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Ichthyology

DESCRIPTION OF MERISTIC FEATURES OF SALMON TROUT
(*SALMO TRUTTA TRUTTA* L.) FROM THE RIVERS
OF POMERANIA DISTRICT

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The work deals with 32 meristic features of salmon trout from the following rivers of Pomerania: Rega, Parsęta, Uniesta, Wieprza with Grabowa and Szupia. Adult individuals of salmon trout, fished out from the rivers during their spawning migration, were used as the material. The oscillation limits for values of particular meristic features were similar for males and females, as well amongst one population, as between different population of fishes. Meristic features for salmon trout were, thus, given as the result of total study, without taking into consideration sex of fishes or population to which they belonged.

INTRODUCTION

Ichthyological literature concerning meristic features of anadromous salmon trout, is still insufficient. This is especially true our native salmon trout (K a j, 1961) since some data are calculated only for salmon trout from the Vistula (S c h e c h t e l, 1925); Dunajec, Reda (D i x o n, 1930) and Parsęta (H e n k i n g, 1913, 1916, 1929) Rivers.

The fact, that I observed some differences in the values of several meristic features for salmon trout derived from following rivers of Pomerania: Rega, Parsęta, Uniesta, Wieprza with Grabowa and Szupia, as compared with data given in the literature, caused me to undertake the following study. This was especially necessary for salmon trout from Reda River investigated by D i x o n (1930), and Parsęta River investigated by H e n k i n g (1913, 1916, 1929). The differences in the values of meristic features, were also

observed for salmon trout from different regions, investigated by Nall (1930) and Neresheimer (1941). Thus, a question was: of what kind are such relations in the five investigated populations, as compared with salmon trouts from different rivers, considering especially our native salmon trout.

MATERIAL AND METHODS OF INVESTIGATION

Salmon trouts used in our study were obtained from catches of the fishermen. They derived from catches of fishes in the rivers of Pomerania (Chełkowski, 1965) (Fig.1). Fished out individuals were identified to species.

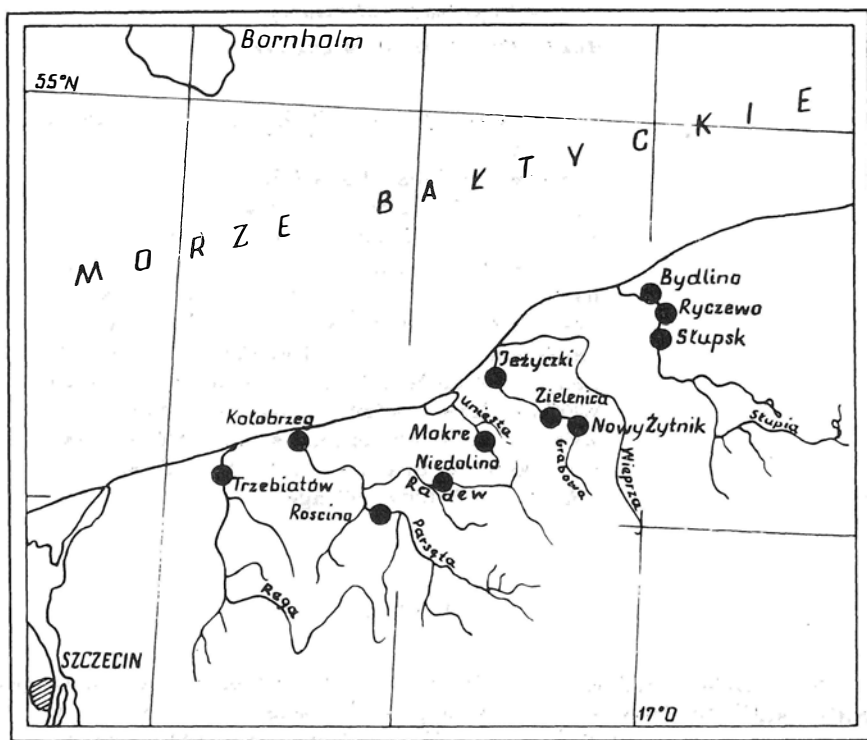


Fig.1. Catching points of salmon trout in Pomeranian rivers

A special attention was given to the features differing salmon trout from salmon (Berg, 1948; Gąsowska, 1962; Schechtel, 1925; Żarnicki, 1961). Analysis of increments carried out upon the scales showed, that our salmon trouts were anadromous. They spend in the sea from 1 to 5 years. Fishes were caught during their spawning period, or spawning migration. State of the development of gonads of investigated individuals, varied between 2-nd and 8-th degree in Maier's scale. The

Table 1

The investigated meristic features of salmon trout deriving from the rivers of Pomerania District

Meristic feature	R i v e r s																			Total	
	Rega				Parsęta				Uniesta				Grabowa				Ślupia				
	female	male	with-out cons- ider- ing sex	total	female	male	with-out cons- ider- ing sex	total	female	male	with-out cons- ider- ing sex	total	female	male	with-out cons- ider- ing sex	total	female	male	with-out cons- ider- ing sex		total
rows of scales above the lateral line	20	12	-	32	65	46	-	111	7	4	-	11	13	12	-	25	12	5	-	17	196
rows of scales below the lateral line	20	12	-	32	65	38	-	103	7	4	-	11	13	12	-	25	12	4	-	16	187
rows of scales upon the tail above the lateral line	20	12	-	32	55	70	-	125	24	48	-	72	20	12	-	32	18	10	-	28	289
rows of scales in the lateral line	20	12	-	32	65	46	-	111	7	4	-	11	13	12	-	25	12	6	-	18	197
rays in the dorsal fin	18	6	-	24	90	65	-	155	8	10	-	18	15	28	-	43	7	13	-	20	200
rays in the anal fin	18	6	-	24	87	63	-	150	8	11	-	19	14	28	-	42	4	14	-	18	253
dark spots	41	28	-	69	95	81	-	176	-	-	-	-	56	4	-	60	36	24	-	60	365
teeth upon the vomer	4	6	-	10	9	11	-	20	1	1	-	2	6	2	-	8	2	3	-	5	45
gill rakers	45	13	-	58	88	46	130	264	-	1	-	20	55	16	118	189	22	12	-	34	565
gill fringers in outer side of arch	-	-	52	52	-	-	150	156	-	-	-	-	-	-	-	89	-	-	3	3	300
gill fringers in inner side of arch	-	-	52	52	-	-	153	153	-	-	-	-	-	-	-	89	-	-	1	1	295
pyloric appendages	38	21	-	59	69	42	87	198	5	9	20	34	7	8	148	163	10	3	62	75	529
subbranchial rays	-	-	52	52	46	35	-	81	-	-	-	-	-	-	21	21	2	1	-	3	157
vertebras	4	6	-	10	9	5	-	14	1	1	-	2	6	2	-	8	2	3	-	5	39
developed eggs	10	-	-	10	10	-	-	10	7	-	-	7	10	-	-	10	10	-	-	10	47

number of observations of different meristic features is inserted in the work (Tab.1). Linear length (longitudo caudalis) of investigated individuals was from 340 to 956 mm; the weight of fishes after gutting was 315 - 11.470 g. About 90% of investigated fishes were in the most frequent length classes (551-800 mm); 10% belonged to the extreme classes.

Investigations were carried out in 1958-61, in most cases upon fresh material. Meristic features of migrating fishes belonging to the species *Salmo* (Tab.1), described already by many authors, were also observed.

Since there was a general correspondence in the color, number shape and dimensions of dark spots at both sides of the body in different stages of sexual development, observations were carried out only upon the left side of the body. They were carried out separately for the head, surface of the body above and below the lateral line, and in the caudal part, above and below the lateral line. As the boundary line between the body and the caudal part, the line between the end of anal and adipose fins, was taken. In every case the number of dark spots, and their shape were registered; the diameter of the largest spot was also measured.

Studies concerning the presence of teeth upon the back edge of the vomer were carried out upon 2319 individuals. The number of teeth upon the vomer was controlled only for few individuals, from which the vomer was cut-out.

The number of vertebrae was controlled only for few individuals, because the cost of fishes was very high, and such investigations for all studied fishes, would be impossible. The method for counting vertebrae, especially of caudal ones laying in the base of caudal fin, was taken from Johansen's scheme (Dixon, 1948) concerning vertebral column of herring (*Clupea harengus*).

Measurements of the diameter of eggs were carried out upon the row left in the body after artificial spawning. The diameter of eggs deriving from individuals belonging to three different length classes was estimated from measurements of 50, or rarely 100 eggs, with the use of the technical line (Sakowicz, 1961).

The limits of oscillation of values of several meristic features of males and females, were very similar as well in one populations, as amongst different populations. Meristic features of salmon trout from the rivers of Pomerania are, thus, presented as the result of total studies, without taking into the consideration sex or population (Tab.2). Besides, salmon trout from the rivers of Pomerania, cannot be considered as belonging to endemic population, since to a certain degree, fishes are always mixed up. Such situation is caused by several management activities connected with replacing of juvenile stages of fishes, from one river to another.

According to Trybom (1905) such activities were carried out from 1877. In the rivers of Pomerania, the intensive stocking action began after the II-nd World War.

Meristic feature			Range of oscillations
number of the rows of scales	above the lateral line		21 - 29
	below the lateral line		21 - 38
	above the lateral line upon the tail		12 - 18
	in the lateral line		118 - 146
number of rays in the fins	dorsal		II - IV/8 - 11
	anal		II - IV/7 - 11
number of dark spots	upon the head		0 - 28
	upon the trunk	above the lateral line	2 - 205
		below the lateral line	3 - 108
	upon the tail	above the lateral line	0 - 43
below the lateral line		0 - 27	
number of teeth upon the vomer	upon the base of the leaf		2 - 3
	upon the shaft	number of teeth number of rows	0 - 7 1
number of gill raker upon the 1-st arch	upper side		5 - 9
	lower side		7 - 12
	total		13 - 19
number of gill fringes upon the 1-st arch	upon the outer side		72 - 122
	upon the inner side		78 - 128
number of pyloric appendages appendices pyloricae			30 - 65
number of subbranchial rays			9 - 12
number of vertebrae			57 - 60
diameter of developed eggs			4.5 - 5.45

MERISTIC FEATURES

The results of investigations concerning meristic features of salmon trout deriving from the rivers of Pomerania, are given in Table 2. Given values show the limits of oscillations of analysed features during the whole period of investigations.

Upon the left side of the head, there were generally 4-8 dark spots. They were mostly of a round shape, sometimes (but rather rarely) irregular or elliptic. The spots are generally placed upon the back edges of praeperculum bone. The longest irregular spot during our study was 9 mm long; the longest elliptic spot was 7 mm long. The diameters of round spots were generally much smaller. The smallest spots were sometimes not greater than a dot. The average size of spots upon the head was 2-5 mm.

The average diameter of dorsal spots, placed upon the lateral line, was 4-7 mm, with the range of oscillations from 1 to 12 mm. Generally the trunk is covered with spots, shaped as single, double or triple x'es. Other shapes, such as star-like, oval, round, semilunar or similar to the shape of mulberries, are also common. Spots placed below the lateral line, are very similar in their shape, to those above the lateral line.

The surface of the caudal part is also covered with dark spots. Spots above the lateral line have the shape of single, double or rarely triple x'es, they might be also round or even irregular. Their size is generally 2-5 mm, with the limits of oscillations being 1 to 7 mm. Spots are also present below the lateral line. Their shape is similar to those above the lateral line, but they differ in their size, reaching 5 mm.

Irregular spots upon the head, and also upon the trunk, are present during the mating season, but sometimes, they can be also observed in individuals with undeveloped gonads. The presence of a given number of spots upon one part of the body, is strictly connected with their number upon other parts of the body. If spots are very numerous upon the trunk, above the lateral line, they are also numerous upon other parts of the body. If they are sporadic, the same may be observed upon other parts of the body. (Fig. 2).

The number of teeth present upon the vomer, can be regarded as the number of teeth upon the shaft, and upon the leaf of the vomer. Some teeth are present upon the base of the leaf of the vomer; this is confirmed by the observations of 2319 individuals. Detailed analysis showed, that there are two or more frequently three, cone-shaped teeth upon the leaf of the vomer. Teeth present upon the shaft of the vomer, are always growing in a row, but their number differs. Some fishes, especially older ones, do not have any teeth upon the shaft, but signs showing that they fallen out, may be seen. Young fishes might have even up to 7 teeth upon the shaft of the vomer, though fishes with two or three equal teeth, are most common. The leaf of the vomer is of a triangular shape (n=39).

One of the most important meristic features is the shape and number of gill rakers. Upon the upper part of the I-st branchial arch (n=206) there are 5 to 9 gill rakers ($M=6.5$); and upon the lower part (n=206) - 7 to 12



Fig.2. Salmon trout of Parsęta river caught at Kołobrzeg on the 16. July 1959. Shown, are two females in preparatory stadium of gonad development with extremely diverse spotting, as per Maier scale

gill rakers ($M=10.3$). Oscillation in the number of gill rakers is 13-19 ($M=16.5$). The shape of gill rakers is very interesting. It was observed among 2319 individuals, that 6 fishes, smaller than 550 mm, had gill rakers at the beginning and at the end of branchial arch not cutted-like, but sharply ended. Thus, they were not as of a typical salmon trout, but rather like those of salmon. Individuals having such gill rakers, were examined very precisely for the identification of the species. It was found undoubtedly, that they were anadromous salmon trouts. Beside, several individuals had the end of upper and lower arch enlarged in a form of little nodes. Since they did not have clear shape, we have not taken into the consideration. If they were taken as gill rakers, then for 12 branchial arches, the number of gill rakers would increase to one or two more. Theoretical oscillations were thus 12-20 gill rakers upon branchial arch. Older fishes had gill rakers serrated upon their inner side. Some additional small rakers upon the inner side of the branchial arch, were sometimes observed in older fishes.

The number of gill fringes was established after cutting out of branchial arch. It was found, that the inner row has always a few more gill fringes, as compared to the outer row. The average number of gill fringes upon the outer side of the arch was 90.1, and upon the inner side-99.7.

The average number of pyloric appendages (appendices pyloricae) of salmon trout is 44.7. Individuals with smaller number of pyloric appendages, had them thicker and slightly longer.

The average number of subbranchial rays of salmon trout was 10.5.

It was established, upon the material which served for counting of vertebrae, that their mean number was 58.1.

DISCUSSION OF MERISTIC FEATURES

For the investigated populations, the number of longitudinal rows of scales, below the frontal part of the base of the dorsal fin, above the lateral line, was 21-29. The upper range of oscillations in thus, one row of scales higher for salmon trout from the rivers of Pomerania, as compared with data cited in the literature (Tab.3). The lower value, however, does not pass over the limits given by other authors. Oscillation in the number of longitudinal rows of scales below the adipose fin of the investigated salmon trout, was 14-18, generally 14-15 rows. These oscillations correspond to those cited in the literature. It should be underlined, that individuals with 18 rows of scales, are very rare. Individuals with 19 rows, cited by Gąsowska (1962), and with 20 and 21 rows, described by Borisov (1954), were not noted in our studies, concerning Pomerania salmon trout. The same may be said for individuals with 13 rows of scales (Jokiel, 1959; Nitsche 1932).

Table 3

Comparison of the number of scale rows of salmon trout,
given by different authors

A u t h o r	Number of longitudinal rows of scales			Number of vertical rows of scales
	below the base of dorsal fin		below the base of adi- pose fin above the lateral line	
	above the lateral line	below the lateral line		
Berg (1948) and Staff (1950)	23-25	21-24	15-17	118-120
Borisov (1954)			15-21	118-120
Brauer (1909)	20-24	18-20		120
Deckert (1955)				120-140
Dixon (1930)			14-16	
Gąsowska (1962)	23-26	27-30/21-43	15-19	120-124/118-156
Jokiel (1959)			13-16	
Schechtel (1925)	28	36-43	19	150-156
Chełkowski	21-29	21-38	14-18	118-146

The number of longitudinal rows of scales below the lateral line was 21-38, and thus, it is in accordance with data given by other authors.

The number of vertical rows of scales, counted from the lateral line, is higher than given by other authors. The oscillations given by Gąsowska (1962) for salmon trout from Baltic rivers, being 120-124, are too limited for our results.

The number of soft and hard rays in the anal and dorsal fins, only partially is in accordance with those given in the literature. The number of hard rays in the dorsal fin was 2-4, and thus differs from the number given in the literature, which is 3-4 (Tab.4). The number of rays is thus, one ray smaller. Similar differences in the number of hard rays was found for trout (*Salmo trutta morpha fario*) by Gąsowska (1962), which is probably explained by the fact, that trout is a biological variety of salmon trout. These observations are in accordance with Żarnicki (1961), who suggests, that anadromous salmon trout populations may be supplied with trout.

Table 4

Comparison of the number of rays in the dorsal and anal fins

A u t h o r	F i n			
	d o r s a l		a n a l	
	h a r d	s o f t	h a r d	s o f t
Berg (1948), Gąsowska (1962), Staff (1950)	III	8-11	II-III	8- 9
Borisov (1954)				8- 9
Brauer (1909)	III	9-11	III	8- 9
Deckert (1955)	III-IV	8-12	III-IV	6-10
Kaj (1961)	III-IV	8-11	II-III	7- 9
Chełkowski	II-IV	8-11	II-IV	7-11

The number of soft rays in the dorsal fin is 8 to 11. This is in accordance with the observations of most authors. Only Deckert (1955) claims, that salmon trout might have 12 soft rays in the dorsal fin.

The number of hard rays in the anal fin is 2 to 4, being the same as in the observations of other authors (Tab.4). The number of soft rays is, however, different from the given in the literature.

Quantitative tests concerning dark spots upon the body were already described by Schectel (1925), but only for the head. In the literature, we can mostly find some general statements about the number of dark spots. Fishes belonging to investigated populations of salmon trout from Pomerania rivers, as well as of the upper parts of Vistula River (Schectel, 1925), either do not have any dark spots upon the head, or have a lot of them. The lowest value for the number of dark spots was, in our investigations, the same as given by Schectel (1925); the highest one as dif-

ferent-limits given by Schechtei are too low. Salmon trout from Pomerania rivers has 0 to 28 dark spots upon the left, or right side of the head. The average number of spots upon the head is, according to Schechtei, from 3 to 4, which is different from the average number obtained in our study (being 4-8 dark spots). Dark spots upon the head are similar to those of salmon trouts from Vistula River. They are round, with the diameter being 3 to 4 mm. The longest diameter was 7 mm, and thus 2 mm longer than for salmon trout deriving from the Vistula River (the longest diameter for the last is 5 mm). The body of adult fishes, according to Berg (1948); Borisov (1954) and Gąsowska (1962), is covered with many dark spots. Salmon trout from the rivers of Pomerania, is also covered with dark spots. The number of spots is however, closed in large limits. The shape of spots is similar to the described in the literature (Berg, 1948; Borisov, 1954; Gąsowska, 1962). Beside, several individuals are covered with dark spots of a semilunar shape, similar to those observed by Vogt and Hoffer (1909). One of the methods described in the literature, for the identification of salmon trout from salmon, is observation if dark spots are present below the lateral line, upon the body. According to Staff (1950), salmon has dark spots below the lateral line only beside the end of the dorsal fin. Our observations showed, that in several individuals of salmon trout with very small number of spots, they might not be present below the lateral line, beside the end of the dorsal fin. The identification of salmon trout, based only upon the number of dark spots, seems to be uncertain.

The leaf of the vomer is triangular, as it was already stated by Berg (1948) and Gąsowska (1962). There are some teeth present upon its base. The number of teeth differs, according to Gąsowska being from 2 to 6, and according to Berg and Staff (1950) - 3 to 4. Salmon trout from Pomerania rivers has 2 to 3 teeth. Preparation of the vomer allowed us to find the number of the teeth upon the shaft. Berg, Staff and Gąsowska state, that teeth upon the shaft of the vomer might be present in one or two rows. Salmon trout from the rivers of Pomerania, has those teeth growing always in one row.

From the time when Johansen and Lofting (Henking, 1929) found the difference in the shape of gill rakers of salmon and salmon trout, literature dealing with this problem became rather abundant. Salmon trout from the rivers of Pomerania has gill rakers very typical, that is, spiny upon the inner side, and cutted-like upon the end. It should be stated though, that some individuals, especially smaller ones, rather sporadic in Pomerania rivers, did not have typical for salmon trout, cutted ends of gill rakers. Their gill rakers were longer and sharper. The number of gill rakers being 13 to 19 for salmon trout from the rivers of Pomerania, remains in the limits given by other authors (Tab.5). Theoretical oscillations (12-20) in the number of gill rakers of the investigated salmon trout, are the same as those given by Henking (1929).

Investigated gill fringes from the branchial arch, were compared with data given for salmon trout from the Vistula River (Schechtei (1925)). The number of gill fringes upon the first branchial arch, of salmon trout from the Vistula River is, in the following limits; in the row upon the outer side 74-76, in the row upon the inner side 82-88. Investigated populations had much larger

limits of oscillations. In the row upon the outer side there were 72-124 gill fringes, upon the inner side 78-128. However, our investigations, are in accordance with S c h e c h t e l's statement, that gill fringes in the inner row are more numerous, than in the outer row.

Table 5

Comparison of the number of gill rakers upon the first branchial arch of salmon trout

Author	Range of oscillations
Berg (1948), Borisov (1954), Kaj (1961), Staff (1950)	13-18
Gąsowska (1962)	12-17
Henking (1929)	12-20
Jokiel (1959)	16-19
Schechtel (1925)	12-17
Chełkowski	13-19

Table 6

Comparison of the number of pyloric appendages (appendicus pyloricae) of salmon trout

Author	Range of oscillations
Berg (1948), Staff (1950)	40-66
Dixon (1930)	42-55
Gąsowska (1962)	36-66
Jokiel (1959)	33-61
Nereshmeer (1941), Vogt-Hoffer (1909)	40-45
Schechtel (1925)	36-56
Chełkowski	30-65

If we compare the number of pyloric appendages (appendices pyloricae) of salmon trout from the rivers of Pomerania, with data given in the literature, it can be seen, that the upper limit of their number (being 65) is included in the limits given by B e r g (1948) and S t a f f 1950. The lowest limit of their number (being 30), is however smaller from the number given by eight other authors (Tab.6). Extremely low number of pyloric appendages was observed for several salmon trouts from the following rivers: Rega, Parsęta, Grabowa and Śłupia (n=9).

The number of subbranchial rays, placed upon one side of the underbranchial apparatus, was 9 to 12; while B e r g (1948) and G ą s o w s k a

(1962) found 10-12 such rays for anadromous salmon trout, and Kaj (1961) - 9 to 12. The number of subbranchial rays of Pomerania salmon trout is thus, one ray smaller than it was found in Berg's and Gąsowska's studies; and equal to the number given by Kaj. According to Gąsowska, the number of subbranchial rays is 9-12 for trout (*Salmo trutta morpha trutta* L.).

The number of vertebrae of salmon trout in our study was 57 to 60 ($M=58.1$). Almost similar number of vertebrae was found by Berg (1948) for Baltic salmon trout (being 58.6), and salmon trout derived from Baltic coasts of the USSR (being 58.7). According to Kaj (1961), anadromous salmon trout has also similar number of vertebrae, and that is 59-60. Very interesting is Dixon's (1930) observation. He gives the number of vertebrae for salmon trout from the Reda River, as 55-56, and thus much smaller than the numbers given above.

SUMMARIZATION OF THE RESULTS

Oscillations in the investigated meristic features of salmon trout deriving from the rivers of Pomerania are following; D II-IV 8-11; A II-IV 7-11; Squ. 21-29/118-145/21-38/14-18. The number of dark spots: upon the head 0-28; upon the trunk, above the lateral line 4-205; upon the trunk, below the lateral line 3-108; upon the tail, above the lateral line 0-43; upon the tail, below the lateral line 0-27. Triangular leaf of the vomer having 2-3 teeth upon the base. Teeth upon the shaft of the vomer placed in one row, their number being 0-7. First branchial arch with 13-19 gill rakers; 72-124 gill fringes upon the outer side, and 78-128 upon the inner side. The number of pyloric appendages (appendices pyloricae) - 30-65. The number of subbranchial rays 9-12. Vertebrae 57-60. The diameter of developed eggs 4.5 mm to 5.45 mm.

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OPIS CECH MERYSTYCZNYCH TROCI (*SALMO TRUTTA TRUTTA* L.) RZEK POMORSKICH

S t r e s z c z e n i e

Opracowanie dotyczy 32 cech merystycznych troci rzek pomorskich: Regi, Parsęty, Uniasty, Wieprzy z Grabową oraz Słupi. Materiał badawczy

stanowiły dorosłe osobniki troci odłowione w rzekach w czasie wędrówki rozrodczej. Granice wahań wartości poszczególnych cech merystycznych u samców i samców wykazały podobieństwo zarówno w obrębie analizowanych populacji jak i między populacjami. W związku z tym cechy merystyczne troci rzek pomorskich przedstawiono jako wynik całokształtu badań, w których nie uwzględniono ani płci ani populacji. Troci z rzek Pomorza nie można zresztą traktować jako populacji endemicznych, ponieważ są one w różnym stopniu wymieszane. Wpłynęły na to zabiegi gospodarcze połączone z przerzutami z jednej do drugiej rzeki materiału zarybieniowego młodzieży troci.

Wahania badanych cech merystycznych troci rzek pomorskich przedstawiają się następująco: D II-IV 8-11. A II-IV 7-11. Squ. 21-29/118-146/21-38/14-18. Płóć ciemnych plam: na głowie 0-28; na tułowiu nad linią naboczną 4-205; na tułowiu pod linią naboczną 3-108; na trzonie ogona nad linią naboczną 0-43; na trzonie ogona pod linią naboczną 0-27. Trójkątna blaszka lemieszka zaopatrzona jest u podstawy w 2-3 zęby. Zęby na trzonie lemieszka ustawione są 1 szeregowo, przy czym występuje tam ich 0-7 sztuk. I łuk skrzelowy zawiera wyrostków skrzelowych 13-19; I łuk skrzelowy zawiera blaszek skrzelowych po stronie zewnętrznej 72-124; po stronie wewnętrznej 78-128. Wyrostków odżwiernikowych 30-65. Promieni podskrzelowych 9-12. Kręgów 57-60 sztuk. Średnica jaj dojrzałych 4,5-5,45 mm.

ОПИСАНИЕ МЕРИСТИЧЕСКИХ ПРИЗНАКОВ КУМЖИ (SALMO TRUTTA TRUTTA L.)
РЕК ПОМЕРАНИИ

Р е з ю м е

Предметом настоящей работы являются 32 меристические признаки кумжи рек Померании: Реги, Персенты, Унесты, Вепшы с Грабовой, а также Слупи. Материалом для исследований были взрослые экземпляры кумжи выловлены в реках во время нерестового хода. Пределы колебаний величин отдельных меристических признаков у самок и самцов показали сходство внутри анализируемой популяции равно, как между отдельными популяциями. Поэтому меристические признаки кумжи рек Померании представлены как результаты суммарных исследований, без учета пола и популяций. Кумжу рек Померании не можно считать эндемической популяцией так как она в разной степени смешана. Причиной этого были различные мероприятия связаны с переброской молодежи кумжи с одной реки в другую.

Колебания исследуемых меристических признаков кумжи рек Померании представлены следующим образом: D II-IV 8-11, A II-IV 7-11. Squ. 21-29/118-146/21-38/14-18.

Количество темных пятен: на голове 0-28; на туловище над боковой линией 4-205; на туловище под боковой линией 3-108; на стержне хвоста над боковой линией 0-43; на стержне хвоста под боковой линией 0-27. Треугольная пластинка лемеха имеет у основания 2-3 зуба. Зубы на стержне лемеха стоят в одной шеренге в количестве 0-7 штук. 1 жаберная дуга имеет 13-19 жаберных отростков, и то по внешней стороне 72-124 жаберных пластинок, по внутренней 78-128. Поджаберных лучей 9-12. Пиллорических отростков 30-65. Звеньев позвоночника 57-60. Диаметр зрелой икры 4,5-5,45 мм.

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