

Yorkshire Water Drought Plan 2022

Baseline Data & Sensitivity Analysis for Yorkshire Water Ltd. completed by Ricardo.

Version 2.1

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Issue Date: 05/09/2022

Approved By: Paul Cronje



This review and analysis of additional baseline monitoring data has been undertaken in support of potential drought permit/order applications by Yorkshire Water in late summer 2022. This review had included incorporation of the available 2020-21 data from the Yorkshire Water and Environment Agency baseline monitoring programmes as well as review of updated Water Framework Directive (WFD) status of designated waterbodies which contain the impacted reaches. The results of this analysis are presented for each impacted reach for both macroinvertebrate and fisheries communities. A summary of the sensitivity analysis is also provided, indicating any changes from the analysis presented in the 'shelf copy' 2021 Environmental Assessments Reports, and where appropriate any changes to monitoring and/or mitigation requirements for each reach.

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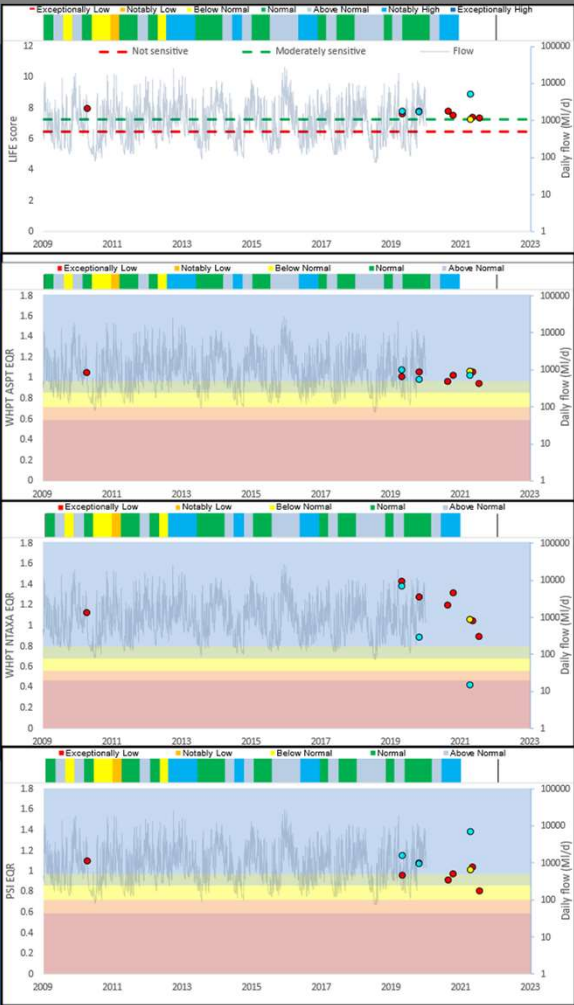
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Area	Drought Options	Reach	WFD Waterbody	WB ID	2016			2019			Change between 2016 and 2019?		
					Overall Water Body	Fish	Invertebrates	Overall Water Body	Fish	Invertebrates	Overall Water Body	Fish	Invertebrates
Ouse	River Ouse at Moor Monkton	Ouse 1	River Ouse from River Nidd to Stillingfleet Beck	GB104027 GB104027069593	Moderate	#N/A	High	Moderate	#N/A	High	No	No	No
Wharfe	River Wharfe at Lobwood	Wharfe 1	River Wharfe from Barben Beck/ River Dibb to Hundwith Bi	GB104027064257	Moderate	Moderate	High	Moderate	Moderate	High	No	No	No
Wharfe	River Wharfe at Lobwood	Wharfe 2	River Wharfe from Hundwith Beck to River Washburn	GB1 GB104027064258	Moderate	#N/A	High	Moderate	#N/A	High	No	No	No
Wharfe	River Wharfe at Lobwood	Wharfe 3	River Wharfe from River Washburn to Collingham Beck	GE GB104027064254	Moderate	#N/A	High	Moderate	#N/A	High	No	No	No
Wharfe	River Wharfe at Lobwood	Wharfe 4	River Wharfe from Collingham Beck to Tadcaster Weir	GB GB104027064255	Moderate	#N/A	High	Moderate	#N/A	High	No	No	No
Wharfe	River Wharfe at Lobwood	Wharfe 5	River Wharfe from Tadcaster Weir to River Ouse	GB10402 GB104027064256	Moderate	#N/A	High	Moderate	#N/A	High	No	No	No
Ure	River Ure at Kilgram Bridge	Ure 1	River Ure from Thornton Steward Beck to River Skell	GB1C GB104027069461	Moderate	Moderate	High	Moderate	Moderate	High	No	No	No
Hull	River Hull at Hempholme	Hull 1	River Hull from West Beck to Arram Beck	GB1040260670C GB104026067000	Moderate	Good	High	Moderate	Moderate	High	No	Yes	No
Hull	River Hull at Hempholme	Hull 2	River Hull from West Beck to Arram Beck	GB1040260670C GB104026067000	Moderate	Good	High	Moderate	Moderate	High	No	Yes	No
Hull	River Hull at Hempholme	Hull 2	Hull from Arram Beck to Humber	GB104026067212 GB104026067212	Moderate	#N/A	High	Moderate	#N/A	High	No	No	No
Hull	River Hull at Hempholme	Hull 2	Humber Middle	GB530402609202 GB530402609202	Moderate	Good	#N/A	Moderate	Good	#N/A	No	No	No

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Site Order	Site ID	NGR	Site Name	Survey count	Survey Range	LIFE SCORE MAX	LIFE SCORE MAX class	LIFE SCORE MIN	LIFE SCORE MIN class	LIFE SCORE MEAN	LIFE SCORE MEAN class	WHPT ASPT EQR MAX	WHPT ASPT EQR MAX class	WHPT ASPT EQR MIN	WHPT ASPT EQR MIN class	WHPT ASPT EQR MEAN	WHPT ASPT EQR MEAN class	WHPT NTAXA EQR MAX	WHPT NTAXA EQR MAX class	WHPT NTAXA EQR MIN	WHPT NTAXA EQR MIN class	WHPT NTAXA EQR MEAN	WHPT NTAXA EQR MEAN class	PSI MAX	PSI MAX class	PSI MIN	PSI MIN class	PSI MEAN	PSI MEAN class
1	647	SE2263781055	URE	7	12/04/2010 to 16/07/2021	1.05	High	0.97	High	1.01	High	1.06	High	0.95	Good	1.02	High	1.43	High	0.89	High	1.18	High	1.09	High	0.80	High	0.98	High
2	77357	SE1996985810	Ure 1	1	14/04/2021	0.96	Good	0.96	Good	0.96	Good	1.06	High	1.06	High	1.06	High	1.05	High	1.05	High	1.05	High	1.01	High	1.01	High	1.01	High
3	197331	SE2327080090	URE	3	25/04/2019 to 14/04/2021	1.18	High	1.03	High	1.08	High	1.08	High	0.99	High	1.03	High	1.38	High	0.42	Bad	0.89	High	1.38	High	1.07	High	1.20	High

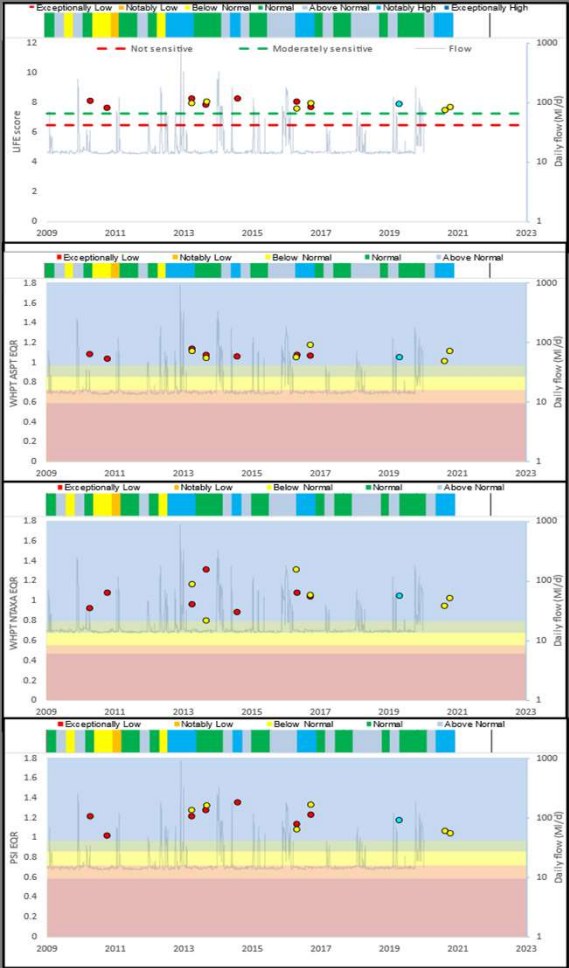


WHPT Classification	WHPT ASPT EQR	WHPT NTAX EQR	LIFE EQR (Non-WFD)	PSI EQR (Non-WFD)
High	0.97	0.8	0.97	0.8
Good	0.97	0.8	0.97	0.8
Moderate	0.86	0.68	0.94	0.7
Poor	0.72	0.56	0.88	0.6
Bad	0.59	0.47	0.83	0.5

Tab
Sensitivity
Ure 1 - Macroinvertebrates
Ure 1 - Fish
Ure 2 - Macroinvertebrates
Ure 2 - Fish
Ouse 1 - Macroinvertebrates
Ouse 1 - Fish
Wharfe 1 - Macroinvertebrates
Wharfe 1 - Fish
Hull 1 - Macroinvertebrates
Hull 1 - Fish
Hull 2 - Macroinvertebrates
Hull 2 - Fish

Site Order	Site ID	NGR	Site Name	Survey count	Survey Range	LIFE SCORE MAX	LIFE SCORE MAX class	LIFE SCORE MIN	LIFE SCORE MIN class	LIFE SCORE MEAN	LIFE SCORE MEAN class	WHPT ASPT EQR MAX	WHPT ASPT EQR MAX class	WHPT ASPT EQR MIN	WHPT ASPT EQR MIN class	WHPT ASPT EQR MEAN	WHPT ASPT EQR MEAN class	WHPT NTAXA EQR MAX	WHPT NTAXA EQR MAX class	WHPT NTAXA EQR MIN	WHPT NTAXA EQR MIN class	WHPT NTAXA EQR MEAN	WHPT NTAXA EQR MEAN class	PSI MAX	PSI MAX class	PSI MIN	PSI MIN class	PSI MEAN	PSI MEAN class
1	319	SE2706778780	URE	7	12/04/2010 to 20/09/2016	1.09	High	1.01	High	1.06	High	1.14	High	1.03	High	1.07	High	1.32	High	0.89	High	1.05	High	1.36	High	1.02	High	1.21	High
2	595	SE3195471979	URE	6	04/04/2013 to 16/10/2020	1.09	High	1.01	High	1.05	High	1.17	High	1.01	High	1.08	High	1.32	High	0.81	High	1.06	High	1.33	High	1.04	High	1.19	High
3	197332	SE2373377578	URE	1	25/04/2019	1.05	High	1.05	High	1.05	High	1.05	High	1.05	High	1.05	High	1.05	High	1.05	High	1.05	High	1.18	High	1.18	High	1.18	High

WHPT Classification	WHPT ASPT EQR	WHPT NTAXA EQR	LIFE EQR (Non-WFD)	PSI EQR (Non-WFD)
High	0.97	0.8	0.97	0.8
Good	0.97	0.8	0.97	0.8
Moderate	0.86	0.68	0.94	0.7
Poor	0.72	0.56	0.88	0.6
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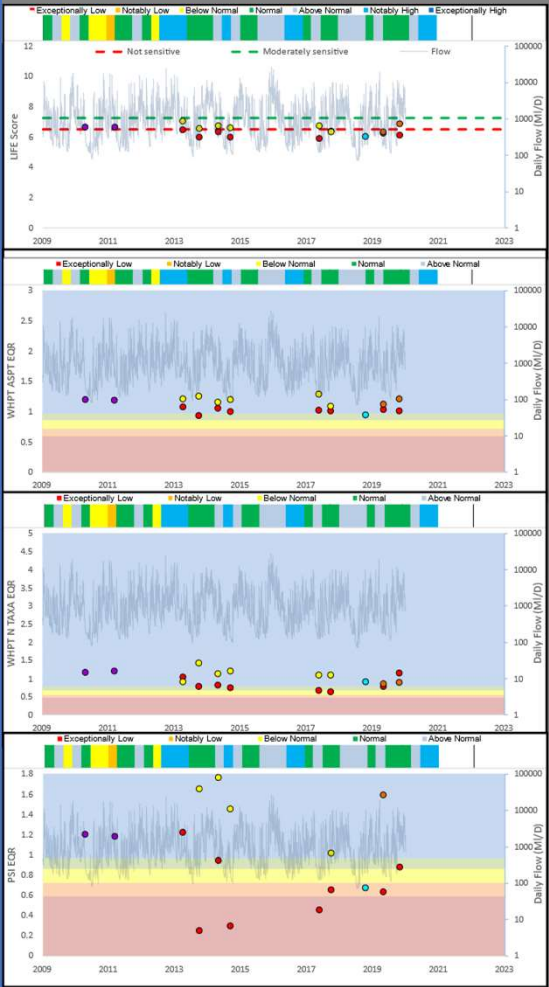


Tab

Remotely
Line 1 - Macroinvertebrates
Line 1 - Fish
Line 2 - Macroinvertebrates
Line 2 - Fish
Quase 1 - Macroinvertebrates
Quase 1 - Fish
Wharfe 1 - Macroinvertebrates
Wharfe 1 - Fish
Hull 1 - Macroinvertebrates
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Site Order	Site ID	NGR	Site Name	Survey count	Survey Range	LIFE SCORE MAX	LIFE SCORE MAX class	LIFE SCORE MIN	LIFE SCORE MIN class	LIFE SCORE MEAN	LIFE SCORE MEAN class	WHPT ASPT EQR MAX	WHPT ASPT EQR MAX class	WHPT ASPT EQR MIN	WHPT ASPT EQR MIN class	WHPT ASPT EQR MEAN	WHPT ASPT EQR MEAN class	WHPT NTAXA EQR MAX	WHPT NTAXA EQR MAX class	WHPT NTAXA EQR MIN	WHPT NTAXA EQR MIN class	WHPT NTAXA EQR MEAN	WHPT NTAXA EQR MEAN class	PSI MAX	PSI MAX class	PSI MIN	PSI MIN class	PSI MEAN	PSI MEAN class
1	236	SE591445488	OUSE (DALES)	8	05/04/2013 to 25/10/2019	1.05	High	0.96	Good	1.00	High	1.07	High	0.93	Good	1.02	High	1.15	High	0.63	Moderate	0.82	High	1.22	High	0.29	Bad	0.67	Moderate
2	237	SE600255094	OUSE (DALES)	6	05/04/2013 to 27/09/2017	1.14	High	1.03	High	1.08	High	1.29	High	1.09	High	1.20	High	1.43	High	0.92	High	1.15	High	2.27	High	1.02	High	1.68	High
3	77323	SE5975246168	OUSE (DALES)	1	17/10/2018	0.98	High	0.98	High	0.98	High	0.94	Good	0.94	Good	0.94	Good	0.91	High	0.91	High	0.91	High	0.68	Moderate	0.68	Moderate	0.68	Moderate
4	77324	SE535866626	OUSE (DALES)	3	20/04/2010 to 09/03/2011	1.00	High	1.09	High	1.00	High	1.20	High	1.18	High	1.19	High	1.21	High	1.17	High	1.18	High	2.03	High	2.02	High	2.03	High
5	77326	SE5722154412	OUSE (DALES)	2	01/05/2019 to 25/10/2019	1.13	High	1.03	High	1.08	High	1.21	High	1.11	High	1.16	High	0.89	High	0.88	High	0.87	High	2.11	High	1.60	High	1.95	High
6	77327	SE602948309	OUSE (DALES)	6	05/04/2013 to 27/09/2017	1.07	High	0.96	Good	1.00	High	1.13	High	0.97	Good	1.07	High	1.12	High	0.72	Good	0.92	High	2.04	High	0.26	Bad	0.81	High
7	Nether poppleton	SE600755110		2	20/04/2016 to 11/10/2016	1.08	High	1.00	High	1.04	High	1.15	High	1.12	High	1.13	High	1.05	High	0.91	High	0.95	High	1.63	High	1.02	High	1.33	High

WHPT Classification	WHPT ASPT EQR	WHPT NTAXA EQR	LIFE EQR (No-WD)	PSI EQR (No-WD)
High	0.97	0.8	0.97	0.8
Good	0.97	0.8	0.97	0.8
Moderate	0.86	0.68	0.94	0.7
Poor	0.72	0.56	0.88	0.6
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Tab

Sensitivity

Ure 1 - Macroinvertebrates

Ure 1 - Fish

Ure 2 - Macroinvertebrates

Ure 2 - Fish

Ouse 1 - Macroinvertebrates

Ouse 1 - Fish

Wharfe 1 - Macroinvertebrates

Wharfe 1 - Fish

Hull 1 - Macroinvertebrates

Hull 1 - Fish

Hull 2 - Macroinvertebrates

Hull 2 - Fish

Site Id Site Name Event Date Method

3750	Acaster Malbis (single anode)	27/07/2011	SINGLE CATCH SAMPLE (PART WIDTH)			5	1	2				15		150		12			
3748	Beningbrough Village (single anode)	27/07/2011	SINGLE CATCH SAMPLE (PART WIDTH)		1	111	11	15	71	1 to 9 [Best Run]		12		191		12			
42099	Naburn - Fry Survey	15/08/2013	SINGLE CATCH SAMPLE			5		705	135	10		185	1	1930	5	10			
42099	Naburn - Fry Survey	19/08/2014	SINGLE CATCH SAMPLE					1										4	
42099	Naburn - Fry Survey	20/08/2015	SINGLE CATCH SAMPLE			5		6						132	4	1		1	
42099	Naburn - Fry Survey	22/08/2016	SINGLE CATCH SAMPLE					3				1		6					
42099	Naburn - Fry Survey	14/08/2017	SINGLE CATCH SAMPLE		1	7		5						81					10
42099	Naburn - Fry Survey	11/08/2018	SINGLE CATCH SAMPLE			10		6	186			1		24	6	1			4
3751	Naburn Weir (single anode)	21/08/2011	SINGLE CATCH SAMPLE (PART WIDTH)			5	9	10	3	2		1		60	6	28	2		20
36632	Overton Ings Fyke nets	16/06/2010	SINGLE CATCH SAMPLE																
36632	Overton Ings Fyke nets	17/06/2014	CATCH DEPLETION SAMPLE	1				8						17		2			
36632	Overton Ings Fyke nets	09/06/2016	CATCH DEPLETION SAMPLE			7	32									2	2		
36632	Overton Ings Fyke nets	20/06/2018	CATCH DEPLETION SAMPLE			4	4												

Low tolerance
Low tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
High tolerance
High tolerance
High tolerance
High tolerance
High tolerance
High tolerance

Species

Sea lamprey
Bullhead
Gudgeon
Pike
Ruffe
Chub
Dace
Minnow
Bleak
Silver bream
Roach
3-spined stickleback
Perch
European eels > elvers
European eel
Flounder

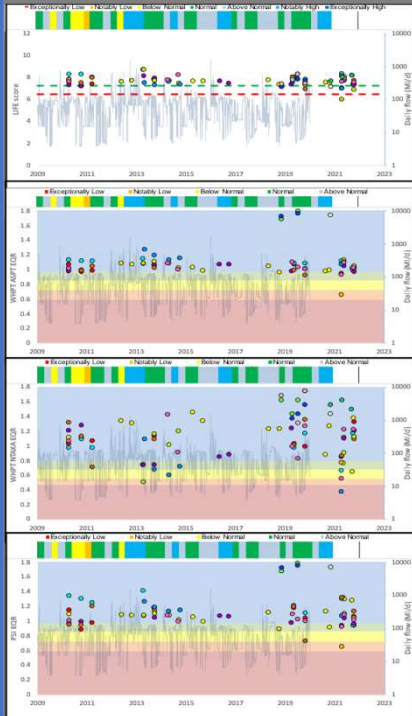
Species tolerance Species

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Low tolerance	Sea lamprey					X								
Low tolerance	Bullhead		X						X					
Medium tolerance	Gudgeon		X	X			X	X	X	X				
Medium tolerance	Pike		X											
Medium tolerance	Ruffe					X		X		X				
Medium tolerance	Chub		X	X	X		X	X	X					
Medium tolerance	Dace		X	X		X				X				
Medium tolerance	Minnow		X	X										
Medium tolerance	Bleak		X	X		X	X			X				
Medium tolerance	Silver bream			X	X									
High tolerance	Roach		X	X		X	X	X	X	X				
High tolerance	3-spined stic		X	X		X				X				
High tolerance	Perch		X	X	X	X	X	X		X				
High tolerance	European ee								X					
High tolerance	European ee		X											
High tolerance	Flounder		X			X	X		X	X				

Tab

Site Order	Site ID	NGR	Site Name	Survey count	Survey Range	LIFE SCORE MAX	LIFE SCORE MAX class	LIFE SCORE MIN	LIFE SCORE MIN class	LIFE SCORE MEAN	LIFE SCORE MEAN class	WHPT ASPT EQR MAX	WHPT ASPT EQR MAX class	WHPT ASPT EQR MIN	WHPT ASPT EQR MIN class	WHPT ASPT EQR MEAN	WHPT ASPT EQR MEAN class	WHPT NTAXA EQR MAX	WHPT NTAXA EQR MAX class	WHPT NTAXA EQR MIN	WHPT NTAXA EQR MIN class	WHPT NTAXA EQR MEAN	WHPT NTAXA EQR MEAN class	PS MAX	PS MAX class	PS MIN	PS MIN class	PS MEAN	PS MEAN class
337	SE2577945876	WHARFE	8	13/04/2010 to 12/10/2021	1.07	High	0.97	High	1.03	High	1.07	High	0.97	Good	1.04	High	1.33	High	1.00	High	1.10	High	1.19	High	0.80	High	1.08	High	
239	SE187884541	WHARFE	13	13/04/2010 to 11/10/2021	1.09	High	0.98	High	1.02	High	1.13	High	0.96	Good	1.03	High	1.47	High	0.66	Moderate	1.12	High	1.32	High	0.90	High	1.10	High	
344	SE081460001	WHARFE	9	14/04/2010 to 29/09/2021	1.18	High	0.98	High	1.08	High	1.18	High	0.98	High	1.50	High	1.18	High	0.97	Moderate	0.98	High	1.42	High	0.98	High	1.26	High	
347	SE4314445827	WHARFE	10	13/04/2010 to 12/10/2021	1.11	High	0.97	Good	1.03	High	1.07	High	0.94	Good	1.02	High	1.28	High	0.75	Good	1.02	High	1.36	High	0.75	Good	1.05	High	
869	SE3090445964	WHARFE	9	13/04/2010 to 12/10/2021	1.09	High	0.93	Moderate	1.03	High	1.07	High	0.92	Good	1.01	High	1.36	High	0.72	Good	1.11	High	1.32	High	0.74	Good	1.07	High	
972	SE3887146413	WHARFE	8	18/04/2013 to 12/10/2021	1.10	High	0.94	Good	1.06	High	1.15	High	1.02	High	1.08	High	1.20	High	0.51	Poor	0.99	High	1.42	High	0.74	Good	1.19	High	
973	SE5240345039	WHARFE	5	03/05/2013 to 13/04/2021	1.18	High	1.08	High	1.14	High	1.27	High	1.07	High	1.17	High	1.10	High	0.38	Bad	0.70	Good	2.13	High	1.75	High	1.92	High	
1000	SE1372348162	WHARFE	9	13/04/2010 to 11/10/2021	1.09	High	1.00	High	1.03	High	1.10	High	0.93	Good	1.03	High	1.43	High	0.56	Poor	1.06	High	1.39	High	1.02	High	1.20	High	
1327	SE4895243686	Wharfe 1	1	13/04/2021	0.84	Poor	0.84	Poor	0.84	Poor	0.84	Poor	0.66	Poor	0.66	Poor	0.78	Good	0.78	Good	0.78	Good	1.29	High	1.29	High	1.29	High	
195071	SE176648350	WHARFE	4	12/11/2018 to 24/10/2019	1.81	High	1.64	High	1.72	High	1.82	High	1.65	High	1.75	High	1.75	High	1.44	High	1.51	High	2.07	High	1.53	High	1.84	High	
195072	SE1295048286	WHARFE	4	12/11/2018 to 24/10/2019	1.80	High	1.64	High	1.73	High	1.90	High	1.73	High	1.83	High	1.94	High	1.38	High	1.58	High	2.43	High	1.67	High	2.10	High	
195073	SE1227348467	WHARFE	4	12/11/2018 to 24/10/2019	1.89	High	1.69	High	1.76	High	1.91	High	1.82	High	1.87	High	1.81	High	1.31	High	1.64	High	2.48	High	1.96	High	2.15	High	
Beck Foot Farm	SE1341448997		3	06/11/2020 to 08/09/2021	1.87	High	1.75	High	1.81	High	1.90	High	1.94	High	1.94	High	1.63	High	0.90	High	1.56	High	2.35	High	2.22	High	2.31	High	
Riffe Bridge	SE2550045969		1	06/11/2020	1.83	High	1.63	High	1.83	High	1.74	High	1.74	High	1.74	High	1.44	High	0.44	High	1.44	High	1.89	High	1.90	High	1.90	High	

WHPT Classification	WHPT ASPT EQR	WHPT NTAXA EQR	LIFE EQR (Non-WFO)	PS EQR (Non-WFO)
High	0.97	0.8	0.97	0.8
Good	0.97	0.8	0.97	0.8
Moderate	0.86	0.68	0.94	0.7
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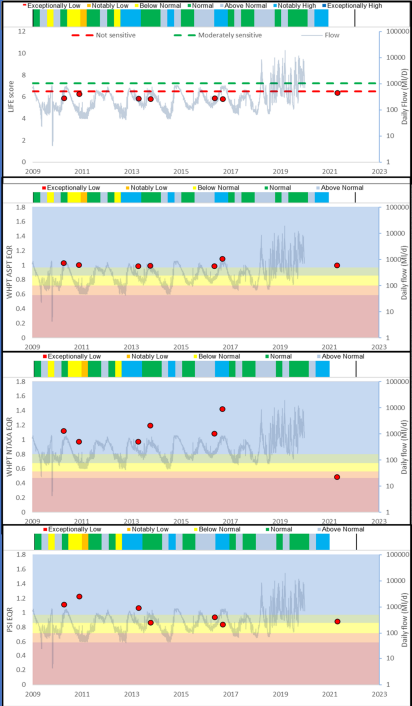


					Low tolerance	Low tolerance	Low tolerance	Low tolerance	Low tolerance	Low tolerance	Medium tolerance	Medium tolerance	Medium tolerance	Medium tolerance	Medium tolerance	Medium tolerance	Medium tolerance	High tolerance	High tolerance	High tolerance	High tolerance	High tolerance	High tolerance	High tolerance	
Tab					Species																				
Accessibility																									
	Site Id	Site Name	Event Date	Method	Brown / sea trout	Atlantic salmon	Lamprey sp.	Grayling	Brown / sea trout x salmon hybrid	Bullhead	Stone loach	Gudgeon	Pike	Chub	Dace	Minnow	Bleak	Common bream	Tench	Barbel	Roach	3-spined stickleback	Perch	European eels > evers	Flounder
Use 1 - Macroinvertebrates	42073	Boston Spa - Fry Survey	25/10/2010	SINGLE CATCH SAMPLE (PART WIDTH)					2													9			
Use 1 - Fish	42073	Boston Spa - Fry Survey	30/08/2012	SINGLE CATCH SAMPLE					1		1						1892					9			
Use 2 - Macroinvertebrates	42073	Boston Spa - Fry Survey	19/08/2014	SINGLE CATCH SAMPLE			0 to 9 (Best Run)										1076								
Use 2 - Fish	42073	Boston Spa - Fry Survey	28/08/2015	SINGLE CATCH SAMPLE							2						1576								
Quase 1 - Fish	42073	Boston Spa - Fry Survey	17/08/2016	SINGLE CATCH SAMPLE							3	78	3	2			1136			7					
Wharfe 1 - Macroinvertebrates	42073	Boston Spa - Fry Survey	21/08/2017	SINGLE CATCH SAMPLE							12						2214					12			
Wharfe 1 - Fish	59963	Burey Weir	2020	SINGLE RUN		2		4		134	52						18								
Hail 1 - Macroinvertebrates	59963	D/S Burey weir	03/09/2014	SINGLE CATCH SAMPLE	15				4	100 to 999 (Best Run)	5 to 9 (Best Run)	1 to 9 (Best Run)					100 to 999 (Best Run)								
Hail 1 - Fish	60003	D/S Oley weir	01/09/2014	SINGLE CATCH SAMPLE	8	28		11		100 to 999 (Best Run)	1 to 9 (Best Run)	1 to 9 (Best Run)					10 to 99 (Best Run)						1		
Hail 2 - Macroinvertebrates	60003	Oley Park	2020	SINGLE RUN	14	3		6		16	10						15								
Hail 2 - Fish	3762	Ilkey	01/09/2014	SINGLE CATCH SAMPLE	67	2		14		11	7	3			2	1									
	3762	Ilkey	2020	SINGLE RUN				2		613	364														
	59923	Ilkey stepping stones riffle	02/09/2014	SINGLE CATCH SAMPLE	20			8		100 to 999 (Survey)	1 to 9 (Survey)						1 to 9 (Survey)							1	
	3763	Knotford	01/09/2011	SINGLE CATCH SAMPLE			5		1		5	15	2	1	2		60								
	67543	Netherby (discretionary only)	26/07/2016	SINGLE CATCH SAMPLE	5	5		28		1 to 9 (Best Run)	1 to 9 (Best Run)	4	15				10 to 99 (Best Run)			4					
	59983	Newton Kyme	03/09/2014	SINGLE CATCH SAMPLE		12		1		10 to 99 (Best Run)	1 to 9 (Best Run)	2	8	4	3		10 to 99 (Best Run)								
	59983	Newton Kyme	2020	SINGLE RUN	1			9		5					1	1	15			8					
	3764	Pool Mill	01/07/2010	SINGLE CATCH SAMPLE	29	11		95		100 to 999 (Survey)	10 to 99 (Survey)	2	8	4	3		100 to 999 (Survey)						1	6	
	3764	Pool Mill	23/06/2014	SINGLE CATCH SAMPLE	47	12		11		10 to 99 (Best Run)	1 to 9 (Best Run)	1	4				100 to 999 (Best Run)						1	4	
	3764	Pool Mill	2020	CATCH DEPLETION		1				28	17						99					1			
	32052	Tadcaster post 2006	09/07/2010	SINGLE CATCH SAMPLE	9	4	1 to 9 (Survey)	22		10 to 99 (Survey)	10 to 99 (Survey)	1	7	11	14	0	100 to 999 (Survey)	1	1	31	14	1 to 9 (Survey)	2	5	13
	32052	Tadcaster post 2006	24/06/2014	SINGLE CATCH SAMPLE	1			8	1					1	41	31		2				21	4	9	2
	3786	Uleskef	08/07/2010	SINGLE CATCH SAMPLE							10 to 99 (Survey)	5	2	1	2	10 to 99 (Survey)						2	2	9	
	3786	Uleskef	31/08/2011	SINGLE CATCH SAMPLE								9	14		16		2				8			3	
	3786	Uleskef	16/07/2014	SINGLE CATCH SAMPLE		1	0 to 9 (Best Run)	4				2	1	6	3	10 to 99 (Best Run)	2				4	5	2	8	
0	Castley Lane	2020	SINGLE RUN		1	13		14		53						13									

Species tolerance	Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Low tolerance	Brown / sea trout	X				X		X					X	
Low tolerance	Atlantic salmon	X				X		X					X	
Low tolerance	Lamprey sp.	X	X			X							X	
Low tolerance	Grayling	X				X		X					X	
Low tolerance	Brown / sea trout x salmon hybrid					X								
Low tolerance	Bullhead	X	X	X		X		X		X			X	
Medium tolerance	Stone loach	X	X	X		X	X	X	X	X			X	
Medium tolerance	Gudgeon	X	X			X		X						
Medium tolerance	Pike	X	X			X			X					
Medium tolerance	Chub	X	X			X	X	X					X	
Medium tolerance	Dace	X	X			X		X					X	
Medium tolerance	Minnow	X	X	X		X	X	X	X	X			X	
Medium tolerance	Bleak		X			X								
Medium tolerance	Common bream	X												
Medium tolerance	Tench	X												
High tolerance	Barbel	X				X		X					X	
High tolerance	Roach	X	X											
High tolerance	3-spined stickleback	X	X	X		X	X	X	X	X			X	
High tolerance	Perch	X	X			X								
High tolerance	European eels > evers	X	X			X								
High tolerance	Flounder	X	X			X								

Tab
Summary
Line 1 - Macroinvertebrates
Line 1 - Fish
Line 2 - Macroinvertebrates
Line 2 - Fish
Case 1 - Macroinvertebrates
Case 1 - Fish
Where 1 - Macroinvertebrates
Where 1 - Fish
Use 1 - Macroinvertebrates
Use 1 - Fish
Use 2 - Macroinvertebrates
Use 2 - Fish

Site Order	Site ID	NGR	Site Name	Survey count	Survey Range	LIFE SCORE MAX	LIFE SCORE MAX class	LIFE SCORE MIN	LIFE SCORE MIN class	LIFE SCORE MEAN	LIFE SCORE MEAN class	WHPT ASPT EQR MAX	WHPT ASPT EQR MAX class	WHPT ASPT EQR MIN	WHPT ASPT EQR MIN class	WHPT ASPT EQR MEAN	WHPT ASPT EQR MEAN class	WHPT NTAXA EQR MAX	WHPT NTAXA EQR MAX class	WHPT NTAXA EQR MIN	WHPT NTAXA EQR MIN class	WHPT NTAXA EQR MEAN	WHPT NTAXA EQR MEAN class	PSI MAX	PSI MAX class	PSI MIN	PSI MIN class	PSI MEAN	PSI MEAN class
1	1456	TA070649928	HULL/WEST BECK	9	08/04/2010 to 21/04/2021	1.10	High	0.90	High	1.03	High	1.09	High	0.90	High	1.02	High	1.42	High	0.49	Poor	1.04	High	1.23	High	0.84	High	1.03	High



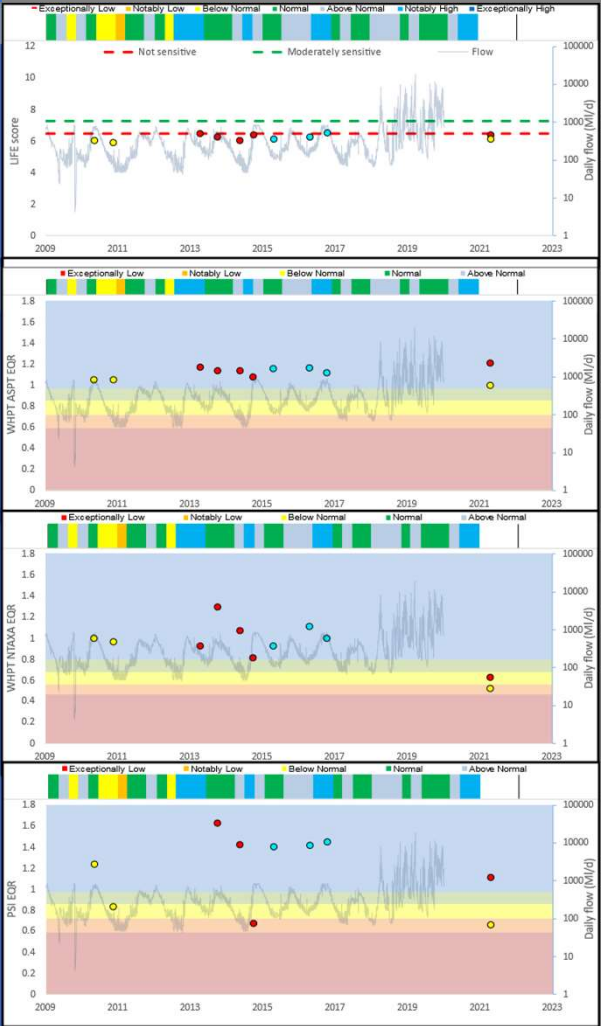
WHPT Classification	WHPT ASPT EQR	WHPT NTAXA EQR	LIFE EQR (Non-WFO)	PSI EQR (Non-WFO)
High	0.97	0.8	0.97	0.8
Good	0.97	0.8	0.97	0.8
Moderate	0.86	0.68	0.94	0.7
Poor	0.72	0.56	0.88	0.6
Bad	0.59	0.47	0.83	0.5

Tab

Sensitivity
Ure 1 - Macroinvertebrates
Ure 1 - Fish
Ure 2 - Macroinvertebrates
Ure 2 - Fish
Quase 1 - Macroinvertebrates
Quase 1 - Fish
Wharfe 1 - Macroinvertebrates
Wharfe 1 - Fish
Hull 1 - Macroinvertebrates
Hull 1 - Fish
Hull 2 - Macroinvertebrates
Hull 2 - Fish

Site Order	Site ID	NGR	Site Name	Survey count	Survey Range	LIFE SCORE MAX	LIFE SCORE MAX class	LIFE SCORE MIN	LIFE SCORE MIN class	LIFE SCORE MEAN	LIFE SCORE MEAN class	WHPT ASPT EQR MAX	WHPT ASPT EQR MAX class	WHPT ASPT EQR MIN	WHPT ASPT EQR MIN class	WHPT ASPT EQR MEAN	WHPT ASPT EQR MEAN class	WHPT NTAXA EQR MAX	WHPT NTAXA EQR MAX class	WHPT NTAXA EQR MIN	WHPT NTAXA EQR MIN class	WHPT NTAXA EQR MEAN	WHPT NTAXA EQR MEAN class	PSI MAX	PSI MAX class	PSI MIN	PSI MIN class	PSI MEAN	PSI MEAN class
1	187	TA0563041703	HULL/WEST BECK	5	12/04/2013 to 21/04/2021	1.13	High	1.00	High	1.10	High	1.21	High	1.08	High	1.15	High	1.29	High	0.63	Moderate	0.94	High	2.49	High	0.67	Moderate	1.48	High
2	900	TA0620147078	HULL/WEST BECK	4	10/05/2010 to 20/04/2021	1.06	High	1.03	High	1.05	High	1.05	High	1.00	High	1.04	High	0.99	High	0.52	Poor	0.87	High	1.23	High	0.66	Moderate	0.99	High
3	Beverley	TA0540239775		3	22/04/2015 to 11/10/2016	1.14	High	1.06	High	1.10	High	1.16	High	1.12	High	1.15	High	1.10	High	0.92	High	1.01	High	1.44	High	1.40	High	1.42	High

WHPT Classification	WHPT ASPT EQR	WHPT NTAXA EQR	LIFE EQR (Non-WF19)	PSI EQR (Non-WF19)
High	0.97	0.8	0.97	0.8
Good	0.97	0.8	0.97	0.8
Moderate	0.87	0.68	0.94	0.7
Poor	0.72	0.56	0.88	0.6
Bad	0.59	0.47	0.83	0.5



Tab
Sensitivity

Ure 1 - Macroinvertebrates

Ure 1 - Fish

Ure 2 - Macroinvertebrates

Ure 2 - Fish

Ouse 1 - Macroinvertebrates

Ouse 1 - Fish

Wharfe 1 - Macroinvertebrates

Wharfe 1 - Fish

Hull 1 - Macroinvertebrates

Hull 1 - Fish

Hull 2 - Macroinvertebrates

Hull 2 - Fish

Site Id Site Name Event Date Method

42108	Watton Beck at R Hull confluence - Fry Survey	16/08/2013	SINGLE CATCH SAMPLE		0		16	28	12							36	1408	36	8						
4224	Wilfholme Landing	2020	SINGLE RUN					6	7			1				6	2		23						
4224	Wilfholme Landing HULLCRS/(LOWER)2	22/09/2010	SINGLE CATCH SAMPLE		0	1		0	12	9	2	1			1	81	0		34	0					0
4224	Wilfholme Landing HULLCRS/(LOWER)2	09/09/2013	SINGLE CATCH SAMPLE	1				1								22	2					1			
4224	Wilfholme Landing HULLCRS/(LOWER)2	21/09/2016	SINGLE CATCH SAMPLE	1	1		1	6	1	1						49	2	26	8					2	
62823	Wilfholme Pumps - Fry Survey	21/08/2015	SINGLE CATCH SAMPLE				1	2								13	267	2	2						
62823	Wilfholme Pumps - Fry Survey	22/08/2016	SINGLE CATCH SAMPLE						1							33	1								
62823	Wilfholme Pumps - Fry Survey	18/08/2017	SINGLE CATCH SAMPLE					3								126	26		1						
62823	Wilfholme Pumps - Fry Survey	11/08/2018	SINGLE CATCH SAMPLE				1					1				51									

Species

Brown / sea trout
Lamprey sp.
Grayling
Bullhead
Stone loach
Gudgeon
Pike
Ruffe
Dace
Minnow
Common bream
Roach
3-spined stickleback
10-spined stickleback
Perch
European eels > elvers
Orfe / Ide
Flounder

Low tolerance
Low tolerance
Low tolerance
Low tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
Medium tolerance
High tolerance
High tolerance
High tolerance
High tolerance
High tolerance
High tolerance

Species tolerance Species

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Low tolerance	Brown / sea trout			X				X						
Low tolerance	Lamprey sp.	X		X				X						
Low tolerance	Grayling	X												
Low tolerance	Bullhead			X		X	X	X		X				
Medium tolerance	Stone loach	X		X		X	X	X						
Medium tolerance	Gudgeon	X		X				X				X		
Medium tolerance	Pike	X						X				X		
Medium tolerance	Ruffe	X												
Medium tolerance	Dace	X												
Medium tolerance	Minnow									X		X		
Medium tolerance	Common bream	X												
High tolerance	Roach	X		X		X	X	X				X		
High tolerance	3-spined stickleback	X		X		X	X	X	X	X		X		
High tolerance	10-spined stickleback			X		X	X							
High tolerance	Perch	X		X		X	X	X	X			X		
High tolerance	European eels > elvers	X						X						
High tolerance	Orfe / Ide			X										
High tolerance	Flounder	X						X						