

# Supplementary File

## Genetic Investigation of Aral Wild Common Carp Populations (*Cyprinus carpio*) Using ddRAD Sequencing

Gulmira Shalgimbayeva <sup>1</sup>, Alexander Volkov <sup>2</sup>, Natalia Slobodova <sup>3</sup>, Fedor Sharko <sup>3,4</sup>, Svetlana Tsygankova <sup>3</sup>, Eugenia Boulygina <sup>3</sup>, Van Q. Nguyen <sup>5,6,\*</sup>, The T. Pham <sup>5</sup>, Duc T. Nguyen <sup>5</sup>, Saule Zh. Assylbekova <sup>1</sup>, Yakov Alekseev <sup>7,8</sup>, Artem Nedoluzhko <sup>9,\*</sup>, Jorge M. O. Fernandes <sup>9</sup> and Sergey Rastorguev <sup>3,\*</sup>

<sup>1</sup> LLP Isheries Research and Production Center (FRPC), Almaty 050016, Kazakhstan; shalgimbayeva@mail.ru (G.S.); assylbekova@mail.ru (S.Zh.A.)

<sup>2</sup> Russian Federal Research Institute of Fisheries and Oceanography (VNIRO), 107140 Moscow, Russia; alexavolkov@gmail.com

<sup>3</sup> National Research Center “Kurchatov Institute”, 123182 Moscow, Russia; nv.slobodova@gmail.com (N.S.); fedosic@gmail.com (F.S.); svetlana.tsygankova@gmail.com (S.T.); eugenia.bulygina@gmail.com (E.B.)

<sup>4</sup> Research Center of Biotechnology of the Russian Academy of Sciences, Institute of Bioengineering, 119071 Moscow, Russia

<sup>5</sup> Institute of Marine Environment and Resources, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Cau Giay, Hanoi 10000, Vietnam; thupt@imer.vast.vn (T.T.P.); thend@imer.vast.vn (D.T.N.)

<sup>6</sup> Faculty of Marine Science and Technology, Graduate University of Science and Technology, 10000 Hoang Quoc Viet Street 18, Hanoi, Vietnam

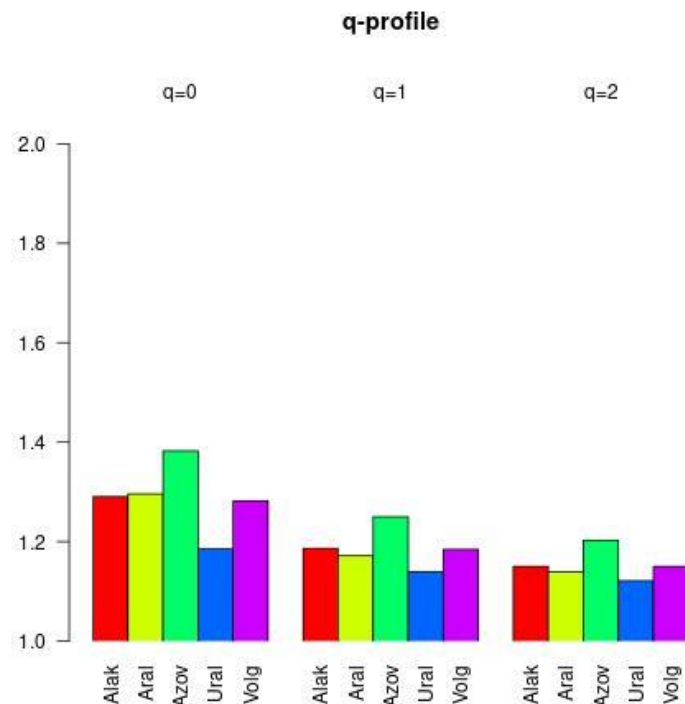
<sup>7</sup> LLC Syntol, 127434 Moscow, Russia; jalex01@mail.ru

<sup>8</sup> Institute for Analytical Instrumentation, Russian Academy of Science, 190103 St. Petersburg, Russia

<sup>9</sup> Faculty of Biosciences and Aquaculture, Nord University, 8049 Bodø, Norway; jorge.m.fernandes@nord.no

\* Correspondence: quannv@imer.vast.vn (V.Q.N.); artem.nedoluzhko@nord.no (A.N.); rastorgueff@gmail.com (S.R.)

### Supplementary Figures



**Figure S1.** Common carp population diversity. Allelic richness ( $q = 0$ ), Shannon information ( $q = 1$ ), and heterozygosity ( $q = 2$ ).

## Supplementary Tables

**Table S1.** Number of generated reads and mapping statistics for the common carp specimens

<b>Specimen Name</b>	<b>No. Illumina Reads Generated</b>	<b>No. Reads Mapped to Reference Genome</b>	<b>%, Mapped Reads</b>	<b>No. Uniquely Mapped Reads</b>	<b>%, Uniquely Mapped Reads</b>
Alakol1	2,009,070	1,990,466	99.07	230,381	11.47
Alakol2	1,692,112	1,669,230	98.65	186,118	11.00
Alakol3	2,070,194	2,047,469	98.90	235,720	11.39
Alakol4	1,781,198	1,742,379	97.82	198,410	11.14
Alakol5	1,948,088	1,897,780	97.42	232,487	11.93
Aral10	2,044,838	2,012,814	98.43	239,321	11.70
Aral1	1,999,318	1,978,571	98.96	228,603	11.43
Aral2	2,713,824	2,678,436	98.70	317,109	11.68
Aral3	2,951,936	2,917,012	98.82	369,822	12.53
Aral4	2,471,954	2,431,831	98.38	287,001	11.61
Aral5	5,406,950	2,834,084	52.42	334,589	6.19
Aral6	1,637,554	1,614,247	98.58	199,637	12.19
Aral7	9,486	8,535	89.97	988	10.42
Aral8	3,518,726	3,481,451	98.94	398,561	11.33
Aral9	1,818,784	1,794,939	98.69	205,955	11.32
Azov1	3,158,090	3,124,899	98.95	365,938	11.59
Azov2	2,884,390	2,858,068	99.09	333,186	11.55
Azov3	3,114,692	3,086,376	99.09	352,202	11.31
Azov4	3,719,200	3,685,328	99.09	430,300	11.57
Azov5	2,706,308	2,679,379	99.00	301,082	11.13
Volga1	1,288,002	1,271,933	98.75	145,822	11.32
Volga2	1,948,616	1,927,603	98.92	224,557	11.52
Volga3	2,071,144	2,054,428	99.19	241,603	11.67
Volga4	2,359,526	2,339,876	99.17	280,603	11.89
Volga5	2,541,958	2,510,295	98.75	300,645	11.83
Ural1	1,969,158	1,944,763	98.76	228,061	11.58
Ural2	2,411,236	2,390,965	99.16	278,831	11.56
Ural3	2,163,012	2,145,268	99.18	255,088	11.79
Ural4	2,233,802	2,207,159	98.81	258,595	11.58
Ural5	2,477,162	2,455,581	99.13	284,882	11.5

**Table S2.** Variation analysis. Mean allele count and mean heterozygosity for each common carp population

Population Name	Mean reference Allele Count	Mean heterozygosity, %
Aral	1.61194	0.11174
Alakol	1.61187	0.11441
Volga	1.61403	0.11817
Ural	1.61165	0.09909
Azov	1.61132	0.15526