The Otter (Lutra Lutra) on the River Leven North Yorkshire

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Abstract

The frequency of otter sprainting activity has been monitored each month over a period from 2002 to 2011, at a series of sites on the River Leven and some of it's tributary streams in North Yorkshire.

The note describes the method employed and gives results in terms of annual totals and variations.

Other miscellaneous data is given, including likely fish prey items and some data on road traffic accidents involving otters in the area.

Some speculative comments are made on possible otter movements between several other adjacent river systems, and the need for more sophisticated studies to investigate this possibility.

1. Introduction

I first became interested in surveying for otters in the late 1970's after hearing a talk by Gordon Woodroffe describing his work on the Yorkshire Esk, and wondering if there were any otters on the River Leven which runs through my home village of Great Ayton. From February 1979 to February 1981 I did a total of 52 site visits, involving 9 sections of the river but encountered just 3 signs of otter. Twenty years later, my retirement in 1999 coincided with the launch of the Northumbrian Otters and Rivers Project so I decided to get involved, as following reports of an increase in signs generally, I was curious to see if the same applied locally. Initially, I monitored a few sites around the village on a routine basis, including other sites as and when time permitted. Then the idea was born to commit to a longer term survey, covering a wider area. A number of sites were selected to be monitored each month. Foot and Mouth restrictions curtailed activity in 2001, so the survey started in January 2002, and continued until December 2011.

2 Background

The otter population of Britain, and especially England, fell dramatically from the mid 1950's, largely due to the introduction of organochlorine pesticides in agricultural practices. Once the problem had been identified and appropriate remedial action taken, the decline halted. Otter numbers started from a very low base, to make a slow recovery. In some areas, re-introductions from captive bred stock were carried out. Recovery continued, but at different rates throughout the country as young animals dispersed into their own territories.

In North Yorkshire, a project was undertaken by Woodroffe (1) and others, to introduce rehabilitated animals to several sites on the River Derwent system and to the River Esk to reinforce small existing populations. This took place between 1990 and 1993, and subsequent monitoring over several years showed an increasing number of otter signs, and evidence that breeding had occurred. There was the distinct possibility that otters may have dispersed more widely, and a survey of 17 sites largely covering the length of the Leven and some of it's tributaries was carried out in May 1995 by Woodroffe and Winter (2) found 4 of the sites positive (23.5%).

In February 1998, O'Hara surveyed the Leven (3)and found 5 positive sites from 13 examined (38.5%), all of these positive sites being located in the lower stretches of the river.

3 Method

3.a Sites

The River Leven rises on Warren Moor above Kildale in the northern part of the North York Moors at a height of 279m (915 ft), and flows indirectly northwesterly before joining the Tees below Yarm, a distance of approximately 29miles) (Fig 1). Many of the tributary streams arise in the North York Moors and join the river near Stokesley. The only significant exception is the Tame which drains the generally flat agricultural land extending towards Guisborough. Although the Leven and it's feeder streams pass through several villages, the largest being Great Ayton, Stokesley and Hutton Rudby, much of the river system lies in quiet, undisturbed countryside. A high proportion of the river course passes through mature woodlands, and there are many sidestreams which afford shelter for lying up and potential breeding sites.

In view of the observations by O'Hara on the favourable conditions and yield of spraints below Stokesley, priority was generally directed towards the upper reaches and feeder streams where fish food resource may not be quite so abundant. Eleven sites were selected – seven being on the main river and the remainder on tributaries. They are shown in Table 1.

Kildale	NZ 607 097
Little Ayton	NZ 569 102
Leven Court , Great Ayton	NZ 565 104
Friends School Weir, Great Ayton	NZ 564 105
Stone Bridge, Great Ayton	NZ 557 107
Ayton Grange, Great Ayton	NZ 552 102
Broughton Beck Bridge, Stokesley	NZ 539 079
Ingleby Beck, Ingleby Greenhow	NZ 589 065
Broughton Beck, Great Broughton	NZ 546 063
Potto Beck, Swainby	NZ 476 023
Nunthorpe Stell – River Tame	NZ 551 133

Sites Monitored during the Survey-Table 1

Having built up an idea of the sort of features favoured by otters for sprainting, suitable stones were positioned (some concreted in position to resist flood conditions) at a number of the sites to induce them to scent mark – and this proved successful.

A further criteria was that the sites should be readily accessible by road so that examinations could be carried out within limited time constraints. As a result, some sites were under road bridges in rural built up areas, for example, in Great Ayton, under the busy A173 bridge, with significant human activity close by.

After five years (2002-2006 incl.), the distribution of sites was reviewed, as it was considered to be too concentrated in the Little and Great Ayton area. Consequently the sites at Leven Court, the Friends School Weir and Ayton Grange were no longer monitored on a regular basis. In June, 2007 a sprainting site was set up

under a bridge on the Nunthorpe Stell which is a feeder stream of the River Tame, following reports of otters using the stream.

3.b Spraint Counts

At the end of each month, counts were made of the fresh spraints which had been deposited since the previous examination. A series of different coloured poster paints were used to distinguish previous months spraints. Also included in the count were deposits of anal jelly and "tarry/oily" deposits with little or no solid or bone content as these also hold the scent used for communication.

4. Results

Figure 2 shows the annual total of spraints counted at the seven sites with the longest periods of monitoring. It is clear from the results that otters were active at all the selected sites to a varying extent.

The highest total number of spraints deposited over the 10 year period was at Swainby on Potto Beck where a total of 480 spraints was deposited. The next highest total of 389 was from Ingleby Greenhow. Both these sites are on tributaries of the river. The highest number of spraints recorded for the river were from Little Ayton 362, Stone Bridge, Great Ayton 238 and Broughton Bridge Beck at Stokesley 235 spraints). NB these latter 2 values were from just 9 years surveying (Table 2).

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Site	Years Surveyed	Total Spraint	10 year Equivalent	Max No. & year	Min No. & year
Kildale	8.75	198	(226)	33, 2004	12, 2006
Little Ayton	10	362	-	48, 2005	23, 2003
Leven Court, G.A.	5	65	(130)	17, 2004	6, 2006
F.S.Weir, G.A.	5	63	(126)	22, 2002	4, 2006
Stone Bridge, G.A.	9	238	(264)	43, 2008	11, 2006
Ayton Grange, G.A.	5	90	(180)	30, 2003	11, 2006
Ingleby Greenhow	10	389	-	48, 2010	33, 2002
Broughton Bridge B.	9	235	(261)	37, 2004	15, 2007
Great Broughton	9	128	(142)	30, 2008	3, 2002
Swainby	10	480	-	80, 2007	17, 2010

Total Number of Spraints/Site over the Survey Period-Table 2

At the 7 sites with the longer periods of observation, the average number of spraints /month/year varied throughout the year, with the lowest values of 1.3 and 1.6 in June and July respectively, the highest being 3.2 and 3.0 for March and September respectively (Table 3).

Site	J	F	M	A	M	J	J	A	S	O	N	D	years
Kildale	1.9	2.4	3.1	2.7	2.1	0.9	1.1	2.1	2.0	1.1	1.9	2.0	8.75
Little Ayton	3.4	3.2	4.4	3.6	2.6	1.3	2.8	2.8	2.7	2.6	3.5	3.2	10
Stone Bridge, G.A.	1.7	1.6	2.3	2.2	1.6	1.0	1.8	1.4	3.2	3.6	3.2	2.9	9
Ingleby Greenhow	3.3	4.9	3.7	3.8	2.7	2.4	2.0	2.7	3.4	2.5	3.6	4.0	10

Broughton Beck Bridge	3.0	2.6	3.2	2.3	1.6	0.8	2.1	2.4	3.2	1.6	1.2	2.7	9
Great Broughton	1.4	1.4	1.2	0.8	1.3	0.4	0.7	0.8	1.7	1.8	1.6	1.1	9
Swainby	5.2	3.4	4.6	4.2	3.7	2.5	2.5	4.0	4.8	4.4	4.0	4.7	10
Average – all sites	2.8	2.8	3.2	2.8	2.2	1.3	1.6	2.3	3.0	2.5	2.0	2.9	

Average Number of Spraints / Month-Table 3

Fig. 2 is a bar chart which shows the total number of spraints found each month at the seven sites which were monitored over the longest periods. In general, the sprainting activity appears to be reasonably consistent for each given site with possible indication of small long term increases at Kildale, Little Ayton and Ingleby Greenhow. At Swainby however, the number of spraints increased to an annual maximum of 80 in 2007, the highest number for any of the sites, but from this high count, the totals for the next 3 years progressively fell to a low of 17 in 2010. Nothing as extreme as this happened at any of the other sites.

The results from Nunthorpe have not been included in the overall averages because of the relatively short period of monitoring, and two winters when flooding seriously disrupted spraint counting. However, it is worth recording that in 2009, there were two consecutive months when eight spraints were counted; much more activity than had previously been recorded on this small stream This was found to be the result of a family group using the stream and which was captured on camera several times by Kenny Crooks of The Tees Valley Wildlife Trust as part of their Wild Places Project.

5) Discussion

The River Leven has a history of otter activity in past centuries, although regrettably, much arising from persecution. The Great Ayton Church Warden's accounts show that between 1745 and 1775 four entries were made, when a one shilling bounty was given for an otter's head. This would seem to be quite a low number in relation to the numbers believed to be present today, from which it may be speculated either that the otter wasn't such a serious pest at that time or possibly not so common as it is today. In the late 1800s, children at Crathorne School were given a days holiday when one of the otter hunts came to work the Leven. More recently, Jack Grayson, a blacksmith at Great Ayton shot otters for their pelts in the years shortly following the Second World War.

To what extent the local population was affected by the organo-chlorine pesticide pollution which had such a devastating effect on otter numbers throughout England and beyond, is unknown, but the Biological Records Centre/Mammal Society Otter Distribution Map for 1970-1978 indicates the possibility that a small population may have survived in North East Yorkshire The Leven is remarkably well connected in this respect for the recruitment of animals from adjacent river systems.

Northumberland rivers were found to be relatively less seriously affected by the pesticide pollution and maintained a significant population during this period. It is possible that otters may have dispersed south along the Pennine watersheds to the upper reaches of the River Tees. Before 1995, the lower stretch of the Tees at its confluence with the Leven was tidal and seriously polluted by industrial discharges. However, since the construction of the Tees barrage in 1995, water quality has

improved profoundly to the great benefit of fish and other wildlife. Indeed, one member of the Tees Rowing Club was recently quoted as “having seen more otters on the Tees, than in a week looking for them in Scotland”.

The River Tame which joins the Leven downstream from Stokesley, has it’s origin close to Guisborough, where several otter road casualties have been reported. From here it is a short distance to Howl Beck, which reaches Skelton Beck which flows on towards the coast at Saltburn.

To the west are potential links with the River Swale via the source streams of Cod Beck and the River Wiske, and being separated from the Scugdale and Potto Becks of the Leven system by short distances relative to an otters overland capabilities. To the east, close to its source, the Leven is less than half a mile fromSleddale and Baysdale Becks. Spraints have often been found in this area and in 2010 a live sighting was made. These Becks join the Yorkshire Esk and onward to the sea. Otter Hills Beck is another Leven tributary which is within a short overland distance of Baysdale, and in which sprainting has been recorded in the higher reaches where the stream is so small as to offer little in the way of sustenance.

The sources of several streams, the rivers Rye, Seph, Dove and Hodge Beck which form a significant part of the catchment for the River Derwent, are also potentially accessable across the moor tops to Ingleby and Scugdale Becks on the Leven system. However, more work needs to be done in this area to find specific evidence of otter movements; the best so far being spraints in the upper reaches of Ingleby Beck and Otter Hills Beck. These links would be of particular relevance to the otter population of the Leven following the Otter Reinforcement Programme of releases into streams in the Derwent and Esk river systems carried out between 1990 and 1993.

Many otters are killed on roads and this area is no exception, with at least 13 over a 12 year period have been brought to the attention of the writer, and it is known that there have been several more in the area. More details are given in Table 4. This data would suggest the male is particularly vulnerable from mid summer to early autumn.

Date	**Location**	
Jan. 2000	Dunsdale	Lactating female, 6.1 kg
March 2000	Stokesley	Non–lactating female, 5.8 kg
Oct. 2002	Faceby	
Sept. 2004	Easby	Male, 8.25kg
2005	Loftus	
Jan. 2006	Croft	
Jan. 2006	Stewarts Park, Middlesbrough	
Summer 2007	Swainby	
Sept. 2007	Stokesley	Male, 7.5 kg
Oct. 2007	Scaling Dam	
Aug. 2008	Great Ayton	Male
July 2008	A174 Parkway, Middlesbrough	Male, 5.9 kg
Sept. 2009	Yarm	Male, 9.1 kg

Otter Road Casualties -Table 4

Despite this loss of animals there were no apparent reductions in the sprainting frequency at those sites in the immediate area of the fatality.

One interesting observation on the Sept. 2007 specimen from Stokesley was that it had suffered wounding in the genital region as a result of fighting to establish or defend territory, and this behaviour is generally accepted as a sign that the otter population may be increasing to a level where food resources are becoming more limited. It may therefore, be significant that at least seven cases of otters raiding ponds have been brought to the attention of the author since 2008. One was even recorded on camera (again by Kenny Crooks), from the garden pond of a house in suburban Middlesbrough, demonstrating remarkable foraging ability to target food resources. The erection of electric fencing is the only successful and legal way to combat similar poaching incidents.

Further potential conflict with human commercial activities may arise when otters cross land which is maintained for shooting, and there is no doubt that otters would take eggs and birds if they were to encounter them. There is equally little doubt that gamekeepers would take steps to resolve the issue.

A pollution incident on the Main Stell at Nunthorpe in August 2005 killed trout, eels, lamprey, minnows, stone loach and bullheads and provided some evidence on the potential prey fish available in the smaller streams. It is notable that less than two years later, the presence of spraints indicated that otters were using the adjacent Nunthorpe Stell. Three spined stickleback, pike, and grayling are also known to be present in the survey area. Further downstream, dace, chub and gudgeon are present. Following the installation of a fish pass at Leven Bank in 2007, the Environment Agency has found that salmon are now using the Leven once more after a period of some 150 years.

That otters are using the Leven and it's feeder streams with some regularity is clear, and that with one possible exception, the numbers of spraints counted at the different sites suggest a healthy population is being sustained throughout the Leven system. It may be significant that the site monitored at Potto Beck, Swainby was the site with the highest rate of spraint deposition, and is also close to a number of adjacent rivers known to be used by otters. What is not known however, is how many animals use the river, or to what extent they are resident or transient, or where they may come from or go to. It remains unclear whether there is any routine or pattern to their movements. To attempt to answer these questions would require the use of equipment or techniques beyond the scope of an amateur field naturalist. Nevertheless, the feasibility of extending the work to investigate these aspects could be considered by interested parties who may have access to appropriate facilities and resources. The River Leven, situated as it is at the hub of several other river systems, each with their own otter populations, would seem to present an ideal venue for more sophisticated studies of otter behaviour by University, Governmental or other environmental research bodies.

6) Concluding comments

The objective of many otter surveys is to record the presence or absence of otters in a river system at a given point in time. The work described goes further in that by using a consistent effort, the frequency of the sprainting activity indicates their presence in the River Leven and it's feeder streams over a ten year period, and variations from the normal which may occur.

As such, the study is not particularly remarkable, in that it could have been carried out at numerous sites all over the country, probably with similar results following the resurgence in the otter population nationally. No new information has been uncovered on otter behaviour. What it does however, is to place on record, the

experiences of one amateur surveyor, and the gathering of miscellaneous associated data from one small area which may be of wider interest. The data provided serves as a benchmark to assess the status of the otter in this river system in the future. It also enables monitoring to be continued on a smaller scale, perhaps at just one site for example. More importantly however, it raises many more questions on the scale and range of otter movements in this and adjacent river systems. With a generally consistent otter population and appropriate resources, the Leven catchment could serve as a very appropriate area for more comprehensive work in the future.

Acknowledgements
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References:

1) Woodroffe, G. Reinforcing Otter Populations of the Derwent and Esk Catchments in North Yorkshire, British Wildlife, Vol **9**,p.145-153.
2) Woodroffe, G. & Winter, L. Survey results, unpublished data.
3) O' Hara, K. Unpublished data.

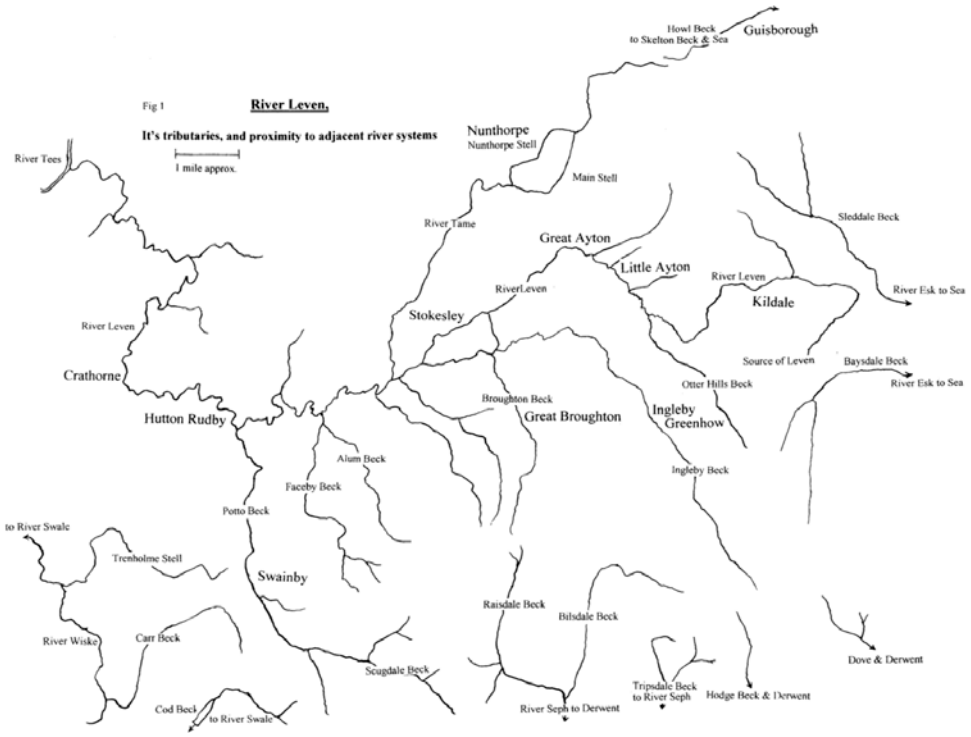
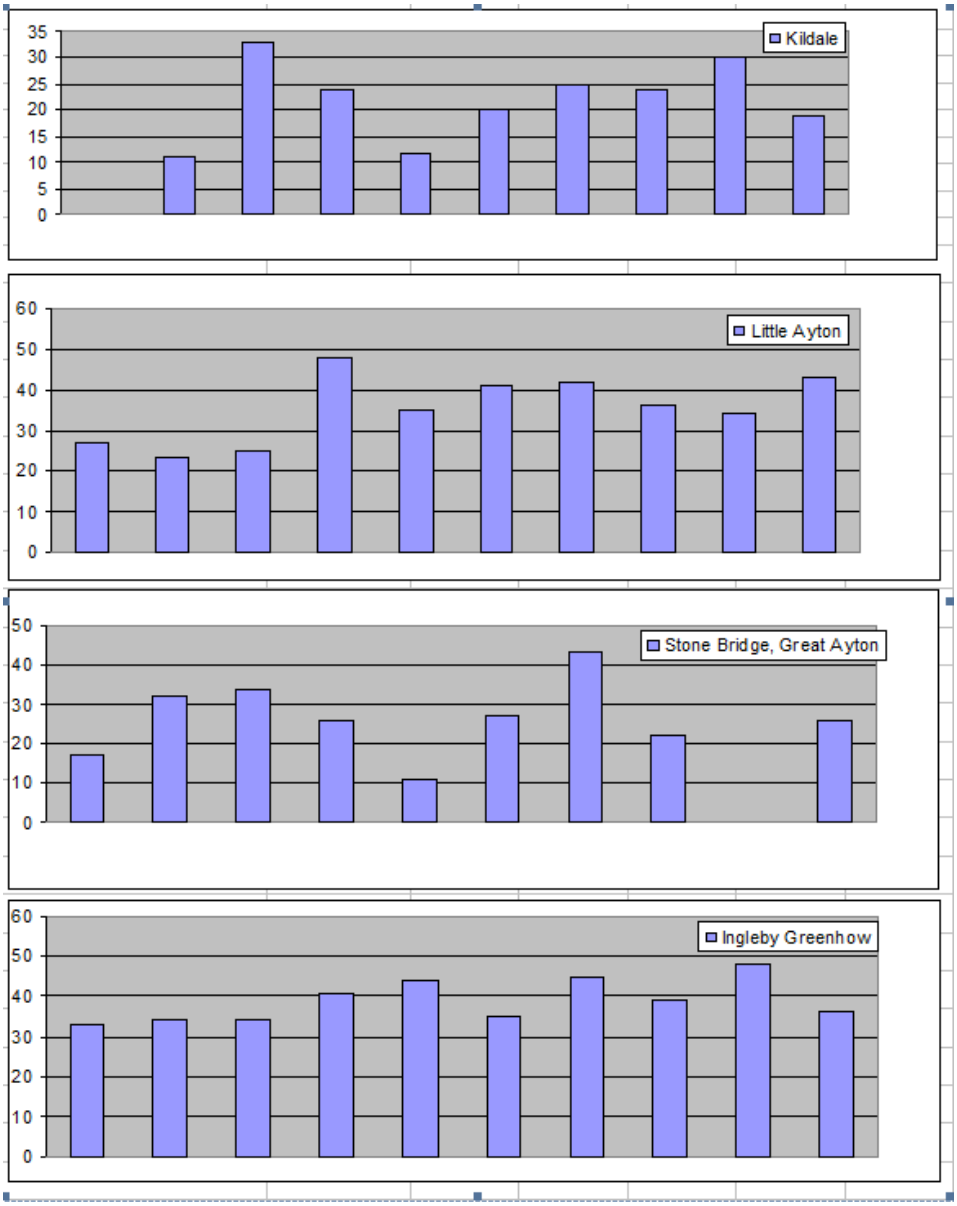
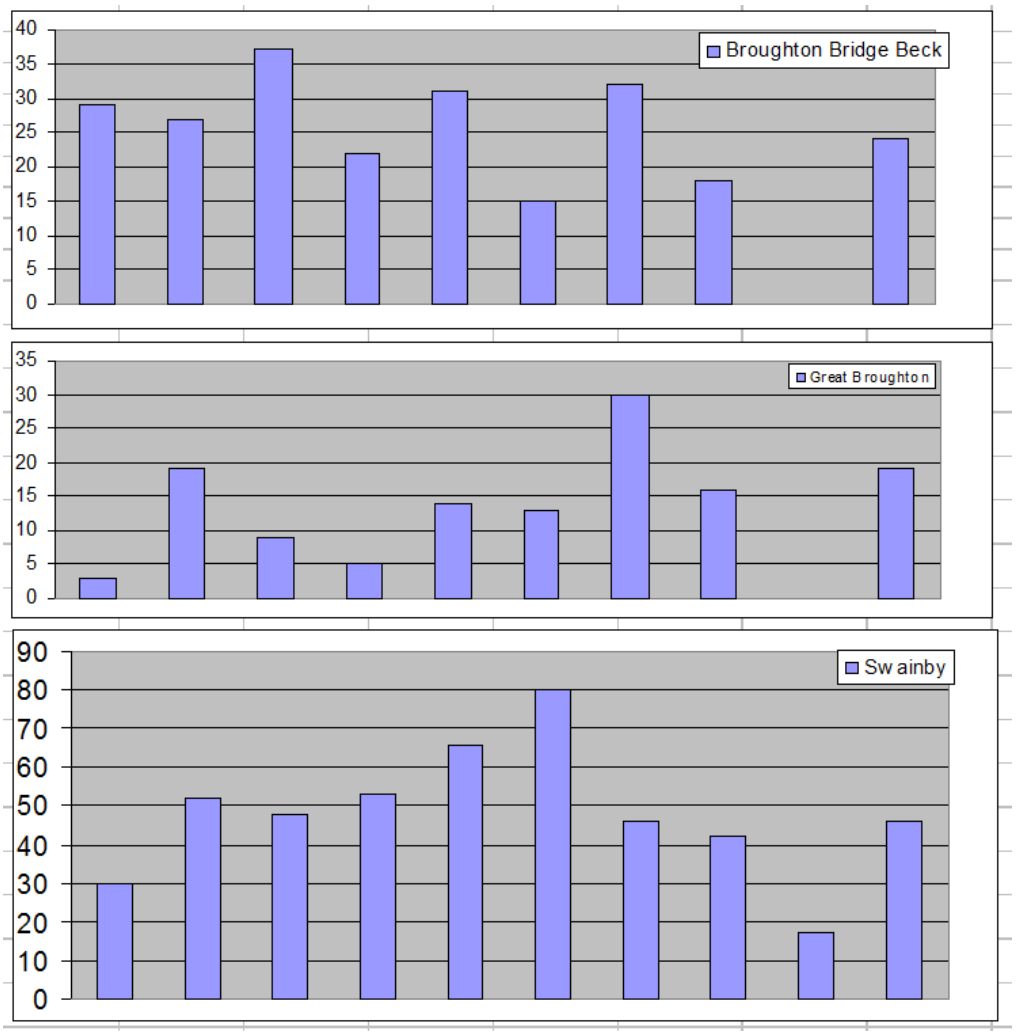


Fig 1
River Leven,
It's tributaries, and proximity to adjacent river systems
1 mile approx.
Howl Beck
to Skelton Beck & Sea
Guisborough
Nunthorpe
Nunthorpe Stell
Main Stell
River Tees
River Tame
Great Ayton
Little Ayton
Sleddale Beck
River Leven
Kildale
River Esk to Sea
RiverLeven
Stokesley
River Leven
Crathorne
Source of Leven
Baysdale Beck
Otter Hills Beck
River Esk to Sea
Broughton Beck
Great Broughton
Ingleby
Greenhow
Hutton Rudby
Alum Beck
Ingleby Beck
Faceby Beck
Potto Beck
to River Swale
Trenholme Stell
Swainby
Raisdale Beck
Bilsdale Beck
River Wiske
Carr Beck
Dove & Derwent
Scugdale Beck
Tripsdale Beck
to River Seph
Hodge Beck & Derwent
Cod Beck
to River Swale
River Seph to Derwent



Total Number of Spraints/Site/Year 2002 – 2011-Fig 2



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