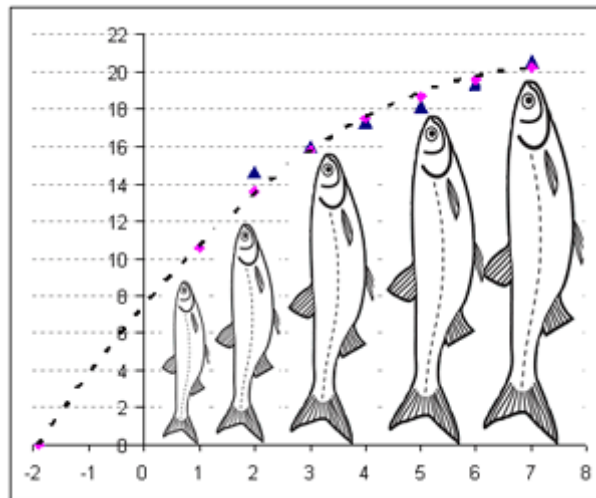


## GROWTH CHARACTERISTICS OF PEARL MULLET

Unlike warm blooded creatures, the growth period for fish continues during the entire lifetime. But the high rate of growth until the reproductive maturity slows down gradually toward the end of life span. There are both some internal and external factors influencing the growth process. Some species genetically grow faster than some others. Fish are cold blooded creatures, and therefore, ecological characteristics of the environment they live in have a direct influence on their growing. For this reason, growth characteristics of the same fish species living in various habitats can be different from each other. For example, growth characteristics of the carp fish population in Lake Beyşehir are different from those of the carp fish population in Lake Nazik.



**Pearl mullet VB growth curve**

Even though the pearl mullet cannot be considered as meaty fish, it is not too small either as the European anchovy is. According to 2006 figures, fish caught by professional fishermen have a length of 19.8 cm and a weight of 85 g on the average. The growth parameters by age groups in terms of average length and weight as provided by Sarı (2001), and also the growth formula parameters as

provided by von Bertalanffy are given in the following charts.

	Ages						
	I	II	III	IV	V	VI	VII
	Males						
<b>Observed</b>	-	14,50	15,93	17,21	18,21	19,37	20,89
<b>Std. Deviation</b>	-	0,22	0,11	0,07	0,11	0,21	0,29
<b>Estimated</b>	10,40	13,42	15,70	17,43	18,74	19,73	20,49
<b>Annual Growth</b>	10,40	3,02	2,28	1,73	1,31	0,99	0,76
<b>Annual Growth, %</b>	50,75	14,74	11,13	8,44	6,39	4,84	3,71
	Females						
<b>Observed</b>	-	14,73	16,04	17,31	18,13	19,34	20,42
<b>Std. Deviation</b>	-	0,26	0,11	0,08	0,06	0,14	0,16
<b>Estimated</b>	10,76	13,74	15,91	17,51	18,67	19,52	20,14
<b>Annual Growth</b>	10,76	2,98	2,17	1,60	1,16	0,85	0,62
<b>Annual Growth, %</b>	53,43	14,80	10,77	7,94	5,76	4,22	3,08
	Total						
<b>Observed</b>	-	14,62	15,98	17,27	18,15	19,35	20,58
<b>Std. Deviation</b>	-	0,17	0,08	0,06	0,05	0,12	0,15
<b>Estimated</b>	10,59	13,60	15,83	17,48	18,70	19,60	20,27
<b>Annual Growth</b>	10,59	3,01	2,23	1,65	1,22	0,90	0,67
<b>Annual Growth, %</b>	52,24	14,85	11,00	8,14	6,02	4,44	3,31

The observed and estimated fork length of the pearl mullet by ages (cm) (Sari, 2001).

	Ages						
	I	II	III	IV	V	VI	VII
	Males						
<b>Observed</b>		38,41	47,46	56,17	63,44	71,94	77,13
<b>Std. Deviation</b>		2,21	1,23	0,81	1,27	1,41	2,44
<b>Estimated</b>	11,38	24,43	39,15	53,56	66,57	77,71	86,92
<b>Annual Growth</b>	11,38	13,05	14,72	14,41	13,01	11,14	9,22
<b>Annual Growth, %</b>	13,09	15,01	16,93	16,58	14,97	12,82	10,60
	Females						
<b>Observed</b>	-	36,53	50,187	59,25	66,19	74,75	84,73
<b>Std. Deviation</b>	-	2,65	1,17	0,93	0,65	1,46	2,67
<b>Estimated</b>	13,19	27,45	42,68	56,82	68,92	78,79	86,57
<b>Annual Growth</b>	13,19	14,26	15,23	14,14	12,11	9,87	7,78
<b>Annual Growth, %</b>	15,24	16,47	17,59	16,33	13,99	11,40	8,98
	Total						
<b>Observed</b>	-	37,37	48,85	58,05	65,50	73,91	82,06
<b>Std. Deviation</b>	-	0,17	0,85	0,66	0,58	1,12	2,00
<b>Estimated</b>	12,06	25,54	40,25	54,18	66,33	76,42	84,50
<b>Annual Growth</b>	12,06	13,48	14,71	13,93	12,15	10,08	8,08
<b>Annual Growth, %</b>	14,27	15,96	17,42	16,48	14,38	11,93	9,56

The observed and estimated total weight of the pearl mullet by ages (g) (Sari, 2001).

Sex	$L_{\infty}$ (cm)	K	$t_0$ (Yıl)
<b>Males</b>	22,830	0,278	-1,888
<b>Females</b>	21,838	0,313	-1,168
<b>Total</b>	22,170	0,301	-1,158
The estimated seasonal fluctation von Bertalanffy growth paramaters ( $L_{\infty}$ -Infinity length , K-Growth constant, $t_0$ -Theoretical age)			

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