

Summary of 2012 monitoring of barbel populations in the River Wensum

1. Riffle surveys

Non-quantitative surveys of riffles for juvenile barbel were carried out in autumn 2012 at five sites (Lyng, Lenwade, Ringland, Hellesdon and Taverham). High river flows prevented surveys taking place at the two remaining sites, Attlebridge and Costessey. The result of the surveys is given in Table 1.

Table 1. Wensum 2012 survey of riffles for barbel

Site	Survey date	No. of barbel	Length (mm)	Tag no.	Stocking date of tagged fish
Lyng	18.10.12	6	257	-	-
			293*	9DD0385	09/12/2010
			240*	A91F094	14/12/11
			168	-	-
			238*	A91F0AC	14/12/11
			368*	9DD0496	09/12/2010
Lenwade	18.10.12	3	160	-	-
			236	-	-
			251	-	-
Ringland	12.10.12	None			
Hellesdon	25.10.12	None			
Costessey	Not surveyed	-			
Taverham	15.11.12	1	181	-	-
Attlebridge	Not surveyed	-			

* = Tagged fish

A total of 10 barbel were recorded at all sites combined, with the majority of fish being found at Lenwade (six fish, including four previously stocked fish) and Lyng (three fish).

The raw data for the riffle surveys for all survey years for which we have data (2005 to 2012) are shown in Table 2, and this data is summarised in Table 3.

Table 2

Riffle survey data from 2005 to 2012. (Fork lengths in mm).

Lyng	Lenwade		Attlebridge		Ringland		Taverham		Costessey		Hellesdon
06.10.2005	06.10.2005		12.10.2005		17.10.2005		13.10.2005		20.10.2005		17.10.2005
298	324	524	214	158	261	193	612	300	287		424
282	304	289	219	296	223	60	625	282	505		547
625	323	207	181		213	92	738	222	482		497
02.11.2006	289	214	19.10.2006		277	92	639	113	644		456
581	332	548	None caught		204	70	609	134	25.10.2006		475
199	304	544	15.11.2007		202	91	562	350	645		620
810	328		217	125	200		720	277	772		17.10.2006
725	24.10.2006		107	92	18.10.2006		206	183	31.10.2007		525
734	780	230	109	97	208		283	253	127	101	595
581	640	451	12.01.2009		210		212	219	160	88	505
199	314	308	None caught		316		23.10.2006		190	118	510
02.11.2007	300	179	13.10.2010		364		615	670	100	119	507
122	700	187	None caught		250		617	645	150	92	05.11.2007
07.01.2009	70	120	13.10.2011		31.10.2007		687	227	86	91	108
None caught	64	188	None caught		350	162	728	320	80	83	198
12.10.2010	29.10.2007		2012		212	198	747		83	93	05.01.2009
108	106	99	Not surveyed		139	148	29.10.2007		07.01.2009		None caught
285**	107	102			94	95	181	75	645		12.10.2010
122	100	101			200	112	196	80	14.10.2010		None caught
105	101	171			180	127	106	81	107		19.10.2011
137	104	137			17.01.2009		118	71	103		None caught
140	105	139			238		76	89	109		25.10.2012
11.10.2011	107	110			210		83	70	12.10.2011		None caught
240	93	104			190		84	82	249*	148	
280	108	100			14.10.2010		81		231*	193	
18.10.2012	114	113			138		12.01.2009		250*	160*	
257	217	116			108		None caught		277*	173*	
293*	222				95		13.10.2010		63*	197*	
240***	05.01.2009				130		302*		110	75	
168	172	176			97		313*		163	140	
238***	254	183			118		324		2012		
368*	198	144			11.10.2011		318		Not surveyed		
	19.08.2010				203		82				
	100	114			211*		89				
	91	111			207		92				
	108	113			172		220				
	105	91			96		13.10.2011				
	114	103			197		306**	193			
	92	81			12.10.2012		224*	223*			
	79	710			None caught		158	177			
	103						83	196*			
	12.10.2011						204*	173			
	258	239*					240*	142			
	240*	190					245*	95			
	198	113					216	86			
	208	154					206	117			
	150	184					176	91			
	188	232*					213*	97			
	190	214*					15.11.2012				
	175	216*					181				
	181	144									
	175	98									
	18.10.2012										
	160										
	236										
	251										

** Barbel stocked in 2009 aged at 2+
 * Barbel stocked in 2010 aged at 1+
 *** Barbel stocked in 2011 aged at 1+

Table 3. Numbers of barbel (fork length ≤ 300mm) caught at each survey site during riffle surveys, 2005-2012.

Site	2005	2006	2007	2008	2009	2010	2011	2012	Average no. per year
Lyng	2	2	1	-	0	6	2	5	2.6
Lenwade	4	8	23	-	6	14	20	3	11.1
Attlebridge	5	0	6	-	0	0	0	-	1.8
Ringland	13	3	11	-	3	6	6	0	6.0
Taverham	12	1	15	-	0	4	21	1	7.7
Costessey	1	0	16	-	0	3	14	-	5.7
Hellesdon	0	0	2	-	0	0	0	0	0.3
Totals	37	14	74		9	33	63	9	

- = Not surveyed

As can be seen, the numbers of barbel recorded in 2012 are modest compared with earlier years, even allowing for the reduced number of sites sampled in 2012.

2. Quantitative electro fishing surveys

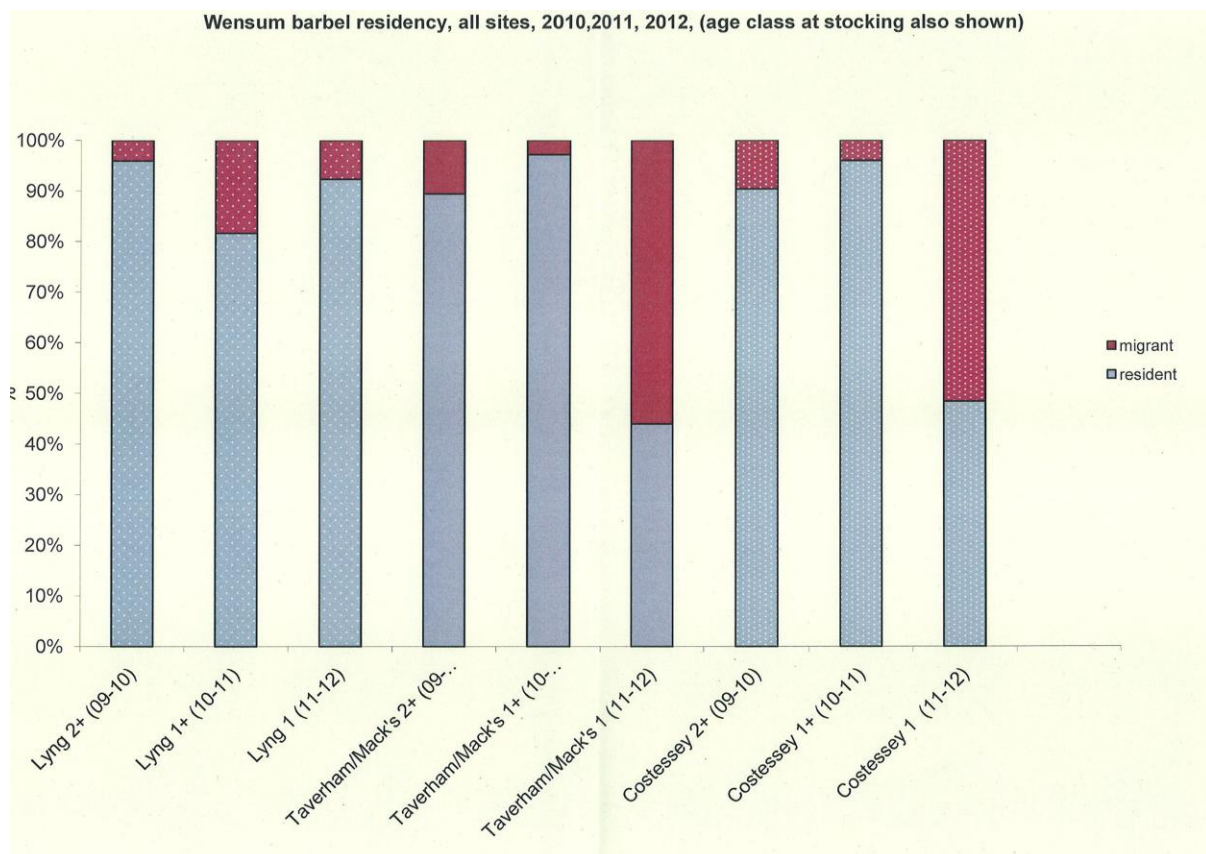
Targeted quantitative electro fishing surveys, within the barbel stocked reaches, to determine the contribution of barbel to the overall fish assemblage were planned for Autumn 2012. It has not been possible to undertake these due to persistent high flows and turbid water conditions that have made the river unsuitable for survey.

However, routine quantitative surveys were carried out at nine sites on the river (Pensthorpe, d/s Great Ryburgh Mill, u/s Bintree Mill, County School, Swanton Morley, d/s Elsing Mill, u/s Lenwade Mill, Alders Spinney [d/s Taverham Mill] and Hellesdon Road) between 2nd August and 5th September 2012. Only two barbel were recorded in all of these surveys combined. Both these fish were found at the Hellesdon Road site, which is downstream of the SSSI on the outskirts of Norwich. These surveys confirm that barbel still represent only a very small component of the overall fish fauna of the river.

3. Pit tag data

Aerial antennae at Lyng, Taverham and Costessey have been used to record the movement of stocked fish over the past three years. This has provided information on the degree of residency/migration of the stocked fish (where migrants are defined as fish that have passed through the aerial) for each year of stocking (Figure 1).

Figure 1



The data suggests that there has been an increase in the degree of migration at both Taverham and Costessey in 2011/12. This may reflect, amongst other factors, a lack of suitable habitat extent at these sites. However, considerable caution should be exercised in interpreting the data given the incomplete data record in previous years. If a similar pattern of residency/migration is shown for fish stocked in 2012 we will have greater confidence in the data and more weight will be given to this when making decisions on stocking in 2013.

4. Growth rates

Comparison of the growth rates of barbel in the Wensum indicate that stocked barbel have a significantly higher growth rate than non stocked barbel of the same age. Growth rates of stocked fish slow down in subsequent years but are still higher than those of naturally recruited fish. Figure 2 provides further information on growth rates, based on the small sample of fish sampled during the riffle surveys.

Figure 2

