

Short communication:

Ichthyofauna of Gaawshan Dam Lake in Kurdistan Province of Iran

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Introduction

Gaawshan Dam Lake is a new dam reservoir constructed in 2004 is situated 50 Km away from Sanandaj city in Kurdestan Province of Iran. The lake is located at the latitude and longitude coordinates of 34°57' 25" N and 47°05' 42" E with an area of about 1500 hectares, 16Km long, 500-1500m wide and a maximum depth of 100 meters. The lake is principally fed by the Gaveh River in addition to a few small rivers that enter the lake. The Gaveh River exits the dam reservoir and then joins the Gheshlagh River and becomes the source of the Sirvan River in the northwest part of Iran. The present study examined species composition and ecological status of the ichthyofauna in the Gaawshan Dam Lake. This research is the first-ever reported on

the ichthyofaunal of the Gaawshan Dam Lake, and will contribute to the database required for the conservation and sustainable utilization of this lake.

Materials and methods

Eight stations were selected in the Gaawshan Dam Lake (Table 1 and Fig. 1). Seasonal samplings were carried out with gillnets (20-60 mm mesh size) and beach seine (8 mm mesh size) between November 2014 and October 2015. Specimens were preserved in 5 percent formalin in the field and were observed in the laboratory. Fishes were identified based on morphological and meristic characteristics. 20 morphometric and 6 meristic characteristics were measured and counted, respectively for each specimen.

Table1: Location of sampling stations.					
St No	N	E			
1	34°57′ 38″	47°00′ 58″			
2	34°57' 59"	47°02' 10"			
3	34°57′ 39"	47°05′28			
4	34°58' 27"	47°04′ 11″			
5	34°57′ 00″	47°03′22			
6	34°55' 57"	47°03'00 "			
7	34°56' 04"	47°05' 18"			
8	34°55′ 42"	47°10' 07"			

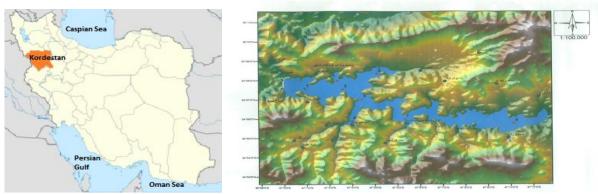


Figure 1: Map showing situation of the stations in the Gaawshan Dam Lake.

Results and discussion

The results of the study showed 11 fish species belonging to the Cyprinidae family

in the Gaawshan dam lake (Table 2) which comprised 1182 individual specimens.

Table 2: Fish species of the Gaawshan Dam Lake.

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Scientific name	Family	English name	e Status: Native/Exotic				
1 Alburnus mossulensis	Cyprinidae	Mossul bleak	Native				
2 Barbus lacerta	Cyprinidae	kura barel	Native				
3 Capoeta damascina	Cyprinidae	Mesopotamian barb	Native				
4 Capoeta trutta	Cyprinidae	trout barb	Native				
5 Carassius gibelio	Cyprinidae	Prussian carp	Exotic				
6 Ctenopharyngodon idella	Cyprinidae	Grass carp	Exotic				
7 Cyprinus carpio	Cyprinidae	Common carp	Exotic				
8 Hypophthalmichthys molitrix	Cyprinidae	Silver carp	Exotic				
9 Luciobarbus esocinus	Cyprinidae	Mangar	Native				
10 Luciobarbus pectoralis	Cyprinidae	Orontes barbel	Native				
11 Squalius cephalus	Cyprinidae	Chub	Native				

Table 3: Morphometric features of fish species caught in the Gaawshan Dam Lake.

Species N	TL	SL	HL B	BD TW	TL/HL	TL/BD
1 A. mossulensis189	123.6±21.6	67 105.3±17	7.24 25.2±	±1.14 37.4±	1.38 27.2±7.	42 4.90±0.23
3.30 ± 0.18						
2 B. lacerta 14	223.4±21.32	201.3±18.73	41.7 ± 1.42	39.3±1.37 1	53.2±23.45 5.35	5±0.37 5.73±0.23
3 C.damascina 122	262.3±34.42	221.4±22.67	46.3±2.56	56.7 ±2.32 17	72.5±31.27 5.66	±0.54 4.62±0.41
4 <i>C. trutta</i> 236	194.5±23.52	168.3±21.16	35.6±1.54	47.6±.54 12	24.4±25.42 5.46	5±0.34 4.11±0.28
5 C. gibelio 26	182.4±19.35	151.2±16.67	43.1±1.32	2 59.5±1.22	148.3±28.52	4.23±0.45 3.06±0.3
6 C. idella 37	315.2±39.44	278.1±28.42	63.6±.2.46	6 65.3±1.62	346.5±48.35	$4.95 \pm 0.42 4.82 \pm 0.$
7 <i>C. carpio</i> 128	326.4 ± 41.21	285.6±31.52	64.1 ± 2.3	7 72.1±1.57	587.3 ± 86.54	5.09±0.35 4.52±
8 H. molitrix 36	396.4±38.62	358.2 ± 29.2	1 81.5±2.65	92.6±2.35	756.4±79.46	4 <u>.86±0</u> .46 4.28±0
9 L. esocinus 86	297.2±28.21	273.4±3.38	69.2±23.3	37 61.7±1.76	41.6±56.32	$4.29 \pm 0.36 4.82 \pm 0.36$
10 L. pectoralis 35	275.3 ± 32.41	244.3±25.3	2 58.4±2.23	8 56.2±1.46	215.3±36.72	4.71±0.48 4.89±0
11 S. cephalus 273	235.2 ±31.17	200.4 ± 22.1	8 45.2±2.20	6 51.4±1.34	165.4±47.24	5.20±0.25 4.57±

All measurements are in millimeters (mm): TL:Total Length; SL:Standard Length; HL: Head Length; BD:BodyDepth;TW:Total weight (g)

In the Gaawshan Dam Lake, a total of 11 species were identified all of which belong to the Cyprinidae family. The family Cyprinidae is the largest family of freshwater fishes and various members of this family are important as food fish, aquarium fish and in biological research 2016).The fishes (Nelson, of the Gaawshan Dam Lake are divided into two groups, the first group includes seven native species including **Squalius** cephalus, Luciobarbus esocinus, Barbus lacerta, Capoeta damascina, Alburnus mossulensis, L. pectoralis and C. trutta. The second group consists of four exotic including species Carassius gibelio, Cyprinus carpio, Ctenopharyngodon idella, and Hypophthalmichthys molitrix. Three exotic species including *C.carpio*, C. idella and H. molitrix were introduced to this reservoir for aquacultural purposes. These Chinese carps also introduced to other reservoirs in inland water resources of Iran, are found naturally in the whole Caspian Sea drainage area (Abbasi et al., 1999). These species are commercially raised in Iran for sale in the local market and are found almost all over Iran.

C. *gibelio* has accidentally entered the lake with other exotic species (Coad, 1996). *S. cephalus*, *C. trutta* and *A. mossulensis* are the most abundant species in the study area. These species have an economic value for human consumption. *S. cephalus* has economic importance including sport fishing. One of the most important morphometric parameters is the ratio of TL HL⁻¹ and referring to the Table 3 the TL HL⁻¹ ratio for this species was 5.20. According to previous reports it was reported as 4.5 by Ramin *et al.* (2014);

4.45 by Najafpour (1996); 4.46 (2001);4.28 Sadeghinejad and Mohaghegh (2002). It is widespread in the northern parts or Iran including the Eastern basin of the Urmia Lake (Ghasemi and 2013). A. mossulensis Ramin. recorded from the Tigris River, Lake Maharlu, Kor River and the upper reaches of the Hurmuz Basins (Berg, 1964; Bianco and Banarescu, 1982; Abdoli, 2000). This species is abundant and appears to be under no threat in Iran. The average ratio of TL HL⁻¹ in the present study was 4.90. According to the previous report of Najafpour (1996) it was 4.98. L. esocinus, L. pectoralis, C. damascina and C. trutta have economic value and the local people catch and use them as food fish. In recent years the stocks of L. esocinus and L. pectoralis have reduced. The important reasons for the decline of some fish species are overfishing, deterioration of their spawning grounds and restrictions of their habitats (Ramin and Doustdar, 2012a). L. esocinus is distributed in the Tigris River basin. In the past years this species was abundant in the Kharkheh, Dez and Karun River basins in the west and southwest of Iran (Ramin and Doustdar, 2012b). According to IUCN criteria this species is classified as a vulnerable species (IUCN Redlist, 2016). The average ratio or TL HL⁻¹ in the present study was 4.29. According to Ramin (2000) it was 5.10. The average ratio of T.L H.L⁻¹ of L. pectoralis in this study was 4.71. It was reported as 5 by Ramin and Doustdar (2017); 4.8 by Almaca (1986); 4.9 by Najafpour (1996) and 4.7 by Sadeghinejad (2001). The average ratio of TL/BD in this study was 4.89. TL/BD ratio was 4.7 according to

Ramin and Doustdar (2017); 4.9 according to Almaca (1990), and Sadeghinejad (2001), and 4.8 as reported by Najafpour (1996). C. damascina is widely distributed in all the inland waters of Iran and is not included in the Red List. The average ratio of TL HL⁻¹ in C. damascina was 5.66. It was reported previously as 5.61 by Ramin et al. (2014); as 5.67 by Sadeghinejad (2001); as 5.18 by Mohaghegh (2002); as 5.62 by Najafpour (1996) and as 4.97 by Ebrahimi (1997). C. trutta has the highest abundance in the Dez River basin (Ramin and Doustdar, 2012b) and no conservation C. trutta is activities are needed. economically important and shows good market value in the west of Iran. The ratio of TL/HL in this study was 5.46. Previous studies Najafpour (1996)by and Sadeghinejad (2001) calculated it as 5.83 and 5.58, respectively. Barbus lacerta does not have economic importance and is widely distributed in the south Caspian Sea basin, Urmia Lake basin and Tigris River basin (Coad, 2017). The TL HL⁻¹ ratio in this study was 5.35 in comparison with Ramin (2000) who reported it as 4.40.

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