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Research note

OCCURRENCE OF EXOTIC RUSSIAN STURGEONS, *ACIPENSER GUELDENSTAEDTII* BRANDT ET RATZEBURG, 1833 (ACTINOPTERYGII: ACIPENSERIDAE) IN THE BALTIC SEA

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Abstract. Exotic species of acipenserid fishes have been frequently encountered in the commercial catches of the Baltic Sea, since the early 1990s. Such sightings are rarely reflected as published records. The present paper provides detailed descriptions of two specimens of Russian sturgeons, *Acipenser gueldenstaedtii* caught in the Exclusive Polish Economic Zone of the Baltic Sea.

Key words: fish, Russian sturgeon, *Acipenser gueldenstaedtii,* non-indigenous species

The occurrence of non-indigenous sturgeon species in the Baltic Sea is currently discussed in relation to plans for the re-establishing of the native *A. sturio* L. Introduced fishes must be considered competitors with regard to the utilisation of the habitat and food resources as well as to the potential risk of interference with the gene pool of the native species (Gessner et al. 1999). Therefore, any information on the biology of sturgeons acquired from open waters can be valuable. The first sturgeon was caught 800 m offshore in the Baltic Sea (Pomeranian Bay) near the village of Unieście, on 17 December 2000. The fish weighed 549 g (before gutting) and its standard length was 38.2 cm (Fig.1). The second fish was caught 3 km offshore near the village of Gąski (Pomeranian coast between Kołobrzeg and Darłowo), on 20 October 2001. After gutting the fish weighed 1092 g and its standard length was 49.8 cm (Fig. 2).

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Fig. 1. Russian sturgeon caught in the Baltic Sea on 17 December 2000

Fig. 2. Russian sturgeon caught in the Baltic Sea on 20 October 2001

The morphometric analyses of the specimens were performed using methodology of Krylova and Sokolov (1981). The results obtained, suggested that these were Russian sturgeons, *Acipenser gueldenstaedtii* Brandt et Ratzeburg, 1833 (Table 1). The range of this species covers the Black-, Azov-, and Caspian Seas and their drainage areas (Vlasenko et. al. 1989), which is quite distant from the present capture sites (Fig. 3). Also meristic features of the specimen caught fit into the range specified in the descriptions of the above-mentioned species (Vlasenko et al. 1989). Additionally, a discriminatory analysis (Stepwise Discriminant Analysis, Statistica 5.0) carried out on the data sets describing mensural features of 93 specimens Russian sturgeons, 27 Siberian sturgeons, and 20 specimens of an interspecific hybrid (of the same total length class), cultured in warm-water cages (40.0–49.9 cm and 50.0–59.9 cm) revealed in the classification matrix, that the specimens studied represented the data set specific for the Russian sturgeon. According to the analyses performed (DF = 1.107, p = 3.34E – 05), the most important feature in discriminating the two species and the hybrid was the distance between the tip of the rostrum and the cartilaginous arch of the mouth opening (s–mc) (the abbreviations used follow those of Holčik 1989).

Table 1

Mensural and meristic characters of two investigated specimens

	Value	
	Specimen 1	Specimen 2
WEIGHT AND CONDITION COEFFICIENTS		
w, individual weight [g]	549	—
wg, individual weight (after gutting) [g]	471	1092
Clark	0.4	0.6
Fulton	0.5	—
METRIC CHARACTERS [cm] AND THEIR ABBREVIATIONS		
Tl, total length	48.0	55.3
Fl, fork length	40.7	51.8
Sl, standard length	38.2	49.8
pD, predorsal distance	27.7	36.6
pA, preanal distance	30.7	39.9
P–V, distance between pectoral fin base and ventral fin base	15.1	22
V–A, distance between ventral fin base and anal fin base	7.0	8.8
lpc, length of caudal peduncle	5.4	7.1
H, maximum body depth	5.9	8
h, minimum body depth	1.5	2.2
lP, length of pectoral fin	6.8	6.7
lV, length of ventral fin	3.9	4.5
lA, length of anal fin	2.1	2.5
hA, depth of anal fin	3.5	3.9
lD, length of dorsal fin	5.1	5.1
hD, depth of dorsal fin	3.2	3.4
lc, length of head	9.6	10
prO, preorbital distance (snout length)	3.9	3.7
Oh, horizontal diameter of eye	0.9	1
poO, postorbital distance	5.0	5.9
hco, head depth (at centre of eye)	2.7	3
hc, head depth (at nape)	4.8	5.8
lam, width of mouth	2.9	2.8
s–b, distance between tip of snout and barbels	1.7	1.3
b–mc, distance between tip of snout and cartilaginous arch of mouth	2.2	2.4
s–m, distance between tip of snout and mouth	3.7	3.7
lb, length of barbel	2.0	1.7
Meristic characters	Value	
SD, number of dorsal scutes	13	13
SL, number of lateral scutes	36	33
SV, number of ventral scutes	11	10
D, number of branched rays of dorsal fin	44	35
A, number of branched rays of anal fin	24	19
sp.br., number of gill rakers	27	21

The stomach content of the first specimen indicated that the fish actively fed in the sea. The alimentary tract was filled with some 45 European brown shrimps, *Crangon crangon*, both complete and partly digested specimens. Also three partly digested fish, representing the family Ammodytidae were found. Their approximate total lengths were: 34 mm, 77 mm, and 68 mm). In comparison, as shown by Ninua (1976), brackish-water invertebrates of the family Crangonidae were founded in stomachs of young *A. sturio* from the estuary of the Rioni River. On the other hand, adult common sturgeons fed on small fishes, including sand eels (*Ammodytes* spp.) (Mohr 1952). In view of the above, it can be concluded that Russian sturgeons can compete with native sturgeon species utilising the same habitat and the food sources. The first sturgeon was in a good condition, which was confirmed by both Fulton- and Clark coefficient values (0.5 and 0.4, respectively). Both coefficients were higher than those observed in cultured Russian sturgeons (Prokeš et al. 1997). This result confirms the potential of Russian sturgeons to adapt to natural conditions. An earlier study on the stomach content of a Siberian sturgeon caught in the eastern Odra River indicated the ability of this species to adapt to natural feed (Keszka and Stepanowska 1997). The above conclusions differ from an earlier hypothesis (Kolman et al. 2000) predicting conservative feeding preferences of fishes raised in captivity.

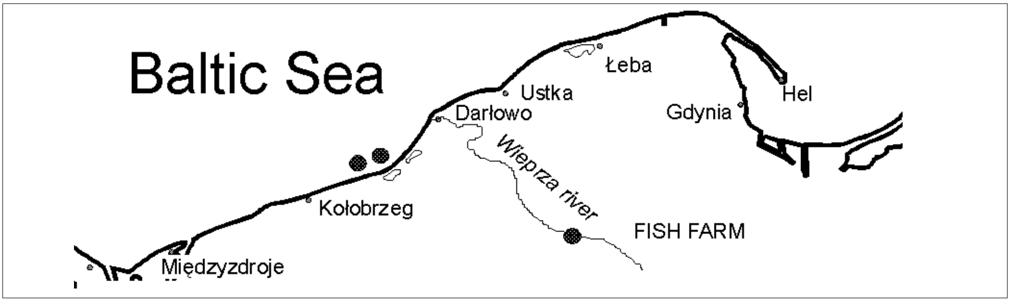

Fig. 3. Catch sites of the presently described specimens (Polish coast of the Baltic Sea)

Determination of the possible origin of the specimens is difficult. The nearest fish farm rearing Russian sturgeons is located at Miastko, a town in the drainage basin of the Wieprza River (Fig. 3). Indeed, in 1999 and 2000, the farm recorded escapes and thefts of fish representing this species. Therefore, it is possible that young sturgeons from Miastko could have migrated downstream to the Baltic Sea.

All specimens of alien acipenserid fishes acquired from the natural environment should be studied in detail. The information could become vital for the success of the restitution project of the common sturgeon, *Acipenser sturio* L. (cf. Sych 1996).

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