	B	A
c	Mildenhall IDD	Alder Fen	River Lark	n	**B**	B	B	B
c	Old West DD	Chear Fen	Old West River	n	**B**	B	B	B
c	Old West DD	Queenholme	Old West River	n	**B**	B	B	B
c	Old West DD	Smithy Fen	Old West River	n	**B**	B	B	B
c	Over & Willingham IDD	Over	Hundred Foot River	y	**B**	B	B	C
c	Southery & District IDD	Catsholme	River Wissey	n	**B**	B	B	B
c	Southery & District IDD	Hockwold	River Little Ouse	n	**B**	B	B	B
c	Southery & District IDD	Southery	Ely Ouse	n	**B**	B	B	B
c	Stoke Ferry IDD	Wretton Fen	River Wissey	n	**B**	B	B	C
c	Sutton & Mepal IDD	Mepal	Old Bedford	n	**B**	B	B	B
c	Swaffham IDD	Upware	River Cam	n	**B**	B	B	A
c	Upwell IDD	Cock Fen	Old Bedford	n	**B**	B	B	C
c	Waldersey IDB	South Brink	Tidal Nene	y	**B**	B	B	C
c	Waterbeach Level IDB	Cam	River Cam	n	**B**	B	B	B
e	EA Eastern	Benacre PS	North Sea	y	**A**	A	A	A
e	EA Eastern	Marsh House PS	North Sea	y	**B**	B	B	C
e	The Broads IDB	Berney Arms	Tidal Yare	y	**B**	B	B	C
e	The Broads IDB	Breydon	Breydon Water	y	**B**	B	B	C
e	The Broads IDB	Brograve	Waxham New Cut	n	**B**	B	B	C
e	The Broads IDB	Mautby	Tidal Bure	y	**B**	B	B	C
e	The Broads IDB	Tunstall	Tidal Bure	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Haddiscoe	Tidal Waveney	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Langley Double	Tidal Yare	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Raveningham	Tidal Yare	y	**B**	B	B	C

6.4 Priority sites for adult eel diversion and exclusion facilities

A list of all pumping stations falling into the highest priority bands (A and B) with respect to screening facilities is presented in Table 6.3. This contains all stations that are in Table 6.3 (A and B priority band stations for bypass facilities) plus those that dropped out of that table by virtue of existing bypass facilities.

Table 6.3. List of pumping stations with an A or B priority band for provision of eel screening facilities. All priority A stations are highlit. The prioririty band for these stations is also shown with respect to provision of other facilities.

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Eel screen	Eel bypass	Elver pass	Coarse screen
n	Ancholme IDB	Worlaby	River Ancholme	n	**B**	E	B	B
n	Black Sluice IDB	Wyberton Marsh	Haven	y	**B**	B	B	C
n	Black Sluice IDB	Chain Bridge	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Cooks Lock	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Donnington North Ings	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Great Hale	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Holland Fen	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Swineshead	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Black Hole Drove	S Forty Foot Drain	n	**B**	E	B	B
n	Black Sluice IDB	Gosberton	S Forty Foot Drain	n	**B**	E	B	B
n	Black Sluice IDB	South Kyme	Head Dyke	n	**B**	E	B	C
n	EA Northern	Black Sluice PS	The Haven	y	**A**	C	A	A
n	EA Northern	Chapel New PS	Willoughby High Drain	n	**A**	D	A	A
n	EA Northern	Croft Lane PS	Steeping River	n	**B**	B	B	C
n	EA Northern	Till FAS PS	River Till	n	**B**	B	B	C
n	EA Northern	Bourne Eau PS	River Glen	n	**B**	D	B	B
n	Lindsey Marsh DB	Anderby standby	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Boygrift	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Grainthorpe	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Ingoldmells	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Saltfleet	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Anderby	Sea	y	**A**	D	A	B
n	Lindsey Marsh DB	Burgh Sluice	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Gibraltar Point	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Porters Sluice	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Trusthorpe	Woldgrift	n	**B**	B	B	B
n	Lindsey Marsh DB	Theddlethorpe	Great Eau	n	**B**	D	B	B
n	Lindsey Marsh DB	Thorpe Culvert	River Steeping	n	**B**	D	B	B
n	North Level IDB	Cross Guns	Tidal Nene	y	**A**	A	A	A
n	North Level IDB	Dog in a Doublet (1)	Tidal Nene	y	**A**	A	A	B
n	North Level IDB	Dog in a Doublet (2)	Tidal Nene	y	**A**	A	A	B
n	North Level IDB	Tydd	Tidal Nene	y	**A**	A	A	A
n	North Level IDB	Mouth Lane	Tidal Nene	y	**B**	B	B	C
n	North Level IDB	Newborough	River Welland	n	**B**	B	B	B
n	North Level IDB	Poplars	North Level Main	n	**B**	B	B	C
n	North Level IDB	Postland	River Welland	n	**B**	B	B	B
n	South Holland IDB	Fleet Haven	Tidal creek	y	**A**	A	A	B
n	South Holland IDB	Lawyers	Tidal creek	y	**A**	A	A	B
n	South Holland IDB	Little Holland	S Holland Main Dr	n	**A**	A	A	A

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Eel screen	Eel bypass	Elver pass	Coarse screen
n	South Holland IDB	Lords drain	Tidal Welland	y	**A**	D	A	B
n	South Holland IDB	Dawsmere	Tidal creek	y	**B**	B	B	C
n	South Holland IDB	Fleet Fen	S Holland Main Dr	n	**B**	B	B	B
n	South Holland IDB	Peartree Hill	S Holland Main Dr	n	**B**	B	B	C
n	South Holland IDB	Wisemans	S Holland Main Dr	n	**B**	B	B	B
n	Upper Witham IDB	Boultham	Witham	n	**B**	B	B	B
n	Upper Witham IDB	Coulson Road	Witham	n	**B**	B	B	B
n	Well& & Deepings IDB	Adventurers	Vernatts drain	n	**A**	A	A	A
n	Well& & Deepings IDB	Deeping St Nicholas	Vernatts Drain	n	**A**	A	A	A
n	Well& & Deepings IDB	Five Towns	Tidal Welland	y	**A**	D	A	B
n	Well& & Deepings IDB	Risegate Eau	Tidal Welland	y	**A**	D	A	B
n	Well& & Deepings IDB	Bourne South Fen	River Glen	n	**B**	B	B	C
n	Well& & Deepings IDB	Fourth Ditrict	Vernatts Drain	n	**B**	B	B	C
n	Well& & Deepings IDB	Pinchbeck Marsh 1954	Blue Gowt Outfall	n	**B**	B	B	C
n	Well& & Deepings IDB	Riddington	Blue Gowt Outfall	n	**B**	B	B	C
n	Witham 1st District IDB	Blankney	River Witham	n	**B**	B	B	B
n	Witham 1st District IDB	Chapel Hill	Kyme Eau	n	**B**	B	B	C
n	Witham 1st District IDB	Farroway	Billinghay Skirth	n	**B**	B	B	B
n	Witham 1st District IDB	Timberland	River Witham	n	**B**	B	B	B
n	Witham 3rd District IDB	Duckpool	Duckpool Catchwater	n	**B**	B	B	B
n	Witham 3rd District IDB	Southrey	River Witham	n	**B**	B	B	B
n	Witham 3rd District IDB	Stixwold	Duckpool Catchwater	n	**B**	E	B	B
n	Witham 4th District IDB	Lade Bank	Lower Hobhole Drain	n	**A**	A	A	A
n	Witham 4th District IDB	Wrangle	The Wash	y	**A**	A	A	B
n	Witham 4th District IDB	Hobhole	The Haven	y	**A**	C	A	A
c	Burnt Fen IDB	Whitehall	Ten Mile River	n	**A**	A	A	A
c	Burnt Fen IDB	Lark	River Lark	n	**B**	B	B	B
c	Downham & Stow Bardolph IDD	Stow Fen	Tidal Ouse	y	**A**	A	A	B
c	EA Central	Welches Dam PS	Ouse/Hundred Foot	n	**A**	A	A	A
c	EA Central	Welmore Lake PS	New Bedford River	y	**A**	A	A	B
c	East of Ouse, Polver & Nar IDD	Puny	Relief Channel	n	**B**	B	B	B
c	East of Ouse, Polver & Nar IDD	Polver	Relief Channel	n	**B**	E	B	C
c	Haddenham Level DCA	Haddenham	River Great Ouse	n	**B**	B	B	B
c	Haddenham Level DCA	Sutton Gault	Hundred Foot River	y	**B**	B	B	C
c	Holmewood & District IDB	Whittlesey Mere	Bevills Leam (BL)	n	**B**	B	B	B
c	King's Lynn IDB	Eau Brink	Tidal Gt Ouse	y	**A**	A	A	B
c	King's Lynn IDB	Islington	Straight Mile	n	**A**	A	A	A
c	King's Lynn IDB	Pierrepoint	Tidal Nar	y	**A**	A	A	B
c	King's Lynn IDB	Wolferton	The Wash	y	**A**	A	A	B
c	King's Lynn IDB	Crabbs Abbey	Tidal Gt Ouse	y	**B**	B	B	C
c	King's Lynn IDB	Green Bank	Mill Basin	n	**B**	B	B	B
c	King's Lynn IDB	Kings Reach	Middleton Stop Drain	n	**B**	B	B	C
c	Littleport & Downham IDB	Hundred Foot	Hundred Foot River	y	**A**	A	A	B
c	Littleport & Downham IDB	Oxlode	Hundred Foot River	y	**A**	A	A	B
c	Littleport & Downham IDB	Ten Mile	Ten Mile River	n	**B**	B	B	B
c	Manea & Welney DCA	Glenhouse	Old Bedford	n	**B**	B	B	B
c	Middle Fen & Mere IDB	New Mill	River Lark	n	**B**	B	B	B
c	Middle Fen & Mere IDB	Overfall	River Great Ouse	n	**B**	B	B	B
c	Middle Fen & Mere IDB	Prickwillow	River Great Ouse	n	**B**	B	B	B
c	Middle Level Comm.	St Germans	Tidal Gt Ouse	y	**A**	A	A	A
c	Middle Level Comm.	Bevills Leam	Bevills Leam	n	**B**	B	B	A

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Eel screen	Eel bypass	Elver pass	Coarse screen
c	Mildenhall IDD	Alder Fen	River Lark	n	**B**	B	B	B
c	Old West DD	Chear Fen	Old West River	n	**B**	B	B	B
c	Old West DD	Queenholme	Old West River	n	**B**	B	B	B
c	Old West DD	Smithy Fen	Old West River	n	**B**	B	B	B
c	Over & Willingham IDD	Over	Hundred Foot River	y	**B**	B	B	C
c	Southery & District IDD	Catsholme	River Wissey	n	**B**	B	B	B
c	Southery & District IDD	Hockwold	River Little Ouse	n	**B**	B	B	B
c	Southery & District IDD	Southery	Ely Ouse	n	**B**	B	B	B
c	Stoke Ferry IDD	Wretton Fen	River Wissey	n	**B**	B	B	C
c	Sutton & Mepal IDD	Mepal	Old Bedford	n	**B**	B	B	B
c	Swaffham IDD	Upware	River Cam	n	**B**	B	B	A
c	Upwell IDD	Cock Fen	Old Bedford	n	**B**	B	B	C
c	Waldersey IDB	South Brink	Tidal Nene	y	**B**	B	B	C
c	Waterbeach Level IDB	Cam	River Cam	n	**B**	B	B	B
e	EA Eastern	Benacre PS	North Sea	y	**A**	A	A	A
e	EA Eastern	Marsh House PS	North Sea	y	**B**	B	B	C
e	The Broads IDB	Berney Arms	Tidal Yare	y	**B**	B	B	C
e	The Broads IDB	Breydon	Breydon Water	y	**B**	B	B	C
e	The Broads IDB	Brograve	Waxham New Cut	n	**B**	B	B	C
e	The Broads IDB	Mautby	Tidal Bure	y	**B**	B	B	C
e	The Broads IDB	Tunstall	Tidal Bure	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Haddiscoe	Tidal Waveney	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Langley Double	Tidal Yare	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Raveningham	Tidal Yare	y	**B**	B	B	C

6.5 Priority sites for elver passage facilities

A list of all pumping stations falling into the highest priority bands (A and B) with respect to elver passage facilities is presented in Table 6.4. The list is similar to the previous two, but contains some additional sites that "dropped out" of the others by virtue of presence of bypasses or fish-friendly pump installations.

Table 6.4. List of pumping stations with an A or B priority band for provision of elver passage facilities. All priority A stations are highlit. The prioririty band for these stations is also shown with respect to provision of other facilities.

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Elver pass	Eel bypass	Eel screen	Coarse screen
n	Ancholme IDB	Worlaby	River Ancholme	n	**B**	E	B	B
n	Black Sluice IDB	Wyberton Marsh	Haven	y	**B**	B	B	C
n	Black Sluice IDB	Chain Bridge	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Cooks Lock	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Donnington North Ings	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Great Hale	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Holland Fen	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Swineshead	S Forty Foot Drain	n	**B**	D	B	B
n	Black Sluice IDB	Black Hole Drove	S Forty Foot Drain	n	**B**	E	B	B

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Elver pass	Eel bypass	Eel screen	Coarse screen
n	Black Sluice IDB	Gosberton	S Forty Foot Drain	n	**B**	E	B	B
n	Black Sluice IDB	South Kyme	Head Dyke	n	**B**	E	B	C
n	EA Northern	Black Sluice PS	The Haven	y	**A**	C	A	A
n	EA Northern	Chapel New PS	Willoughby High Drain	n	**A**	D	A	A
n	EA Northern	Croft Lane PS	Steeping River	n	**B**	B	B	C
n	EA Northern	Till FAS PS	River Till	n	**B**	B	B	C
n	EA Northern	Bourne Eau PS	River Glen	n	**B**	D	B	B
n	Lindsey Marsh DB	Anderby standby	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Boygrift	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Grainthorpe	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Ingoldmells	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Saltfleet	Sea	y	**A**	A	A	B
n	Lindsey Marsh DB	Anderby	Sea	y	**A**	D	A	B
n	Lindsey Marsh DB	Burgh Sluice	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Gibraltar Point	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Porters Sluice	Sea	y	**B**	B	B	C
n	Lindsey Marsh DB	Trusthorpe	Woldgrift	n	**B**	B	B	B
n	Lindsey Marsh DB	Gotts	Burgh Sluice PS & Sea	y	**B**	D	D	E
n	Lindsey Marsh DB	Theddlethorpe	Great Eau	n	**B**	D	B	B
n	Lindsey Marsh DB	Thorpe Culvert	River Steeping	n	**B**	D	B	B
n	North Level IDB	Cross Guns	Tidal Nene	y	**A**	A	A	A
n	North Level IDB	Dog in a Doublet (1)	Tidal Nene	y	**A**	A	A	B
n	North Level IDB	Dog in a Doublet (2)	Tidal Nene	y	**A**	A	A	B
n	North Level IDB	Tydd	Tidal Nene	y	**A**	A	A	A
n	North Level IDB	Mouth Lane	Tidal Nene	y	**B**	B	B	C
n	North Level IDB	Newborough	River Welland	n	**B**	B	B	B
n	North Level IDB	Poplars	North Level Main	n	**B**	B	B	C
n	North Level IDB	Postland	River Welland	n	**B**	B	B	B
n	South Holland IDB	Fleet Haven	Tidal creek	y	**A**	A	A	B
n	South Holland IDB	Lawyers	Tidal creek	y	**A**	A	A	B
n	South Holland IDB	Little Holland	S Holland Main Dr	n	**A**	A	A	A
n	South Holland IDB	Lords drain	Tidal Welland	y	**A**	D	A	B
n	South Holland IDB	Dawsmere	Tidal creek	y	**B**	B	B	C
n	South Holland IDB	Fleet Fen	S Holland Main Dr	n	**B**	B	B	B
n	South Holland IDB	Peartree Hill	S Holland Main Dr	n	**B**	B	B	C
n	South Holland IDB	Wisemans	S Holland Main Dr	n	**B**	B	B	B
n	Upper Witham IDB	Boultham	Witham	n	**B**	B	B	B
n	Upper Witham IDB	Coulson Road	Witham	n	**B**	B	B	B
n	Well& & Deepings IDB	Adventurers	Vernatts drain	n	**A**	A	A	A
n	Well& & Deepings IDB	Deeping St Nicholas	Vernatts Drain	n	**A**	A	A	A
n	Well& & Deepings IDB	Five Towns	Tidal Welland	y	**A**	D	A	B
n	Well& & Deepings IDB	Risegate Eau	Tidal Welland	y	**A**	D	A	B
n	Well& & Deepings IDB	Bourne South Fen	River Glen	n	**B**	B	B	C
n	Well& & Deepings IDB	Fourth Ditrict	Vernatts Drain	n	**B**	B	B	C
n	Well& & Deepings IDB	Pinchbeck Marsh 1954	Blue Gowt Outfall	n	**B**	B	B	C
n	Well& & Deepings IDB	Riddington	Blue Gowt Outfall	n	**B**	B	B	C
n	Witham 1st District IDB	Blankney	River Witham	n	**B**	B	B	B
n	Witham 1st District IDB	Chapel Hill	Kyme Eau	n	**B**	B	B	C
n	Witham 1st District IDB	Farroway	Billinghay Skirth	n	**B**	B	B	B
n	Witham 1st District IDB	Timberland	River Witham	n	**B**	B	B	B
n	Witham 3rd District IDB	Duckpool	Duckpool Catchwater	n	**B**	B	B	B

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Elver pass	Eel bypass	Eel screen	Coarse screen
n	Witham 3rd District IDB	Southrey	River Witham	n	**B**	B	B	B
n	Witham 3rd District IDB	Stixwold	Duckpool Catchwater	n	**B**	E	B	B
n	Witham 4th District IDB	Lade Bank	Lower Hobhole Drain	n	**A**	A	A	A
n	Witham 4th District IDB	Wrangle	The Wash	y	**A**	A	A	B
n	Witham 4th District IDB	Hobhole	The Haven	y	**A**	C	A	A
c	Burnt Fen IDB	Whitehall	Ten Mile River	n	**A**	A	A	A
c	Burnt Fen IDB	Lark	River Lark	n	**B**	B	B	B
c	Downham & Stow Bardolph IDD	Stow Fen	Tidal Ouse	y	**A**	A	A	B
c	EA Central	Welches Dam PS	Ouse/Hundred Foot	n	**A**	A	A	A
c	EA Central	Welmore Lake PS	New Bedford River	y	**A**	A	A	B
c	East of Ouse, Polver & Nar IDD	Puny	Relief Channel	n	**B**	B	B	B
c	East of Ouse, Polver & Nar IDD	Polver	Relief Channel	n	**B**	E	B	C
c	Haddenham Level DCA	Haddenham	River Great Ouse	n	**B**	B	B	B
c	Haddenham Level DCA	Sutton Gault	Hundred Foot River	y	**B**	B	B	C
c	Holmewood & District IDB	Whittlesey Mere	Bevills Leam (BL)	n	**B**	B	B	B
c	King's Lynn IDB	Eau Brink	Tidal Gt Ouse	y	**A**	A	A	B
c	King's Lynn IDB	Islington	Straight Mile	n	**A**	A	A	A
c	King's Lynn IDB	Pierrepoint	Tidal Nar	y	**A**	A	A	B
c	King's Lynn IDB	Wolferton	The Wash	y	**A**	A	A	B
c	King's Lynn IDB	Crabbs Abbey	Tidal Gt Ouse	y	**B**	B	B	C
c	King's Lynn IDB	Green Bank	Mill Basin	n	**B**	B	B	B
c	King's Lynn IDB	Kings Reach	Middleton Stop Drain	n	**B**	B	B	C
c	Littleport & Downham IDB	Hundred Foot	Hundred Foot River	y	**A**	A	A	B
c	Littleport & Downham IDB	Oxlode	Hundred Foot River	y	**A**	A	A	B
c	Littleport & Downham IDB	Ten Mile	Ten Mile River	n	**B**	B	B	B
c	Manea & Welney DCA	Glenhouse	Old Bedford	n	**B**	B	B	B
c	Middle Fen & Mere IDB	New Mill	River Lark	n	**B**	B	B	B
c	Middle Fen & Mere IDB	Overfall	River Great Ouse	n	**B**	B	B	B
c	Middle Fen & Mere IDB	Prickwillow	River Great Ouse	n	**B**	B	B	B
c	Middle Level Comm.	St Germans	Tidal Gt Ouse	y	**A**	A	A	A
c	Middle Level Comm.	Bevills Leam	Bevills Leam	n	**B**	B	B	A
c	Mildenhall IDD	Alder Fen	River Lark	n	**B**	B	B	B
c	Old West DD	Chear Fen	Old West River	n	**B**	B	B	B
c	Old West DD	Queenholme	Old West River	n	**B**	B	B	B
c	Old West DD	Smithy Fen	Old West River	n	**B**	B	B	B
c	Over & Willingham IDD	Over	Hundred Foot River	y	**B**	B	B	C
c	Southery & District IDD	Catsholme	River Wissey	n	**B**	B	B	B
c	Southery & District IDD	Hockwold	River Little Ouse	n	**B**	B	B	B
c	Southery & District IDD	Southery	Ely Ouse	n	**B**	B	B	B
c	Stoke Ferry IDD	Wretton Fen	River Wissey	n	**B**	B	B	C
c	Sutton & Mepal IDD	Mepal	Old Bedford	n	**B**	B	B	B
c	Swaffham IDD	Upware	River Cam	n	**B**	B	B	A
c	Upwell IDD	Cock Fen	Old Bedford	n	**B**	B	B	C
c	Waldersey IDB	South Brink	Tidal Nene	y	**B**	B	B	C
c	Waterbeach Level IDB	Cam	River Cam	n	**B**	B	B	B
e	EA Eastern	Benacre PS	North Sea	y	**A**	A	A	A
e	EA Eastern	Marsh House PS	North Sea	y	**B**	B	B	C
e	The Broads IDB	Berney Arms	Tidal Yare	y	**B**	B	B	C
e	The Broads IDB	Breydon	Breydon Water	y	**B**	B	B	C
e	The Broads IDB	Brograve	Waxham New Cut	n	**B**	B	B	C
e	The Broads IDB	Mautby	Tidal Bure	y	**B**	B	B	C

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	Priority Band			
					Elver pass	Eel bypass	Eel screen	Coarse screen
e	The Broads IDB	Tunstall	Tidal Bure	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Haddiscoe	Tidal Waveney	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Langley Double	Tidal Yare	y	**B**	B	B	C
e	Waveney, L. Yare & Lothingland	Raveningham	Tidal Yare	y	**B**	B	B	C

6.6 Priority sites for coarse fish diversion and exclusion facilities

A list of all pumping stations falling into the highest priority bands (A and B) with respect to screening facilities for coarse fish is presented in Table 6.5. The WFD status (2010) for the waterbody from which the water is being pumped is also shown, though this is not taken into account in allocating the priority band.

Table 6.5. List of pumping stations with an A or B priority band for provision of coarse screening facilities. All priority A stations are highlit. The priority band for these stations is also shown with respect to provision of eel bypass facilities and eel screening facilities.

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	WFD Fisheries Status	Priority Band			
						Coarse screen	Eel bypass	Eel screen	Elver pass
n	Ancholme IDB	Worlaby	River Ancholme	n	Moderate	**B**	E	B	B
n	Black Sluice IDB	Chain Bridge	S Forty Foot Drain	n	No Data	**B**	D	B	B
n	Black Sluice IDB	Cooks Lock	S Forty Foot Drain	n	No Data	**B**	D	B	B
n	Black Sluice IDB	Donnington North Ings	S Forty Foot Drain	n	Good	**B**	D	B	B
n	Black Sluice IDB	Great Hale	S Forty Foot Drain	n	Good	**B**	D	B	B
n	Black Sluice IDB	Holland Fen	S Forty Foot Drain	n	No Data	**B**	D	B	B
n	Black Sluice IDB	Swineshead	S Forty Foot Drain	n	Poor	**B**	D	B	B
n	Black Sluice IDB	Black Hole Drove	S Forty Foot Drain	n	No Data	**B**	E	B	B
n	Black Sluice IDB	Gosberton	S Forty Foot Drain	n	Good	**B**	E	B	B
n	EA Northern	Black Sluice PS	The Haven	y	Good	**A**	C	A	A
n	EA Northern	Chapel New PS	Willoughby High Drain	n	No Data	**A**	D	A	A
n	EA Northern	Peakirk PS	River Welland	n	#N/A	**A**	E	C	C
n	EA Northern	Bourne Eau PS	River Glen	n	Moderate	**B**	D	B	B
n	Lindsey Marsh DB	Anderby standby	Sea	y	No Data	**B**	A	A	A
n	Lindsey Marsh DB	Boygrift	Sea	y	No Data	**B**	A	A	A
n	Lindsey Marsh DB	Grainthorpe	Sea	y	Moderate	**B**	A	A	A
n	Lindsey Marsh DB	Ingoldmells	Sea	y	No Data	**B**	A	A	A
n	Lindsey Marsh DB	Saltfleet	Sea	y	No Data	**B**	A	A	A
n	Lindsey Marsh DB	Trusthorpe	Woldgrift	n	Poor	**B**	B	B	B
n	Lindsey Marsh DB	Anderby	Sea	y	No Data	**B**	D	A	A
n	Lindsey Marsh DB	Theddlethorpe	Great Eau	n	Poor	**B**	D	B	B
n	Lindsey Marsh DB	Thorpe Culvert	River Steeping	n	Good	**B**	D	B	B
n	North Level IDB	Cross Guns	Tidal Nene	y	Good	**A**	A	A	A
n	North Level IDB	Tydd	Tidal Nene	y	High	**A**	A	A	A
n	North Level IDB	Dog in a Doublet (1)	Tidal Nene	y	Good	**B**	A	A	A
n	North Level IDB	Dog in a Doublet (2)	Tidal Nene	y	Good	**B**	A	A	A
n	North Level IDB	Newborough	River Welland	n	Moderate	**B**	B	B	B
n	North Level IDB	Postland	River Welland	n	High	**B**	B	B	B
n	South Holland IDB	Little Holland	S Holland Main Dr	n	Moderate	**A**	A	A	A

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	WFD Fisheries Status	Priority Band			
						Coarse screen	Eel bypass	Eel screen	Elver pass
n	South Holland IDB	Fleet Haven	Tidal creek	y	No Data	**B**	A	A	A
n	South Holland IDB	Lawyers	Tidal creek	y	No Data	**B**	A	A	A
n	South Holland IDB	Fleet Fen	S Holland Main Dr	n	Moderate	**B**	B	B	B
n	South Holland IDB	Wisemans	S Holland Main Dr	n	Moderate	**B**	B	B	B
n	South Holland IDB	Lords drain	Tidal Welland	y	No Data	**B**	D	A	A
n	Upper Witham IDB	Boultham	Witham	n	Moderate	**B**	B	B	B
n	Upper Witham IDB	Coulson Road	Witham	n	Good	**B**	B	B	B
n	Well& & Deepings IDB	Adventurers	Vernatts drain	n	No Data	**A**	A	A	A
n	Well& & Deepings IDB	Deeping St Nicholas	Vernatts Drain	n	Moderate	**A**	A	A	A
n	Well& & Deepings IDB	Five Towns	Tidal Welland	y	No Data	**B**	D	A	A
n	Well& & Deepings IDB	Risegate Eau	Tidal Welland	y	No Data	**B**	D	A	A
n	Witham 1st District IDB	Blankney	River Witham	n	No Data	**B**	B	B	B
n	Witham 1st District IDB	Farroway	Billinghay Skirth	n	No Data	**B**	B	B	B
n	Witham 1st District IDB	Timberland	River Witham	n	No Data	**B**	B	B	B
n	Witham 3rd District IDB	Duckpool	Duckpool Catchwater	n	No Data	**B**	B	B	B
n	Witham 3rd District IDB	Southrey	River Witham	n	Moderate	**B**	B	B	B
n	Witham 3rd District IDB	Stixwold	Duckpool Catchwater	n	Moderate	**B**	E	B	B
n	Witham 4th District IDB	Lade Bank	Lower Hobhole Drain	n	No Data	**A**	A	A	A
n	Witham 4th District IDB	Hobhole	The Haven	y	No Data	**A**	C	A	A
n	Witham 4th District IDB	Wrangle	The Wash	y	No Data	**B**	A	A	A
c	Burnt Fen IDB	Whitehall	Ten Mile River	n	Good	**A**	A	A	A
c	Burnt Fen IDB	Lark	River Lark	n	Good	**B**	B	B	B
c	Downham & Stow Bardolph IDD	Stow Fen	Tidal Ouse	y	Blank	**B**	A	A	A
c	EA Central	Welches Dam PS	Ouse/Hundred Foot	n	Good	**A**	A	A	A
c	EA Central	Bottisham PS	River Cam	n	No Data	**A**	E	C	C
c	EA Central	Soham Lode PS	River Great Ouse	n	Good	**A**	E	C	C
c	EA Central	Upware PS (Reach Lode)	River Cam	n	No Data	**A**	E	C	C
c	EA Central	Welmore Lake PS	New Bedford River	y	Good	**B**	A	A	A
c	EA Central	Swaffham PS	River Cam	n	No Data	**B**	C	C	C
c	East of Ouse, Polver & Nar IDD	Puny	Relief Channel	n	Good	**B**	B	B	B
c	Haddenham Level DCA	Haddenham	River Great Ouse	n	High	**B**	B	B	B
c	Holmewood & District IDB	Whittlesey Mere	Bevills Leam (BL)	n	High	**B**	B	B	B
c	King's Lynn IDB	Islington	Straight Mile	n	No Data	**A**	A	A	A
c	King's Lynn IDB	Eau Brink	Tidal Gt Ouse	y	No Data	**B**	A	A	A
c	King's Lynn IDB	Pierrepoint	Tidal Nar	y	Good	**B**	A	A	A
c	King's Lynn IDB	Wolferton	The Wash	y	Poor	**B**	A	A	A
c	King's Lynn IDB	Green Bank	Mill Basin	n	No Data	**B**	B	B	B
c	Littleport & Downham IDB	Hundred Foot	Hundred Foot River	y	Good	**B**	A	A	A
c	Littleport & Downham IDB	Oxlode	Hundred Foot River	y	Good	**B**	A	A	A
c	Littleport & Downham IDB	Ten Mile	Ten Mile River	n	Good	**B**	B	B	B
c	Manea & Welney DCA	Glenhouse	Old Bedford	n	Good	**B**	B	B	B
c	Middle Fen & Mere IDB	New Mill	River Lark	n	Good	**B**	B	B	B
c	Middle Fen & Mere IDB	Overfall	River Great Ouse	n	Good	**B**	B	B	B
c	Middle Fen & Mere IDB	Prickwillow	River Great Ouse	n	Good	**B**	B	B	B
c	Middle Level Comm.	St Germans	Tidal Gt Ouse	y	No Data	**A**	A	A	A
c	Middle Level Comm.	Bevills Leam	Bevills Leam	n	High	**A**	B	B	B

Area	Drainage Board	Pumping Station	Flows to	Tidal ?	WFD Fisheries Status	Priority Band			
						Coarse screen	Eel bypass	Eel screen	Elver pass
c	Mildenhall IDD	Alder Fen	River Lark	n	Good	**B**	B	B	B
c	Old West DD	Chear Fen	Old West River	n	High	**B**	B	B	B
c	Old West DD	Queenholme	Old West River	n	High	**B**	B	B	B
c	Old West DD	Smithy Fen	Old West River	n	High	**B**	B	B	B
c	Southery & District IDD	Catsholme	River Wissey	n	Moderate	**B**	B	B	B
c	Southery & District IDD	Hockwold	River Little Ouse	n	Moderate	**B**	B	B	B
c	Southery & District IDD	Southery	Ely Ouse	n	Good	**B**	B	B	B
c	Sutton & Mepal IDD	Mepal	Old Bedford	n	No Data	**B**	B	B	B
c	Swaffham IDD	Upware	River Cam	n	No Data	**A**	B	B	B
c	Waterbeach Level IDB	Cam	River Cam	n	Good	**B**	B	B	B
e	EA Eastern	Benacre PS	North Sea	y	Poor	**A**	A	A	A

7 LOCAL OVER-RIDES

7.1 Introduction

As described in Section 5.4 there will be many situations where the mechanistic approach described thus far for short-listing sites for attention produce results which are inappropriate. In this section several such situations are described and assessed, to illustrate the different factors than can contribute to an over-ride.

7.2 Stokesby PS, Broads IDB.

Stokesby PS is situated at the mouth of Muck Fleet and discharges to the tidal Bure. For eels it scores highly for discharging into tidal water, but achieves only a C rating for priority for bypass facilities and screening by virtue of the limited size (805 ha) of its catchment. For coarse fish its priority is similarly limited.

However, more than 170 ha of the 805 ha catchment area is shallow standing water, ideal eel and coarse fish habitat, in the form of Rollesby, Ormesby, Filby, Lily and Ormesby Little Broads. Assuming that 2% of the remaining area is also water, the total wetted area for the catchment is around 183 ha. Such an area of water would indicate a total catchment of the order of 9150 ha based on the 2% assumption discussed in Section 3.1. This would put Stokesby PS firmly into the A category for provision of both bypass and screening facilities for eels.

7.3 Halvergate Marshes (Broads IDB)

Halvergate Marshes is an area of many km^2 drained by six pumping stations. It lies in the angle between the tidal Bure and tidal Yare to the NW of Great Yarmouth. It is likely to be a very productive area for eels as a considerable volume of water is flooded into the marsh from the tidal Yare each summer to maintain irrigation and wet fencing via its hundreds of kilometres of ditches. Three of the pumping stations score a B priority for eel bypass and screening facilities by virtue of pumping to tidal water and draining an area of more than 1000 ha. The other three stations fall into band C and D priority by virtue of limited catchment area.

The suggestion here is that one or more pumping stations are used preferentially for drainage, and that all efforts are made to drain the whole area to this or these stations. Fish passage facilities could then be concentrated at these locations. It is recognised that greater pumping capacity would be required at times of imminent flooding but it is recommended that the scope for the great majority of pumping to take place at one or two sites is explored.

7.4 Benacre Pumping Station (Environment Agency).

Benacre PS discharges onto a shingle beach through which the water drains, such that fish passing through the pumps, even if not damaged by the process, are nevertheless killed. Currently very few eels occur within the extensive freshwater system landwards of the pumping station – only one has been recorded in fish surveys. There is a long history of kills of significant numbers of coarse fish at this site, associated particularly with fish that have gathered in the sump of the pumping station being

entrained in the first minute after pumping commences. Extensive trials of fish purging systems have been undertaken at this site, to attempt to drive the fish from the sump before the pumps are started. Good progress has been made, but trials are continuing to try and develop a versatile system. Taking account of:-

- the long history of fish kills at this site;
- the low number of eels currently in the drainage system;
- the good range of alternative freshwater systems for eels available with 10 km north and south including Benacre Broad, the River Blyth and River Waveney;
- the technical complications of encouraging seaward passage of adult eels while discouraging that of freshwater fish;
- the technical complications of providing a safe migration route for adult eels seawards of the pumping station.

It is recommended that the catchment be considered a “no-go” area for eels and that entry of elvers is positively discouraged, and that the most effective system to discourage seaward passage of all species is developed and installed.

It is likely that this approach is appropriate for a number of other coastal systems in the region.

8 AMELIORATIVE ACTION

8.1 Overview

A detailed treatment of the methods available to reduce fish mortality at pumping stations is beyond the scope of this report, but a general overview is appropriate, with references to sources of more information.

The three main approaches to reducing mortality of fish passing through pumping station pumps are:-

- to discourage such passage;
- to provide a safe alternative route and encourage its use;
- to install a pump system that is less damaging to fish ("so-called "fish-friendly" pumps).

8.2 Discouraging passage.

Screening of intakes to prevent ingress of fish is a much-studied issue, and the EA has produced two handbooks on the subject in recent years; Solomon (1992) and Turnpenny and O'Keeffe (2005).

The techniques fall into two broad types:-

- physical screens where the fish are prevented from passing by grids with gaps that are narrower than the fish; and
- behavioural screens, where the fish are diverted from passage by a behavioural stimulus that guides them to a safe alternative routes or causes them to leave the area.

In practice, good physical screens also act as behavioural screens, with the fish being diverted without actually impinging on the grids.

At most pumping stations physical screens are not a viable option for preventing fish passage as the bar spacing required would result in screens rapidly blocking with weed, leaves and other debris. There have been some interesting recent developments in behavioural screening and diversion techniques that offer promise for deployment at pumping stations; these are now briefly reviewed.

Turnpenny (2010) has investigated the conjunctive use of strobe lights and acoustic noise generators to drive fish from the sumps of pumping stations. Briefly, his findings are:-

- the best behavioural techniques are 75-95% efficient at diverting target species;
- acoustic Fish Deterrent devices (AFD's) are effective for coarse fish, but not for eels;
- strobe lights are variably effective at diverting fish

- at Benacre PS a sound projector array was effective at dispersing coarse fish form the pumping sump at temperatures above 7oC, but less so at lower temperatures;
- a combination of sound projectors and strobe lights gave the best results, and is now a permanent installation.

Solomon (2010) describes investigations of eel passage at IJmiden Pumping Station in the Netherlands. Results from a follow up study by IMARES Wageningen UR, investigating the effectiveness of a strobe light deterrent system for eels, are described by van Keeken *et al* (2011). It was found that the use of strobe lights reduced the numbers of eels approaching the trash screen at the station by a factor of ten. There is an alternative safe route of passage at this site.

An investigation is underway in Anglian Region with HIFI examining fish behaviour at high-risk pumping stations and the effectiveness of deterrents, using DIDSON. Phase 1 has been completed and the results are described in an EA internal report (Bolland *et al*, 2012).

A project is underway in SW Region of the EA investigating options for eel and other fish passage and screening in Somerset. This is likely to include trials with strobe lights and other behavioural techniques. Details are available from Andy Don (andy.don@environment-agency.gov.uk) or Nigel Bennetts (nigel.bennetts@environment-agency.gov.uk).

8.3 Safe alternative routes

Fish pass design is covered by two Environment Agency manuals; Solomon and Beach (2004), and Armstrong *et al* (2010).

A recent development in Germany involves a perforated pipe laid across the bed of the waterway a short distance in front of a pumping station of HEP plant. Water is drawn into this pipe using a fish-friendly pump (or by gravity in the case of HEP stations), to provide an alternative safe route for eel passage. The size and location of the orifices in the pipe are optimised to be attractive for eels sensing some risk associated with the situation in which they find themselves. In this respect it may be that such an installation is most effective when combined with a behavioural deterrent system. A video of the system on tank trial can be seen at http://www.klawa-gmbh.de/geschaeftsfelder/oekologische_wasserkrafttechnik/aalabstieg.php?cs=013015011&lng=en

A site trial is planned at the EA Gold Corner PS in Somerset.

8.4 Fish-friendly pumping systems

The issue of mortality of eels and other fish passing through land drainage pumps was reviewed in detail by Solomon (2010). However, this is an area of active development and continuing review is recommended. It is likely that this will form part of the Somerset investigation described above.
Developments in fish-friendly pumping are of potential interest not only for the main pumps, but also for any auxiliary pumps used in association with bypass routes.

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10 APPENDIX 1. FULL LIST OF IDB AND EA STATION DETAILS.

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
												Eel bypass	Eel screen	Elver pass	Coarse screen
Ancholme IDB	Candley Beck	TA 01255 05857	Kettleby Beck	n	0.2	153	GB104029067510	No Data	1	4		D	D	D	E
Ancholme IDB	Appleby	SE 97270 15612	River Ancholme	n	1	698	GB104029067520	Moderate	2	4	b	E	C	C	D
Ancholme IDB	Broughton	SE 98199 11726	River Ancholme	n	1.028	834	GB104029067520	Moderate	2	3	b	E	C	C	D
Ancholme IDB	Hibaldstow	SE 99634 04091	River Ancholme	n	0.834	929	GB104029061930	No Data	2	4	b	E	C	C	D
Ancholme IDB	North Kelsey	TA 00626 00866	River Ancholme	n	1.12	777	GB104029067520	Moderate	2	3	b	E	C	C	D
Ancholme IDB	Redbourne Hayes	TA 00655 00456	River Ancholme	n	1.2	560	GB104029067520	Moderate	2	3	b	E	C	C	D
Ancholme IDB	South Kelsey	TF 01476 94872	River Ancholme	n	0.824	632	GB104029067520	Moderate	2	3	b	E	C	C	D
Ancholme IDB	Thirty Foot	TA 00073 03119	River Ancholme	n	0.94	630	GB104029067520	Moderate	2	3	b	E	C	C	D
Ancholme IDB	Waddingham	TF 01447 97500	River Ancholme	n	1.146	1003	GB104029067520	Moderate	3	3	b	E	C	C	C
Ancholme IDB	Worlaby	SE 98242 11784	River Ancholme	n	2.02	2174	GB104029067520	Moderate	4	3	b	E	B	B	B
Ancholme IDB	Bentley Farm	TA 00006 06188	River Ancholme	n	0.27	129	GB104029067510	No Data	1	4	b	F	D	D	E
Ancholme IDB	Brimmer Beck	TF 10187 89919	RiverRase	n	0	0	GB104029061870	Moderate	0	3		F	F	F	F
Ancholme IDB	Cadney	SE 99570 05251	River Ancholme	n	0	445	GB104029067520	Moderate	1	4	b	F	D	D	E
Ancholme IDB	Fulseas	SE 98485 21273	Humber Estuary	y	0.3	277	GB104029067620	No Data	1	5	b, ff	F	E	D	E
Ancholme IDB	Island Carr	SE 99567 07415	River Ancholme	n	0.3	19	GB104029067520	Moderate	0	4	b	F	F	F	F
Ancholme IDB	Whitton Carr	SE 92071 24817	Humber Estuary	y	0.07	0	GB104029067660	No Data	0	5	b	F	F	F	F
Bedfordshire & R. Ivel IDD	Beeston	TL 16694 48517	River Ivel	n	0.1	513	GB105033038170	Moderate	2	1	b	F	E	E	D
Benwick IDD	Copalder	TL 35167 90972	Old Nene (StG)	n	1.491	626	GB105033047711	High	2	3		C	C	C	D
Benwick IDD	Beezlings	TL 37414 88467	Forty Foot (StG)	n	0.257	266	GB105033043180	Blank	1	3		E	E	E	E
Benwick IDD	Bettys Nose	TL 33115 87998	Forty Foot (StG)	n	0.51	332	GB105033043180	Blank	1	3		E	E	E	E
Benwick IDD	Broadalls	TL 32224 91047	Old Nene (StG)	n	0.425	372	GB105033047711	High	1	3		E	E	E	E
Benwick IDD	Ibbersons	TL 34877 88034	Forty Foot (StG)	n	0.255	250	GB105033043180	Blank	1	3		E	E	E	E
Benwick IDD	Ramsey Mere	TL 30493 89415	Old Nene (StG)	n	0.325	344	GB105033047711	High	1	3		E	E	E	E
Black Sluice IDB	Wyberton Marsh	TF 35949 40017	Haven	y	2.803	1982	GB105030077820	No Data	3	5		B	B	B	C
Black Sluice IDB	Allan House	TF 32173 44171	Haven	y	0.09	n/a	GB105030062420	Moderate	0	5	u	F	F	F	F
Black Sluice IDB	Damford	TF 19384 50661	Kyme Eau	n	1.189	893	GB105030056710	Poor	2	3		C	C	C	D
Black Sluice IDB	Dunsby	TF 16511 27095	S Forty Foot Drain	n	0.651	568	GB105030051510	No Data	2	3		C	C	C	D
Black Sluice IDB	Dyke Fen	TF 15118 22710	IDB Drain	n	2.66	1862	GB105030051510	No Data	3	3		C	C	C	C
Black Sluice IDB	Heckington	TF 18559 46741	Head Dyke	n	2.661	1577	GB105030056690	Poor	3	3		C	C	C	C
Black Sluice IDB	Horbling	TF 17046 34673	S Forty Foot Drain	n	1.331	886	GB105030056640	Good	2	3		C	C	C	D
Black Sluice IDB	Kirton Marsh	TF 34302 35009	Haven/tidal Welland	n	0.934	774	GB105031055540	No Data	2	4		C	C	C	D
Black Sluice IDB	Chain Bridge	TF 31403 43214	S Forty Foot Drain	n	3.695	2509	GB105030056680	No Data	4	4	b	D	B	B	B
Black Sluice IDB	Cooks Lock	TF 30606 43177	S Forty Foot Drain	n	3.907	2902	GB105030056600	No Data	4	4	b	D	B	B	B
Black Sluice IDB	Donnington North Ings	TF 17741 37066	S Forty Foot Drain	n	3.058	2262	GB105030056640	Good	4	4	b	D	B	B	B
Black Sluice IDB	Donnington Wykes	TF 21597 35748	IDB Drain	n	0.421	n/a	GB105030056500	Good	1	3	b	F	E	E	E
Black Sluice IDB	Great Hale	TF 20657 42593	S Forty Foot Drain	n	3.482	2363	GB105030056640	Good	4	4	b	D	B	B	B

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
												Eel bypass	Eel screen	Elver pass	Coarse screen
Black Sluice IDB	Holland Fen	TF 24887 43673	S Forty Foot Drain	n	4.841	3505	GB105030056660	No Data	4	4	b	D	B	B	B
Black Sluice IDB	Swineshead	TF 22872 43161	S Forty Foot Drain	n	6.795	4824	GB105030056690	Poor	4	4	b	D	B	B	B
Black Sluice IDB	Bicker Fen	TF 18701 39728	S Forty Foot Drain	n	1.416	848	GB105030056640	Good	2	4	b	E	C	C	D
Black Sluice IDB	Billingborough	TF 16710 33362	S Forty Foot Drain	n	0.934	775	GB105030056640	Good	2	3	b	E	C	C	D
Black Sluice IDB	Black Hole Drove	TF 16761 25140	S Forty Foot Drain	n	5.776	4150	GB105030051510	No Data	4	3	b	E	B	B	B
Black Sluice IDB	Dowsby Fen	TF 16249 29400	S Forty Foot Drain	n	1.699	1003	GB105030056640	Good	3	3	b	E	C	C	C
Black Sluice IDB	Ewerby	TF 15948 48369	Midfodder Dyke	n	2.237	1141	GB105030056690	Poor	3	3	b	E	C	C	C
Black Sluice IDB	Gosberton	TF 16193 29393	S Forty Foot Drain	n	3.992	2885	GB105030056640	Good	4	3	b	E	B	B	B
Black Sluice IDB	Hacconby	TF 16582 25729	S Forty Foot Drain	n	0.85	503	GB105030051510	No Data	2	3	b	E	C	C	D
Black Sluice IDB	Helpringham	TF 17728 37536	S Forty Foot Drain	n	1.331	814	GB105030056610	Good	2	4	b	E	C	C	D
Black Sluice IDB	Pinchbeck	TF 16625 26553	S Forty Foot Drain	n	0.906	655	GB105030051510	No Data	2	3	b	E	C	C	D
Black Sluice IDB	Sempringham	TF 16418 31832	S Forty Foot Drain	n	1.189	824	GB105030056480	No Data	2	3	b	E	C	C	D
Black Sluice IDB	South Kyme	TF 20729 46901	Head Dyke	n	1.302	1101	GB105030056690	Poor	3	4	b	E	B	B	C
Black Sluice IDB	Swaton	TF 17473 36460	S Forty Foot Drain	n	1.133	851	GB105030056640	Good	2	4	b	E	C	C	D
Black Sluice IDB	Trinity College	TF 21741 45829	Skerth Drain	n	1.133	609	GB105030056690	Poor	2	4	b	E	C	C	D
Black Sluice IDB	Twenty	TF 15182 20720	IDB Drain	n	0.849	607	GB105030051510	No Data	2	3	b	E	C	C	D
Black Sluice IDB	Bicker Eau	TF 22689 37387	IDB Drain	n	0.45	365	GB105030056570	No Data	1	3	b	F	E	E	E
Black Sluice IDB	Donnington Mallard Hurn	TF 17371 35583	S Forty Foot Drain	n	0.566	365	GB105030056640	Good	1	3	b	F	E	E	E
Black Sluice IDB	Dowsby Lode	TF 16256 28431	S Forty Foot Drain	n	1.019	355	GB105030056640	Good	1	3	b	F	E	E	E
Black Sluice IDB	Quadring	TF 16766 33152	S Forty Foot Drain	n	0.566	400	GB105030056470	No Data	1	3	b	F	E	E	E
Black Sluice IDB	Rippingale	TF 16336 27966	S Forty Foot Drain	n	1.019	496	GB105030051550	No Data	1	3	b	F	E	E	E
Bluntisham IDD	Bluntisham	TL 36893 73254	River Great Ouse	n	0.5	465	GB105033047921	Moderate	1	3		E	E	E	E
Burnt Fen IDB	Whitehall	TL 58688 88969	Ten Mile River	n	3.4	6935	GB105033047850	Good	5	4		A	A	A	A
Burnt Fen IDB	Lark	TL 60978 82615	River Lark	n	4.28	3388	GB105033042900	Good	4	3		B	B	B	B
Cawdle Fen IDB	Cawdle Fen	TL 54139 78142	River Great Ouse	n	0.904	181	GB105033047850	Good	1	3		E	E	E	E
Conington & Holme IDD	Conington	TL 21153 85861	Monks Lode (BL)	n	0.357	449	GB105033043170	High	1	3		E	E	E	E
Curf & Wimblington IDB	Bensons	TL 42612 88226	Sixteen Foot (StG)	n	0.425	616	GB105033047700	Good	2	3		C	C	C	D
Curf & Wimblington IDB	Stonea Fen	TL 44178 90406	Sixteen Foot (StG)	n	0.75	1191	GB105033047700	Good	3	3		C	C	C	C
Curf & Wimblington IDB	Curf	TL 39221 88317	Forty Foot (StG)	n	0.425	375	GB105033043160	No Data	1	3		E	E	E	E
Curf & Wimblington IDB	Finchams Farm	TL 45548 92663	Sixteen Foot (StG)	n	0.136	145	GB105033047700	Good	1	3		E	E	E	E
Curf & Wimblington IDB	Wimblington Common	TL 44271 90741	Sixteen Foot (StG)	n	0.694	454	GB105033047700	Good	1	3		E	E	E	E
Downham & Stow Bardolph IDD	Stow Fen	TF 59860 05700	Tidal Ouse	y	4	3036	GB205033047930	Blank	4	5		A	A	A	B
EA Central	Welches Dam PS	TL 47123 85951	Ouse/Hundred Foot	n	10	10030	GB105033047922	Good	5	4		A	A	A	A
EA Central	Welmore Lake PS	TL 57214 98696	New Bedford River	y	4.5	3200	GB105033047922	Good	4	5		A	A	A	B
EA Central	Swaffham PS	TL 52248 67179	River Cam	n	2	3640	GB105033042710	No Data	4	2		C	C	C	B
EA Central	Houghton Thicket Lane PS	TL 28837 71936	River Great Ouse	n	0.5	360	GB105033047921	Moderate	1	4		D	D	D	E
EA Central	Silt Fen Farm PS	TF 59100 00500	Cut-off Channel	n	1	120	GB105033047650	Poor	1	4		D	D	D	E
EA Central	Victoria Terrace PS	TL 31049 70949	River Great Ouse	n	1	160	GB105033047921	Moderate	1	4		D	D	D	E

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
												Eel bypass	Eel screen	Elver pass	Coarse screen
EA Central	Bottisham PS	TL 51041 65806	River Cam	n	3	7220	GB105033042700	No Data	5	2	b	E	C	C	A
EA Central	Soham Lode PS	TL 54007 76446	River Great Ouse	n	5.4	10400	GB105033047850	Good	5	2	b	E	C	C	A
EA Central	Upware PS (Reach Lode)	TL 53727 69913	River Cam	n	2.5	6360	GB105033042760	No Data	5	2	b	E	C	C	A
EA Central	Webbs Hole Sluice PS	TL 36257 71071	River Great Ouse	n	0.75	180	GB105033042770	Good	1	4	b	F	D	D	E
EA Eastern	Acle PS	TG 40740 10620	Tidal Bure	y	0.9	n/a	GB105034050830	No Data	1	5		D	D	D	E
EA Eastern	Hollesley PS	TM 36767 43900	Tidal Alde	y	2	570	GB205035040150	No Data	2	5		C	C	C	D
EA Eastern	Jewsons Yard PS	TM 05046 59163	River Gipping	n	0.172	0.006	GB105035046130	No Data	0	2		F	F	F	F
EA Eastern	Benacre PS	TM 53619 84531	North Sea	y	4	10736	GB105035046250	Poor	5	5		A	A	A	A
EA Eastern	Marsh House PS	TM 03220 04570	North Sea	y	2.97	1300	GB105037033880	No Data	3	5		B	B	B	C
EA Eastern	Bridgewick PS	TM 03030 00390	North Sea	y	0.2	980	GB105037028580	No Data	2	5		C	C	C	D
EA Eastern	Croppenberg PS	TQ 81675 83433	Tidal Thames	y	0.591	610	GB206037028390	Blank	2	5		C	C	C	D
EA Eastern	Leigh Beck PS	TQ 82100 83000	Tidal Thames	y	0.394	610	GB206037028390	Blank	2	5		C	C	C	D
EA Eastern	May Avenue PS	TQ 80424 82453	Tidal Thames	y	0.591	610	GB206037028390	Blank	2	5		C	C	C	D
EA Eastern	Parkeston PS	TM 24253 32301	Tidal Stour	y	3	800	GB105036040830	Good	2	5		C	C	C	D
EA Eastern	Scar House PS	TQ 79376 82292	Tidal Thames	y	0.788	610	GB206037028390	Blank	2	5		C	C	C	D
EA Eastern	St Annes PS	TQ 81129 82675	Tidal Thames	y	0.591	610	GB206037028390	Blank	2	5		C	C	C	D
EA Eastern	Beckney Farm PS	TQ 84848 96089	Tidal Crouch	y	0.12	135	GB105037028750	No Data	1	5		D	D	D	E
EA Eastern	Landwick PS	TM 00764 00940	North Sea	y	1	356	GB105037028580	No Data	1	5		D	D	D	E
EA Eastern	Mell House PS	TL 96269 08514	Tidal Blackwater	y	0.5	140	GB105037033640	No Data	1	5		D	D	D	E
EA Eastern	Hilton PS	TQ 79604 84409	Benfleet Creek	y	0.45	610	GB206037028390	Blank	2	5	b	E	C	C	D
EA Eastern	Worlds End PS	TQ 64782 75304	Tidal Thames	y	1.85	600	GB106037027970	No Data	2	5	b	E	C	C	D
EA Eastern	Antlers PS	TQ 78937 82746	Canvey Lake	n	0.248	50	GB206037028390	Blank	0	4		F	F	F	F
EA Eastern	Battlesbridge PS	TQ 78455 94890	Tidal Crouch	y	0.03	0.6	GB105037028560	No Data	0	5		F	F	F	F
EA Eastern	Chadwell Marsh (Tilbury) PS	TQ 63601 77831	Tilbury Cross Sewer	n	0.17	92	GB106037027970	No Data	0	4	ff	F	F	F	F
EA Eastern	Dutch Village PS	TQ 77485 83819	Holehaven Creek	n	0.62	60	GB206037028390	Blank	0	4	ff	F	F	F	F
EA Eastern	Knightswick PS	TQ 80512 84364	Benfleet Creek	y	0.591	40	GB206037028390	Blank	0	5		F	F	F	F
EA Eastern	Pitsea Hall Fleet PS	TQ 73915 85889	Vange Creek	y	0.06	50	GB106037028050	No Data	0	5		F	F	F	F
EA Eastern	Rainbow PS	TQ 79944 83798	Canvey Lake	n	0.248	10	GB206037028390	Blank	0	4	u	F	F	F	F
EA Eastern	St Josephs PS	TQ 79900 83700	Benfleet Creek	y	0.248	10	GB206037028390	Blank	0	5		F	F	F	F
EA Eastern	Thorney Bay PS	TQ 79438 82746	Canvey Lake	n	0.248	30	GB206037028390	Blank	0	4	u	F	F	F	F
EA Eastern	Winter Gardens PS	TQ 79005 84000	Canvey Lake	n	0.248	25	GB206037028390	Blank	0	4	u	F	F	F	F
EA Northern	Blackmoor Farm PS	SK 94605 62848	River Brant	n	0.15	5	GB105030056770	Good	0	1	b	F	F	F	F
EA Northern	Bransby PS	SK 90400 78800	River Till	n	0.3	2	GB105030062410	Good	0	1	b	F	F	F	F
EA Northern	Brant FAS PS	SK 94827 62535	River Brant	n	1.8	2980	GB105030056770	Good	3	1		E	E	E	C
EA Northern	Butts Drain PS	TA 03100 22500	Butts Drain	n	1	500	GB104029067620	No Data	2	4	b	E	C	C	D
EA Northern	Chapel New PS	TF 56050 72950	Willoughby High Drain	n	9.6	7300	GB105029061710	No Data	5	4	b	D	A	A	A
EA Northern	Croft Lane PS	TF 50100 60050	Steeping River	n	1.5	2410	GB105030062430	Good	3	4		B	B	B	C
EA Northern	Meadow Farm PS	SK 93334 58919	River Brant	n	0.15	1.25	GB105030056770	Good	0	1		F	F	F	F

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
												Eel bypass	Eel screen	Elver pass	Coarse screen
EA Northern	Sand Syke PS	SK 94250 60050	River Witham	n	0.9	1500	GB105030056770	Good	1	1	b	F	F	F	E
EA Northern	Till FAS PS	TF 15549 18785	River Till	n	1.6	2980	GB105031050720	Moderate	3	4		B	B	B	C
EA Northern	Witham FAS PS	SK 95232 63900	River Witham	n	1	1000	GB105030062370	Moderate	3	1		E	E	E	C
EA Northern	Black Sluice PS	TF 32600 42850	The Haven	y	60	66774	GB105030056620	Good	6	5	b	C	A	A	A
EA Northern	Padholme PS	TL 22900 98400	River Nene	n	4.29	800	GB105032050382	Good	2	4		C	C	C	D
EA Northern	Bourne Eau PS	TF 15500 18700	River Glen	n	4.26	2640	GB105031050720	Moderate	4	4	b	D	B	B	B
EA Northern	Peakirk PS	TF 17550 07250	River Welland	n	9	8040	0	#N/A	5	2	b	E	C	C	A
East of Ouse, Polver & Nar IDD	Puny	TF 62000 15770	Relief Channel	n	4	2120	GB105033047792	Good	4	4		B	B	B	B
East of Ouse, Polver & Nar IDD	Mill Fen	TF 65030 14000	River Nar	n	0.426	530	GB105033047770	No Data	2	4		C	C	C	D
East of Ouse, Polver & Nar IDD	Saddlebow	TF 60700 15020	Relief Channel	n	0.426	800	GB105033047660	Good	2	4		C	C	C	D
East of Ouse, Polver & Nar IDD	Chainbridge	TF 64500 12560	Polver system	n	0.34	150	GB105033047660	Good	1	4		D	D	D	E
East of Ouse, Polver & Nar IDD	Mow Fen	TF 66730 10950	Polver system	n	0.426	220	GB105033047660	Good	1	4		D	D	D	E
East of Ouse, Polver & Nar IDD	Nar Valley	TF 65020 14500	River Nar	n	1.5	420	GB105033047770	No Data	1	4		D	D	D	E
East of Ouse, Polver & Nar IDD	Polver	TF 60870 12680	Relief Channel	n	3	1000	GB105033047660	Good	3	4	b	E	B	B	C
East Suffolk IDB	Bawdsey	TM 33170 38520	Tidal Deben	y	0.5	592	GB105035040220	Blank	2	5		C	C	C	D
East Suffolk IDB	Falkenham	TM 30720 39540	Tidal Deben	y	0.9	742	GB105035040200	No Data	2	5		C	C	C	D
East Suffolk IDB	Kings Fleet	TM 32080 38410	Tidal Deben	y	0.3	742	GB105035040200	No Data	2	5		C	C	C	D
East Suffolk IDB	Sudbourne	TM 45410 53620	Tidal Alde	y	0.5	805	GB105035040180	No Data	2	5		C	C	C	D
East Suffolk IDB	Butley	TM 39320 48630	Tidal Butley	y	0.5	292	GB105035040160	No Data	1	5		D	D	D	E
East Suffolk IDB	Chillesford	TM 39440 50460	Tidal Butley	y	0.2	193	GB105035040170	No Data	1	5		D	D	D	E
East Suffolk IDB	Gedgrave	TM 40950 47440	Tidal Ore	y	0.5	316	GB105035077790	No Data	1	5		D	D	D	E
East Suffolk IDB	Hollesley	TM 38170 45330	Tidal Ore	y	0.15	117	GB205035040150	No Data	1	5		D	D	D	E
East Suffolk IDB	Iken	TM 43180 56150	Tidal Alde	y	0.35	476	GB105035077800	No Data	1	5		D	D	D	E
East Suffolk IDB	Reydon	TM 48400 76410	Tidal Blyth	y	0.15	178	GB205035045990	Blank	1	5		D	D	D	E
Euximoor IDD	Reed Fen	TL 45829 99434	Old Nene (StG)	n	0.222	563	GB105033047712	High	2	4		C	C	C	D
Euximoor IDD	Iron Bridge	TL 48916 98363	Sixteen Foot (StG)	n	0.481	477	GB105033047700	Good	1	4		D	D	D	E
Feldale IDD	Feldale	TL 30123 98996	Mortons Leam	n	0.4	471	GB105032050382	Good	1	4		D	D	D	E
Haddenham Level DCA	Haddenham	TL 42761 72777	River Great Ouse	n	3	2303	GB105033043370	High	4	3		B	B	B	B
Haddenham Level DCA	Sutton Gault	TL 42514 78931	Hundred Foot River	y	1.32	1147	GB105033047922	Good	3	5		B	B	B	C
Holmewood & District IDB	Whittlesey Mere	TL 23700 90400	Bevills Leam (BL)	n	0.67	2188	GB105033043200	High	4	3		B	B	B	B
Holmewood & District IDB	Yaxley Fen	TL 19500 91500	Yaxley Lode (BL)	n	0.4	400	GB105033043200	High	1	3		E	E	E	E
King's Lynn IDB	Eau Brink	TF 59046 14771	Tidal Gt Ouse	y	2	3805	GB105033047910	No Data	4	5		A	A	A	B
King's Lynn IDB	Islington	TF 57546 14462	Straight Mile	n	12	5936	GB105033047910	No Data	5	4		A	A	A	A
King's Lynn IDB	Pierrepoint	TF 62227 18766	Tidal Nar	y	3.3	3356	GB105033047792	Good	4	5		A	A	A	B
King's Lynn IDB	Wolferton	TF 65320 30240	The Wash	y	3.75	2852	GB105033053470	Poor	4	5		A	A	A	B
King's Lynn IDB	Crabbs Abbey	TF 60049 08095	Tidal Gt Ouse	y	4.5	1237	GB205033047930	Blank	3	5		B	B	B	C
King's Lynn IDB	Green Bank	TF 54687 11083	Mill Basin	n	4	3763	GB105033047740	No Data	4	4		B	B	B	B
King's Lynn IDB	Kings Reach	TF 64320 19125	Middleton Stop Drain	n	0.02	1627	GB105033047670	No Data	3	4		B	B	B	C

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
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King's Lynn IDB	Ingleborough	TF 46790 16261	Tidal Nene	y	0.6	781	GB205032077840	Blank	2	5		C	C	C	D
King's Lynn IDB	North Lynn	TF 60936 21972	Tidal Gt Ouse	y	0.85	587	GB105033047940	Blank	2	5		C	C	C	D
King's Lynn IDB	North Wootton	TF 64431 25701	Pinchcut Drain	n	0.5	960	GB105033047620	Poor	2	4		C	C	C	D
King's Lynn IDB	Church Farm	TF 65340 21250	Gaywood River	n	0.16	170	GB105033047680	No Data	1	4		D	D	D	E
King's Lynn IDB	Middleton Stop N	TF 64994 18253	Middleton Stop Drain	n	0.3	102	GB105033047670	No Data	1	4		D	D	D	E
King's Lynn IDB	Middleton Stop S	TF 64994 18253	Middleton Stop Drain	n	0.3	102	GB105033047670	No Data	1	4		D	D	D	E
King's Lynn IDB	Waltham Farm	TF 57949 10489	New Drain	n	0.35	297	GB205033047930	Blank	1	4		D	D	D	E
Lakenheath IDD	Lakenheath	TL 67619 85586	River Little Ouse	n	1.56	1975	GB105033043120	No Data	3	3		C	C	C	C
Lindsey Marsh DB	Anderby standby	TF 54575 76052	Sea	y	4.588	3670	GB105029061730	No Data	4	5		A	A	A	B
Lindsey Marsh DB	Boygrift	TF 53260 79877	Sea	y	3.72	2434	GB105029061740	No Data	4	5		A	A	A	B
Lindsey Marsh DB	Grainthorpe	TA 39478 00675	Sea	y	3.501	2500	GB104029062160	Moderate	4	5		A	A	A	B
Lindsey Marsh DB	Ingoldmells	TF 57071 68423	Sea	y	5.38	3003	GB105029061700	No Data	4	5		A	A	A	B
Lindsey Marsh DB	Saltfleet	TF 45605 93382	Sea	y	6.37	4780	GB105029061680	No Data	4	5		A	A	A	B
Lindsey Marsh DB	Burgh Sluice	TF 55253 58628	Sea	y	4.71	1660	GB105030056440	No Data	3	5		B	B	B	C
Lindsey Marsh DB	Gibraltar Point	TF 55330 58127	Sea	y	1.136	1166	GB105030056390	No Data	3	5		B	B	B	C
Lindsey Marsh DB	Porters Sluice	TF 41745 99572	Sea	y	2	1428	GB104029062150	No Data	3	5		B	B	B	C
Lindsey Marsh DB	Trusthorpe	TF 51388 84091	Woldgrift	n	5.35	3977	GB105029061650	Poor	4	4		B	B	B	B
Lindsey Marsh DB	Crown Farm	TF 50640 60035	River Steeping	n	1.695	972	GB105030056450	No Data	2	4		C	C	C	D
Lindsey Marsh DB	Ludney	TF 39254 95484	Grainthorpe PS	n	1.25	893	GB104029062140	No Data	2	4		C	C	C	D
Lindsey Marsh DB	Wyche	TF 51329 70123	Chapel Basin PS	n	1.22	855	GB105029061710	No Data	2	4		C	C	C	D
Lindsey Marsh DB	Anderby	TF 54575 76053	Sea	y	4.68	3670	GB105029061730	No Data	4	5	b	D	A	A	B
Lindsey Marsh DB	Gotts	TF 53934 62652	Burgh Sluice PS & Sea	y	2.472	1275	GB105030056440	No Data	3	5	ff	D	D	B	E
Lindsey Marsh DB	Howdales	TF 42615 90642	Grey Fleet	n	0.64	399	GB105029061680	No Data	1	4		D	D	D	E
Lindsey Marsh DB	Theddlethorpe	TF 45893 88525	Great Eau	n	4.1	3906	GB105029061660	Poor	4	4	b	D	B	B	B
Lindsey Marsh DB	Thorpe Culvert	TF 47132 60450	River Steeping	n	4.2	2554	GB105030062430	Good	4	4	b	D	B	B	B
Lindsey Marsh DB	Wainfleet Sea Lane	TF 52596 56570	Sea	y	0.4	405	GB105030056390	No Data	1	5		D	D	D	E
Lindsey Marsh DB	Biergate East	TF 36181 95789	Louth Canal	n	0.93	579	GB104029062020	Blank	2	4	b	E	C	C	D
Lindsey Marsh DB	Biergate West	TF 36134 95745	Louth Canal	n	0.63	627	GB104029062020	Blank	2	4	b	E	C	C	D
Lindsey Marsh DB	Fulbeck	TF 50757 85393	Sea	y	1.64	378	GB105029061660	Poor	1	5	b	E	D	D	E
Lindsey Marsh DB	Fulstow West	TF 34455 98069	Louth Canal	n	1.4	785	GB104029062050	Blank	2	4	b	E	C	C	D
Lindsey Marsh DB	Thoresby Bridge	TF 33547 99746	Louth Canal	n	1.3	684	GB104029062080	No Data	2	4	b	E	C	C	D
Lindsey Marsh DB	Austen Fen East	TF 37217 94054	Louth Canal	n	0.54	292	GB104029062020	Blank	1	4	b	F	D	D	E
Lindsey Marsh DB	Austen Fen West	TF 37145 94036	Louth Canal	n	0.535	348	GB104029062020	Blank	1	4	b	F	D	D	E
Lindsey Marsh DB	Boothby	TF 49148 68316	Wyche PS & Chapel	n	0.065	59	GB105029061700	No Data	0	4	b	F	F	F	F
Lindsey Marsh DB	Burgh-le-Marsh	TF 50784 64948	Gotts PS/Burgh Sluice PS	n	0.512	294	GB105030056440	No Data	1	4	b, ff	F	F	D	E
Lindsey Marsh DB	Chapel Basin	TF 56076 72979	Sea	y	0.017	0.4	GB105029061710	No Data	0	5	u	F	F	F	F
Lindsey Marsh DB	Covenham	TF 33998 94352	Poulton Drain	n	0.076	36	GB104029062010	No Data	0	4	b	F	F	F	F
Lindsey Marsh DB	Fulstow East	TF 34514 98101	Louth Canal	n	0.72	409	GB104029062160	Moderate	1	4	b	F	D	D	E

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Lindsey Marsh DB	Nursery	TF 49532 68916	WychePS & Chapel	n	0.159	88	GB105029061700	No Data	0	4		F	F	F	F
Littleport & Downham IDB	Hundred Foot	TL 50757 89140	Hundred Foot River	y	8.067	2802	GB105033047850	Good	4	5		A	A	A	B
Littleport & Downham IDB	Oxlode	TL 48227 85802	Hundred Foot River	y	4.572	4236	GB105033047922	Good	4	5		A	A	A	B
Littleport & Downham IDB	Ten Mile	TL 60691 94031	Ten Mile River	n	5.17	4809	GB105033047850	Good	4	4		B	B	B	B
Littleport & Downham IDB	Wood Fen	TL 56553 84417	Wood Fen Catchwater	n	1.02	864	GB105033047850	Good	2	3		C	C	C	D
Littleport & Downham IDB	Little Thetford	TL 53745 76021	River Great Ouse	n	0.378	272	GB105033047850	Good	1	3		E	E	E	E
Littleport & Downham IDB	Stretham	TL 52078 73710	River Cam	n	0.22	238	GB105033042850	High	1	3		E	E	E	E
Littleport & Downham IDB	Moors	TL 57315 87025	River Great Ouse	n	0.022	12	GB105033047850	Good	0	4		F	F	F	F
Manea & Welney DCA	Glenhouse	TL 51137 91474	Old Bedford	n	3.33	2226	GB105033047922	Good	4	4		B	B	B	B
Manea & Welney DCA	Purls Bridge	TL 48471 87907	Counter Drain	n	0.56	872	GB105033047922	Good	2	4		C	C	C	D
March & Whittlesey IDD	Duncombes	TL 34466 98347	Twenty Foot (StG)	n	0.45	838	GB105033047711	High	2	3		C	C	C	D
March & Whittlesey IDD	Stafforths Bridge	TL 36933 94828	Twenty Foot (StG)	n	1.375	1261	GB105033047711	High	3	3		C	C	C	C
March & Whittlesey IDD	Turves	TL 32200 96596	Old Nene (StG)	n	0.625	545	GB105033047690	Blank	2	3		C	C	C	D
March & Whittlesey IDD	West Fen	TL 39192 96613	Old Nene (StG)	n	0.625	527	GB105033047711	High	2	3		C	C	C	D
March & Whittlesey IDD	Moores	TF 37686 00848	Twenty Foot (StG)	n	0.55	330	GB105033047711	High	1	3		E	E	E	E
March 3rd District DCA	Burrowmore	TL 39386 96648	Old Nene (StG)	n	0.318	422	GB105033047711	High	1	3		E	E	E	E
March 5th District DCA	North Creek	TL 43949 98491	Old Nene (StG)	n	0.545	291	GB105033047711	High	1	3		E	E	E	E
March 5th District DCA	South Creek	TL 43061 97484	Old Nene (StG)	n	0.35	117	GB105033047711	High	1	3		E	E	E	E
March 6th District DCA	Norwood	TF 40736 00684	Twenty Foot (StG)	n	0.32	319	GB105033047712	High	1	3		E	E	E	E
March East IDD	Bedlam	TL 47177 95499	Sixteen Foot (StG)	n	0.425	833	GB105033047700	Good	2	4		C	C	C	D
March East IDD	Binnimoor Fen	TL 43353 97600	Old Nene (StG)	n	0.564	654	GB105033047711	High	2	3		C	C	C	D
March East IDD	Latches Fen	TL 44376 93624	Hardings Drain (StG)	n	1.362	1362	GB105033047700	Good	3	3		C	C	C	C
Middle Fen & Mere IDB	New Mill	TL 62825 75891	River Lark	n	5.85	2927	GB105033042900	Good	4	3		B	B	B	B
Middle Fen & Mere IDB	Overfall	TL 56039 80299	River Great Ouse	n	2.04	2950	GB105033047850	Good	4	4		B	B	B	B
Middle Fen & Mere IDB	Prickwillow	TL 59749 82387	River Great Ouse	n	3.4	2950	GB105033042900	Good	4	4		B	B	B	B
Middle Fen & Mere IDB	Henny	TL 56612 74383	Soham Lode	n	2.04	1962	GB105033042860	Poor	3	3		C	C	C	C
Middle Fen & Mere IDB	Harrimere	TL 53685 75043	River Great Ouse	n	0.452	405	GB105033047850	Good	1	3		E	E	E	E
Middle Level Comm.	St Germans	TF 58750 14250	Tidal Gt Ouse	y	100	70,197	GB105033047910	No Data	6	5		A	A	A	A
Middle Level Comm.	Bevills Leam	TL 24688 91297	Bevills Leam	n	6.8	17853	GB105033043200	High	5	3		B	B	B	A
Mildenhall IDD	Alder Fen	TL 62301 80040	River Lark	n	4.08	3384	GB105033042900	Good	4	3		B	B	B	B
Nightlayers IDD	Nightlayers	TL 40945 87701	Forty Foot (StG)	n	2.2	660	GB105033043160	No Data	2	3		C	C	C	D
Nordelph IDD	Aqueduct	TF 53037 02758	Main Drain (StG)	n	0.34	455	GB105033047712	High	1	4		D	D	D	E
North East Lindsey DD	Immingham	TA 19988 13588	North Beck	n	5	650	GB104029067570	No Data	2	4	u	E	E	E	E
North East Lindsey DD	Mawnbridge	TA 24639 12441	Humber Estuary	y	2.8	500	GB104029067540	No Data	2	5	b	E	C	C	D
North East Lindsey DD	Little Buck Beck	TA 31979 06858	Buck Beck	n	1.13	400	GB104029062110	Moderate	1	4	b	F	D	D	E
North East Lindsey DD	Middle Drain	TA 22895 14066	Humber Estuary	y	6.2	1200	GB104029067570	No Data	3	5	u, b	F	D	D	E
North East Lindsey DD	New Holland	TA 08673 23209	Humber Estuary	y	0.85	150	GB104029067640	No Data	1	5	u, b	F	E	E	E
North Level IDB	Cross Guns	TF 34571 01484	Tidal Nene	y	9.54	6640	GB105032050382	Good	5	5		A	A	A	A

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												Eel bypass	Eel screen	Elver pass	Coarse screen
North Level IDB	Dog in a Doublet (1)	TL 27438 99497	Tidal Nene	y	2.2	2484	GB105032050382	Good	4	5		A	A	A	B
North Level IDB	Dog in a Doublet (2)	TL 27434 99458	Tidal Nene	y	3.6	2484	GB105032050382	Good	4	5		A	A	A	B
North Level IDB	Tydd	TF 46177 17907	Tidal Nene	y	20.17	14565	GB105032050390	High	5	5		A	A	A	A
North Level IDB	Mouth Lane	TF 41887 05473	Tidal Nene	y	2	1437	GB205032077840	Blank	3	5		B	B	B	C
North Level IDB	Newborough	TF 21486 09208	River Welland	n	4.64	3320	GB105031050680	Moderate	4	4		B	B	B	B
North Level IDB	Poplars	TF 40576 13421	North Level Main	n	1.6	1119	GB105032050390	High	3	4		B	B	B	C
North Level IDB	Postland	TF 23888 13873	River Welland	n	3.61	2567	GB105032050390	High	4	4		B	B	B	B
North Level IDB	Willow Holt	TF 40765 13527	North Level Main	n	0.82	590	GB105032050390	High	2	4		C	C	C	D
North Level IDB	Denhams	TF 41166 16073	Shire Drain	n	1.05	761	GB105032050390	High	2	4	b	E	C	C	D
North Level IDB	Hundreds	TF 25248 08564	South Eau	n	1.5	822	GB105032050390	High	2	4	b	E	C	C	D
North Level IDB	Peakirk	TF 17239 05977	River Folly	n	0.07	36	GB105031050560	No Data	0	4		F	F	F	F
Old West DD	Chear Fen	TL 49674 71712	Old West River	n	2.9	4488	GB105033042850	High	4	3		B	B	B	B
Old West DD	Queenholme	TL 42685 72658	Old West River	n	3.274	4488	GB105033043370	High	4	3		B	B	B	B
Old West DD	Smithy Fen	TL 44767 71913	Old West River	n	2	4488	GB105033043350	High	4	3		B	B	B	B
Over & Willingham IDD	Over	TL 39175 74592	Hundred Foot River	y	1	1061	GB105033043370	High	3	5		B	B	B	C
Padnal & Waterden IDB	Kerridge	TL 57049 83905	River Great Ouse	n	0.16	1235	GB105033047850	Good	3	3		C	C	C	C
Padnal & Waterden IDB	Padnal No 1	TL 56734 81990	River Great Ouse	n	0.7	1235	GB105033047850	Good	3	3		C	C	C	C
Padnal & Waterden IDB	Padnal No 2	TL 57567 85640	River Great Ouse	n	0.35	1235	GB105033047850	Good	3	3		C	C	C	C
Padnal & Waterden IDB	Redmore	TL 57035 83848	River Great Ouse	n	0.16	1235	GB105033047850	Good	3	3		C	C	C	C
Padnal & Waterden IDB	Waterden	TL 56579 82003	River Great Ouse	n	0.16	1235	GB105033047850	Good	3	3		C	C	C	C
Ramsey 1st IDD	Ramsey Hollow	TL 33511 87904	Forty Foot (StG)	n	3.432	1602	GB105033043180	Blank	3	3		C	C	C	C
Ramsey 4th IDB	Middlemoor	TL 26339 87267	Old Nene (BL)	n	1.407	998	GB105033047711	High	2	3		C	C	C	D
Ramsey 4th IDB	Daintree	TL 23925 90205	Old Nene (BL)	n	0.255	467	GB105033043200	High	1	3		E	E	E	E
Ramsey IDB	Lodes End	TL 28823 87471	Old Nene (StG)	n	0.4	244	GB105033047711	High	1	3		E	E	E	E
Ramsey IDB	Stocking Fen (Private)	TL 28571 86683	Ramsey High Lode (StG)	n	0.325	98	GB105033043140	Good	0	3		F	F	F	F
Ramsey, Upwood & Gt Raveley IDB	New Fen	TL 26530 87191	Old Nene (BL)	n	0.425	640	GB105033047711	High	2	3		C	C	C	D
Ramsey, Upwood & Gt Raveley IDB	Green Dyke	TL 23678 86300	Gt Raveley Drain (BL)	n	0.763	458	GB105033043130	High	1	3		E	E	E	E
Ramsey, Upwood & Gt Raveley IDB	Upwood Common	TL 23424 84301	Gt Raveley Drain (BL)	n	0.57	193	GB105033043130	High	1	3		E	E	E	E
Ransonmoor DCA	Ransonmoor	TL 35807 92309	Old Nene (StG)	n	2.3	1571	GB105033047711	High	3	3		C	C	C	C
Sawtry IDD	Castle Hill	TL 22404 83962	Catchwater Drain (BL)	n	0.34	441	GB105033043170	High	1	3		E	E	E	E
Sawtry IDD	Moat Farm	TL 23218 83196	Gt Raveley Drain (BL)	n	0.3	164	GB105033043130	High	1	3		E	E	E	E
Sawtry IDD	Sawtry Roughs	TL 19906 83216	Catchwater Drain (BL)	n	0.545	355	GB105033043170	High	1	3		E	E	E	E
South Holland IDB	Fleet Haven	TF 43817 32914	Tidal creek	y	1.76	2107	GB105031050760	No Data	4	5		A	A	A	B
South Holland IDB	Lawyers	TF 40796 34541	Tidal creek	y	4.2	3008	GB105031055500	No Data	4	5		A	A	A	B
South Holland IDB	Little Holland	TF 38561 19189	S Holland Main Dr	n	9.6	5415	GB105032050400	Moderate	5	4		A	A	A	A
South Holland IDB	Dawsmere	TF 46132 30949	Tidal creek	y	1.08	1097	GB105031050760	No Data	3	5		B	B	B	C
South Holland IDB	Fleet Fen	TF 36246 16705	S Holland Main Dr	n	3.4	2582	GB105032050400	Moderate	4	4		B	B	B	B
South Holland IDB	Peartree Hill	TF 32610 15825	S Holland Main Dr	n	1.6	1001	GB105032050400	Moderate	3	4		B	B	B	C

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South Holland IDB	Wisemans	TF 29970 15612	S Holland Main Dr	n	6.12	3735	GB105032050400	Moderate	4	4		B	B	B	B
South Holland IDB	Donningtons	TF 32586 15763	S Holland Main Dr	n	0.98	704	GB105032050400	Moderate	2	4		C	C	C	D
South Holland IDB	Holbeach Bank	TF 35510 27844	Whaplode River	n	1.1	809	GB105031050740	No Data	2	4		C	C	C	D
South Holland IDB	Sutton St James	TF 38676 19186	S Holland Main Dr	n	0.84	532	GB105032050400	Moderate	2	4		C	C	C	D
South Holland IDB	Clay Lake	TF 25397 21588	Coronation Channel	n	1.7	495	GB105032050400	Moderate	1	4		D	D	D	E
South Holland IDB	Gotts	TF 36428 17258	S Holland Main Dr	n	0.65	462	GB105032050400	Moderate	1	4		D	D	D	E
South Holland IDB	Lords drain	TF 29595 30738	Tidal Welland	y	2.84	2549	GB105031050750	No Data	4	5	b	D	A	A	B
South Holland IDB	Roses	TF 31484 19382	S Holland Main Dr	n	0.28	200	GB105032050400	Moderate	1	4		D	D	D	E
South Holland IDB	Westmere	TF 48801 23244	Tidal Nene	y	0.6	781	GB105032050400	Moderate	2	5	b	E	C	C	D
South Holland IDB	Manor Farm	TF 40204 28445	Middle Drain	n	0.45	425	GB105031055500	No Data	1	4	b	F	D	D	E
Southery & District IDD	Catsholme	TL 68330 97100	River Wissey	n	4.4	2430	GB105033047630	Moderate	4	4		B	B	B	B
Southery & District IDD	Hockwold	TL 65060 86900	River Little Ouse	n	2.6	2830	GB105033043400	Moderate	4	3		B	B	B	B
Southery & District IDD	Southery	TL 61300 93150	Ely Ouse	n	4.8	3650	GB105033047850	Good	4	4		B	B	B	B
Southery & District IDD	Hillgay	TL 60350 98300	River Wissey	n	0.5	250	GB105033047850	Good	1	4		D	D	D	E
Southery & District IDD	Oulsham	TL 68270 92640	Cut-off Channel	n	0.7	350	GB105033047630	Moderate	1	4		D	D	D	E
Stoke Ferry IDD	Wretton Fen	TL 68800 97300	River Wissey	n	1.5	1000	GB105033047630	Moderate	3	4		B	B	B	C
Stoke Ferry IDD	Fordham Fen	TL 60500 99200	Cut-off Channel	n	0.4	500	GB105033047650	Poor	2	4		C	C	C	D
Stoke Ferry IDD	Roxham Fen	TL 60350 98300	Cut-off Channel	n	0.45	500	GB105033047850	Good	2	4		C	C	C	D
Stoke Ferry IDD	Cornerways	TL 65000 97800	River Wissey	n	0.12	200	GB105033047650	Poor	1	4		D	D	D	E
Sutton & Mepal IDD	Mepal	TL 44145 82141	Old Bedford	n	3.55	4639	GB105033042890	No Data	4	4		B	B	B	B
Swaffham IDD	Upware	TL 53756 69921	River Cam	n	5.1	6200	GB105033042760	No Data	5	3		B	B	B	A
Swavesey IDD	Swavesey	TL 36678 69782	River Great Ouse	n	0.34	469	GB105033042770	Good	1	4		D	D	D	E
The Broads IDB	Berney Arms	TG 46514 04957	Tidal Yare	y	0.35	1415	GB105034050810	No Data	3	5		B	B	B	C
The Broads IDB	Breydon	TG 47773 06968	Breydon Water	y	1.1	1415	GB105034050810	No Data	3	5		B	B	B	C
The Broads IDB	Brograve	TG 44760 23554	Waxham New Cut	n	1.59	1951	GB105034051360	Moderate	3	4		B	B	B	C
The Broads IDB	Mautby	TG 48956 09958	Tidal Bure	y	1.2	1006	GB105034050810	No Data	3	5		B	B	B	C
The Broads IDB	Tunstall	TG 43216 09552	Tidal Bure	y	1	1130	GB105034050810	No Data	3	5		B	B	B	C
The Broads IDB	Eastfield	TG 43904 23930	Hickling drainage	n	0.35	833	GB105034051360	Moderate	2	4		C	C	C	D
The Broads IDB	Hersey	TG 45732 22147	Horsey Mere	n	0.5	793	GB105034051360	Moderate	2	4		C	C	C	D
The Broads IDB	Seven Mile	TG 44540 03520	Tidal Yare	y	0.8	878	GB105034050810	No Data	2	5		C	C	C	D
The Broads IDB	Somerton Auxilliary	TG 46510 20135	River Thurne	n	0.2	613	GB105034051360	Moderate	2	4		C	C	C	D
The Broads IDB	Somerton North	TG 45723 21042	Hundred Stream	n	0.35	613	GB105034051360	Moderate	2	4		C	C	C	D
The Broads IDB	Somerton South	TG 46558 20223	River Thurne	n	0.6	613	GB105034051360	Moderate	2	4		C	C	C	D
The Broads IDB	Stokesby	TG 42101 10521	Tidal Bure	y	1.2	805	GB105034050860	No Data	2	5		C	C	C	D
The Broads IDB	Stubb Mill	TG 43718 22062	Commissioners Drain	n	0.5	833	GB105034051360	Moderate	2	4		C	C	C	D
The Broads IDB	Upton Doles	TG 39066 15366	Tidal Bure	y	1.05	614	GB105034050840	No Data	2	5		C	C	C	D
The Broads IDB	Ashtree	TG 50337 09221	Tidal Bure	y	0.4	244	GB105034050810	No Data	1	5		D	D	D	E
The Broads IDB	Buckenham	TG 35368 04449	Tidal Yare	y	0.45	262	GB105034051300	No Data	1	5		D	D	D	E

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The Broads IDB	Cantley	TG 37558 02978	Tidal Yare	y	0.6	283	GB105034051300	No Data	1	5		D	D	D	E
The Broads IDB	Five Mile	TG 47780 09846	Tidal Bure	y	0.45	430	GB105034050810	No Data	1	5		D	D	D	E
The Broads IDB	Heigham Holmes	TG 44960 20245	Eelfleet Dyke	n	0.35	195	GB105034051360	Moderate	1	4		D	D	D	E
The Broads IDB	Hermitage	TG 41288 11009	Tidal Bure	y	0.35	169	GB105034050840	No Data	1	5		D	D	D	E
The Broads IDB	Horning Grove	TG 36450 17583	River Ant	n	0.35	228	GB105034051330	No Data	1	4		D	D	D	E
The Broads IDB	Horse Fen	TG 40859 17588	Tidal Thurne	y	0.35	117	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	Irstead	TG 36450 17583	Un-named	n	0.2	228	GB105034051330	No Data	1	4		D	D	D	E
The Broads IDB	Ludham Bridge	TG 37246 17085	Tidal Ant	y	0.35	236	GB105034051330	No Data	1	5		D	D	D	E
The Broads IDB	Martham	TG 43922 19164	Tidal Thurne	y	0.455	301	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	Postwick	TG 30254 07058	Tidal Yare	y	0.35	129	GB105034051370	No Data	1	5		D	D	D	E
The Broads IDB	Potter Heigham	TG 43062 19058	Tidal Thurne	y	0.7	393	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	Rep	TG 41356 17457	Tidal Thurne	y	0.35	106	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	St Benets	TG 39946 15637	Tidal Thurne	y	0.4	310	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	St Benets No. 2	TG 39955 15518	Tidal Thurne	y	0.1	310	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	Sutton	TG 38012 23270	Un-named	n	0.35	179	GB105034051330	No Data	1	4		D	D	D	E
The Broads IDB	Thurne	TG 40221 15893	Tidal Thurne	y	0.35	118	GB105034051360	Moderate	1	5		D	D	D	E
The Broads IDB	Tonnage Bridge	TG 34692 25878	N. Walsham Canal	n	0.2	200	GB105034050910	Blank	1	4		D	D	D	E
The Broads IDB	Catfield	TG 39927 21768	Hickling drainage	n	0.2	70	GB105034051360	Moderate	0	4		F	F	F	F
The Broads IDB	Chapelfield	TG 36371 23915	River Ant	n	0.35	98	GB105034051330	No Data	0	4		F	F	F	F
The Broads IDB	Wayford Bridge	TG 34405 24882	Tyler's Cut	n	0.2	38	GB105034050890	Moderate	0	4		F	F	F	F
Upper Witham IDB	Boultham	SK 96879 69470	Witham	n	1.14	2472	GB105030062420	Moderate	4	3		B	B	B	B
Upper Witham IDB	Coulson Road	SK 96890 70262	Witham	n	1.332	2472	GB105030062410	Good	4	3		B	B	B	B
Upper Witham IDB	Auborn	SK 94829 62502	Brant (Witham)	n	1	636	GB105030056770	Good	2	1		E	E	E	D
Upper Witham IDB	Burton	SK 94977 73348	Burton Catchwater	n	2.26	1319	GB105030062410	Good	3	1		E	E	E	C
Upper Witham IDB	Hykeham	SK 95540 65111	Witham	n	0.79	540	GB105030062370	Moderate	2	1		E	E	E	D
Upper Witham IDB	Ingleby	SK 91379 75696	Till	n	1.14	726	GB105030062410	Good	2	1		E	E	E	D
Upper Witham IDB	Pyewipe Rural	SK 95401 71907	Fossdyke	n	2.8	1675	GB105030062410	Good	3	1		E	E	E	C
Upper Witham IDB	Torksey	SK 85844 76873	Fossdyke	n	1.75	945	#N/A	#N/A	2	1		E	E	E	D
Upper Witham IDB	Broxholme	SK 91626 75522	Till	n	0.62	334	GB105030062410	Good	1	1		F	F	F	E
Upper Witham IDB	Decoy	SK 94835 71653	Skellinthorpe Drain	n	0.5	257	GB105030062410	Good	1	1		F	F	F	E
Upper Witham IDB	Fen Lane	SK 93701 72703	Skellinthorpe Drain	n	0.5	288	GB105030062410	Good	1	1		F	F	F	E
Upper Witham IDB	Oxpasture	SK 88007 73525	Fossdyke	n	4.2	1840	GB105030062390	No Data	3	1	b	F	E	E	C
Upper Witham IDB	Pyewipe Urban	SK 95401 71907	Fossdyke	n	0.6	53	GB105030062410	Good	0	1		F	F	F	F
Upper Witham IDB	Sand Syke	SK 94285 60063	Brant (Witham)	n	1	781	GB105030056770	Good	2	1	b	F	E	E	D
Upper Witham IDB	Saxilby	SK 91318 74485	Fossdyke	n	0.56	425	GB105030062390	No Data	1	1		F	F	F	E
Upper Witham IDB	Thorpe	SK 91619 79451	Cricket Till	n	0.45	244	GB105030062410	Good	1	1		F	F	F	E
Upwell IDD	Cock Fen	TL 54388 95860	Old Bedford	n	1.022	1586	GB105033047922	Good	3	4		B	B	B	C
Upwell IDD	Bedlam Bridge	TL 46770 94660	Sixteen Foot (StG)	n	0.9	841	GB105033047700	Good	2	4		C	C	C	D

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Upwell IDD	Nordelph	TF 54532 00942	Old Pophams Eau (StG)	n	0.935	524	GB105033047712	High	2	4		C	C	C	D
Upwell IDD	Padgetts Corner	TL 48375 97373	Sixteen Foot (StG)	n	0.12	101	GB105033047700	Good	1	4		D	D	D	E
Upwell IDD	Upwell Fen	TL 56483 98706	Old Bedford	n	0.511	377	GB105033047922	Good	1	4		D	D	D	E
Waldersey IDB	South Brink	TF 42523 05778	Tidal Nene	y	1.25	1180	GB205032077840	Blank	3	5		B	B	B	C
Waldersey IDB	Rings End	TF 39921 02985	Tidal Nene	y	0.425	937	GB105032050382	Good	2	5		C	C	C	D
Warboys, Somersham & Pidley IDB	High Fen	TL 35354 81998	Twenty Foot (StG)	n	0.45	788	GB105033043150	High	2	3		C	C	C	D
Warboys, Somersham & Pidley IDB	Pidley	TL 35205 81648	Twenty Foot (StG)	n	1	1577	GB105033043150	High	3	3		C	C	C	C
Warboys, Somersham & Pidley IDB	Puddock	TL 35130 87997	Forty Foot (StG)	n	0.75	1314	GB105033043180	Blank	3	3		C	C	C	C
Warboys, Somersham & Pidley IDB	Westmoor	TL 37328 88367	Forty Foot (StG)	n	0.41	578	GB105033043180	Blank	2	3		C	C	C	D
Warboys, Somersham & Pidley IDB	Acre Fen	TL 38456 85268	Twenty Foot (StG)	n	0.28	282	GB105033043150	High	1	3		E	E	E	E
Warboys, Somersham & Pidley IDB	Washways	TL 38558 85570	Twenty Foot (StG)	n	1.193	288	GB105033043150	High	1	3		E	E	E	E
Waterbeach Level IDB	Cam	TL 53709 71466	River Cam	n	3.26	2292	GB105033047850	Good	4	3		B	B	B	B
Waterbeach Level IDB	Holt Fen	TL 53572 73870	River Cam	n	0.754	172	GB105033047850	Good	1	3		E	E	E	E
Waterbeach Level IDB	Locks	TL 50856 65779	River Cam	n	0.359	256	GB105033042750	Good	1	3		E	E	E	E
Waveney, L. Yare & Lothingland	Haddiscoe	TM 45810 98697	Tidal Waveney	y	0.94	1688	GB105034050980	No Data	3	5		B	B	B	C
Waveney, L. Yare & Lothingland	Langley Double	TG 38881 02588	Tidal Yare	y	0.87	1275	GB105034051400	Blank	3	5		B	B	B	C
Waveney, L. Yare & Lothingland	Raveningham	TG 42594 01400	Tidal Yare	y	0.35	1506	GB105034051190	Poor	3	5		B	B	B	C
Waveney, L. Yare & Lothingland	Askews	TG 44526 00051	Tidal Waveney	y	0.5	630	GB105034050990	No Data	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Barnby	TM 49400 92775	Tidal Waveney	y	0.5	514	GB105034045900	Poor	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Belton	TG 47230 03695	Tidal Waveney	y	0.75	900	GB105034050990	No Data	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Burgh Castle	TG 48891 06406	Breydon Water	y	0.9	750	GB105034050990	No Data	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Burgh St Peter	TM 50008 94706	Tidal Waveney	y	0.5	862	GB105034045900	Poor	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Claxton	TG 34608 05088	Tidal Yare	y	0.35	776	GB105034051300	No Data	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Limpenhoe	TG 39937 01826	Tidal Waveney	y	0.5	630	GB105034051300	No Data	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Monks Loke	TG 36387 03728	Tidal Yare	y	0.35	724	GB105034051300	No Data	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Norton	TG 40306 01123	Tidal Yare	y	0.7	573	GB105034051190	Poor	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Wheatacre	TM 47789 95927	Tidal Waveney	y	0.5	897	GB105034045900	Poor	2	5		C	C	C	D
Waveney, L. Yare & Lothingland	Barsham	TM 40547 90814	Tidal waveney	y	0.345	248	GB105034045900	Poor	1	5		D	D	D	E
Waveney, L. Yare & Lothingland	Blundeston	TM 50160 94583	Tidal Waveney	y	0.7	252	GB105034051320	No Data	1	5		D	D	D	E
Waveney, L. Yare & Lothingland	Gillingham	TM 42022 91364	Tidal Waveney	y	0.6	207	GB105034045900	Poor	1	5		D	D	D	E
Waveney, L. Yare & Lothingland	Long Dam	TM 46119 91216	Tidal Waveney	y	0.47	284	GB105034045900	Poor	1	5		D	D	D	E
Waveney, L. Yare & Lothingland	North Cove	TM 47243 91687	Tidal Waveney	y	0.7	109	GB105034045900	Poor	1	5		D	D	D	E
Waveney, L. Yare & Lothingland	Worlingham	TM 45783 91182	Tidal Waveney	y	0.5	341	GB105034045900	Poor	1	5		D	D	D	E
Waveney, L. Yare & Lothingland	Caldecott	TG 46417 02105	Tidal Waveney	y	0.245	100	GB105034050990	No Data	0	5		F	F	F	F
Waveney, L. Yare & Lothingland	Short Dam	TM 48741 92428	Tidal Waveney	y	0.25	95	GB105034045900	Poor	0	5		F	F	F	F
Well& & Deepings IDB	Adventurers	TF 21300 21989	Vernatts drain	n	6.03	14475	GB105031050660	No Data	5	4		A	A	A	A
Well& & Deepings IDB	Deeping St Nicholas	TF 21274 21969	Vernatts Drain	n	15.76	14475	GB105031050670	Moderate	5	4		A	A	A	A
Well& & Deepings IDB	Bourne South Fen	TF 15139 18447	River Glen	n	1.64	1320	GB105031050720	Moderate	3	4		B	B	B	C

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
												Eel bypass	Eel screen	Elver pass	Coarse screen
Well& & Deepings IDB	Fourth Ditrict	TF 21513 22215	Vernatts Drain	n	1.5	1604	GB105031050700	No Data	3	4		B	B	B	C
Well& & Deepings IDB	Pinchbeck Marsh 1954	TF 26197 26142	Blue Gowt Outfall	n	1.5	1162	GB105031050700	No Data	3	4		B	B	B	C
Well& & Deepings IDB	Riddington	TF 26188 26184	Blue Gowt Outfall	n	1.5	1162	GB105031050700	No Data	3	4		B	B	B	C
Well& & Deepings IDB	Crowland and Cowbit	TF 25128 14860	River Welland	n	1.55	945	GB105031050680	Moderate	2	4		C	C	C	D
Well& & Deepings IDB	Maxey North Fen	TF 17331 07390	Maxey Cut	n	0.95	672	GB105031050680	Moderate	2	4		C	C	C	D
Well& & Deepings IDB	Surfleet Marsh	TF 28409 29847	Tidal Welland	y	0.7	506	GB105031050750	No Data	2	5		C	C	C	D
Well& & Deepings IDB	Surfleet Newbury	TF 24793 28005	River Glen	n	0.7	506	GB105031050720	Moderate	2	4		C	C	C	D
Well& & Deepings IDB	Five Towns	TF 31712 32275	Tidal Welland	y	5.1	3240	GB105031055530	No Data	4	5	b	D	A	A	B
Well& & Deepings IDB	Fosdyke Marsh	TF 34311 34204	Tidal Welland	y	0.42	240	GB105031055530	No Data	1	5		D	D	D	E
Well& & Deepings IDB	Kirton and Frampton	TF 35608 36467	Tidal Welland	y	0.71	363	GB105031055550	No Data	1	5		D	D	D	E
Well& & Deepings IDB	Risegate Eau	TF 30360 31644	Tidal Welland	y	4.77	3480	GB105031055520	No Data	4	5	b	D	A	A	B
White Fen DCA	White Fen	TL 34823 91104	Old Nene (StG)	n	0.44	796	GB105033047711	High	2	3		C	C	C	D
Whittlesey IDB	Beggars Bridge	TL 32452 96882	Twenty Foot (StG)	n	0.8	817	GB105033047690	Blank	2	3		C	C	C	D
Whittlesey IDB	Glasmoor Bank	TL 28446 93696	Bevills Leam (BL)	n	0.857	1385	GB105033047690	Blank	3	3		C	C	C	C
Whittlesey IDB	Ironside	TL 32120 94986	Whittlesey Dyke (StG)	n	0.34	790	GB105033047690	Blank	2	3		C	C	C	D
Whittlesey IDB	Manor Farm	TL 27660 95874	Whittlesey Dyke (StG)	n	1.4	1268	GB105033047690	Blank	3	3		C	C	C	C
Whittlesey IDB	Tebbits bridge	TL 24600 91300	Bevills Leam (BL)	n	1.35	1223	GB105033043200	High	3	3		C	C	C	C
Whittlesey IDB	Underwoods	TL 27358 92960	Bevills Leam (BL)	n	0.6	726	GB105033047690	Blank	2	3		C	C	C	D
Whittlesey IDB	Conquest Lode	TL 21717 91900	Black Ham (BL)	n	0.853	234	GB105033043200	High	1	3		E	E	E	E
Whittlesey IDB	Drysides	TL 23293 96470	Kings Dike (StG)	n	0.46	333	GB105033047690	Blank	1	3		E	E	E	E
Whittlesey IDB	Goosetree Estate	TL 35740 99413	Twenty Foot (StG)	n	0.917	442	GB105033047711	High	1	3		E	E	E	E
Whittlesey IDB	Lords Farm	TL 20346 90820	Yaxley Lode (BL)	n	1.05	342	GB105033043200	High	1	3		E	E	E	E
Whittlesey IDB	Old Plantation Farm	TL 31131 90586	Old Nene (StG)	n	0.67	297	GB105033047711	High	1	3		E	E	E	E
Whittlesey IDB	Plantation Farm	TL 31961 90947	Old Nene (StG)	n	0.42	297	GB105033047711	High	1	3		E	E	E	E
Whittlesey IDB	Ramsey Mereside	TL 30203 89121	Old Nene (StG)	n	2.08	369	GB105033047711	High	1	3		E	E	E	E
Whittlesey IDB	Wype Doles	TL 30569 95602	Whittlesey Dyke (StG)	n	0.4	283	GB105033047690	Blank	1	3		E	E	E	E
Whittlesey IDB	Goosetree Corner	TF 37883 01128	Twenty Foot (StG)	n	0.21	92	GB105033047711	High	0	3		F	F	F	F
Witham 1st District IDB	Blankney	TF 16587 63599	River Witham	n	2.65	2137	GB105030056220	No Data	4	3		B	B	B	B
Witham 1st District IDB	Chapel Hill	TF 20001 54096	Kyme Eau	n	2.5	1000	GB105030056710	Poor	3	4		B	B	B	C
Witham 1st District IDB	Farroway	TF 14620 53236	Billinghay Skirth	n	2.619	2800	GB105030056140	No Data	4	3		B	B	B	B
Witham 1st District IDB	Timberland	TF 18841 58355	River Witham	n	2.93	2065	GB105030056200	No Data	4	4		B	B	B	B
Witham 1st District IDB	Billinghay	TF 17772 55921	Billinghay Skirth	n	0.93	664	GB105030056200	No Data	2	3		C	C	C	D
Witham 1st District IDB	Branston	TF 09953 70231	South Delph	n	1.182	844	GB105030062420	Moderate	2	3		C	C	C	D
Witham 1st District IDB	Digby	TF 14130 53874	Dorrington Dyke	n	1.01	729	GB105030056190	No Data	2	3		C	C	C	D
Witham 1st District IDB	Heighington	TF 07122 71507	South Delph	n	1.11	796	GB105030062420	Moderate	2	3		C	C	C	D
Witham 1st District IDB	Metheringham	TF 14056 66166	River Witham	n	2.1	1448	GB105030062420	Moderate	3	3		C	C	C	C
Witham 1st District IDB	Nocton	TF 11927 67393	River Witham	n	2.34	1668	GB105030062420	Moderate	3	3		C	C	C	C
Witham 1st District IDB	North Kyme	TF 17336 53916	New Drain	n	1.1	787	GB105030056180	High	2	3		C	C	C	D

Drainage Board	Pumping Station	NGR	Flows to	Tidal ?	Capacity m^3/sec	Catchment Area km^2	WFD number	WFD fisheries status	CA score	Distance score	Factors	Priority Band			
												Eel bypass	Eel screen	Elver pass	Coarse screen
Witham 1st District IDB	Sandhills Beck	TF 04219 71369	South Delph	n	0.85	170	GB105030062420	Moderate	1	3		E	E	E	E
Witham 1st District IDB	Ringmoor	TF 15127 54041	Ringmoor Catchwater	n	0.06	15	GB105030056180	High	0	3		F	F	F	F
Witham 3rd District IDB	Duckpool	TF 15767 65202	Duckpool Catchwater	n	0.615	2083	GB105030062440	No Data	4	3		B	B	B	B
Witham 3rd District IDB	Southrey	TF 14151 66235	River Witham	n	1.634	2083	GB105030062420	Moderate	4	3		B	B	B	B
Witham 3rd District IDB	Greetwell	TF 01450 71009	River Witham	n	1.14	1994	GB105030062420	Moderate	3	3		C	C	C	C
Witham 3rd District IDB	Short Ferry Diesel	TF 08795 71302	Old R Witham	n	3.136	1994	GB105030062420	Moderate	3	3		C	C	C	C
Witham 3rd District IDB	Short Ferry Electric	TF 08795 71302	Old R Witham	n	2.334	1994	GB105030062420	Moderate	3	3		C	C	C	C
Witham 3rd District IDB	Woodhall	TF 17506 62452	River Witham	n	2.26	1030	GB105030062420	Moderate	3	3		C	C	C	C
Witham 3rd District IDB	Coningsby Ings	TF 21437 57338	River Bain	n	0.794	259	GB105030062450	Good	1	4		D	D	D	E
Witham 3rd District IDB	Dogdyke Diesel	TF 20574 55824	River Witham	n	0.366	287	GB105030062420	Moderate	1	4		D	D	D	E
Witham 3rd District IDB	Dogdyke Electric	TF 20962 55613	River Witham	n	0.44	287	GB105030062450	Good	1	4		D	D	D	E
Witham 3rd District IDB	Marsh Lane	TF 19383 57860	River Witham	n	0.44	313	GB105030062420	Moderate	1	4		D	D	D	E
Witham 3rd District IDB	Abbey Fen Drain	TF 10521 70624	River Witham	n	0.116	105	GB105030062230	No Data	1	3		E	E	E	E
Witham 3rd District IDB	Bardney Beck	TF 10553 70414	Old R Witham	n	0.397	260	GB105030062230	No Data	1	3		E	E	E	E
Witham 3rd District IDB	Bardney Manor Fm	TF 12029 67788	River Witham	n	0.51	278	GB105030062420	Moderate	1	3		E	E	E	E
Witham 3rd District IDB	Kirkstead	TF 18765 60247	Kirkstead Mill Beck	n	0.896	340	GB105030062420	Moderate	1	3		E	E	E	E
Witham 3rd District IDB	Stainfield	TF 09423 71635	Barlings Eau	n	0.51	351	GB105030062290	Good	1	3		E	E	E	E
Witham 3rd District IDB	Stainfield New	TF 09461 71608	Barlings Eau	n	0.116	105	GB105030062290	Good	1	3		E	E	E	E
Witham 3rd District IDB	Stixwold	TF 15694 65132	Duckpool Catchwater	n	3.583	2083	GB105030062420	Moderate	4	3	b	E	B	B	B
Witham 4th District IDB	Lade Bank	TF 36446 39932	Lower Hobhole Drain	n	17	12467	GB105030056320	No Data	5	4		A	A	A	A
Witham 4th District IDB	Wrangle	TF 46812 50923	The Wash	y	2.63	2187	GB105030056370	No Data	4	5		A	A	A	B
Witham 4th District IDB	Benington	TF 41807 44466	The Wash	y	1.41	705	GB105030056270	No Data	2	5		C	C	C	D
Witham 4th District IDB	Hobhole	TF 36593 39923	The Haven	y	36.5	34000	GB105030056320	No Data	6	5	b	C	A	A	A
Witham 4th District IDB	Leverton	TF 43461 47310	The Wash	y	1.41	667	GB105030056270	No Data	2	5		C	C	C	D
Witham 4th District IDB	Boston East	TF 33243 44588	Maud Foster Drain	n	0.34	83	GB105030056790	Moderate	0	4		F	F	F	F
Witham 4th District IDB	Littlemoor Lane	TF 34398 52191	Sibsey Trader	n	0.26	93	GB105030056790	Moderate	0	4		F	F	F	F