Hyung-Bae Jeon

Molecular ecology PhD and Evolutionary Biologist

Email | github | twitter

Bio

1985 **Birth**
Citizenship South Korea

Currently

I'm a postdoctoral fellow at Dylan Fraser's lab. Here I study population genomics using salmonid fish:fish:.

Employment

2018–2020 **Concordia University** Horizon Postdoctoral Fellowship (Population Genomics and Bioinformatics)
2018 **Institute of Natural Science (Yeungnam University)** Researcher
2008–2009 **National Fisheries Research and Development Institute (Ministry of Maritime Affairs and Fisheries)** Research Internship

Education

2013–18 **Yeungnam University** PhD Evolutionary Biology (supervisor: Ho Young Suk). My thesis was titled Evolutionary History of Acheilognathid Fish Inferred based on Genetic and Genomic Analyses and is available through the Researchgate.
2011–13 **Yeungnam University** MSc Phylogeography (supervisor: Ho Young Suk). thesis was titled Phylogeographical Issues of Teleosts in Korea: Adpative Radiation and Peripheral Speciation
2004–08 **Kunsan National University** BSc Marine Biology

Courses & Training

2017 **KOBIC** Bioinformatics workshop (Metabarcoding)
2016 **KOBIC** Bioinformatics workshop (Linux)
KOBIC Bioinformatics workshop (Python)
2015–18 **Yeungnam University** Institutional animal care and use (IACUC)
2015 **KOBIC** Bioinformatics workshop (Transcripmics)
Ministry of Food and Drug Safety(MFDS) animal care and use training program
2014 **KOBIC** Bioinformatics workshop (De novo assembly)
2011–17 **Yeungnam University** Laboratory safety

Presentations

Workshop
2011–17 **Forest interpreter program, Yeungnam University** Introduction to Aquatic Ecology
2011–13 **Yeungnam University** Introduction to Marine Biology

Talks
2017 Biogeographical history of bitterling fishes (Acheilognathidae) International Conference of Korean Federation of Fisheries Science and Technology Societies
The phylogeographic pattern of Squalidus multimaculatus (Cyprinidae) revealing the events of serial colonization by river capture and estuary coalescence The 72th Annual Meeting of the Korean Association of Biological Sciences
2014 Tanakia latimarginata, a new species of bitterling from the Nakdong River, South Korea (Teleostei: Cyprinidae) The 69th Annual Meeting of the Korean Association of Biological Sciences
2012 Genetic structuring and phylogenetic position of Rhodeus pseudosericeus – mitochondrial DNA evidence The 67th Annual Meeting of the Korean Association of Biological Sciences
A pilot study of mate choice pattern in Korean rosy bitterling (Rhodeus uyekii) The 1st conference of the Ecological Society of Korea

Posters
2017 Environmental DNA (eDNA) as an alternative method for the non-invasive species identification of baby bitterlings growing in living mussels. The 72th Annual Meeting of the Korean Association of Biological Sciences
Adaptive vs neutral genetic variability in Korean rosy bitterling (Rhodeus sinensis) The 72th Annual Meeting of the Korean Association of Biological Sciences
Microsatellite data validated Tanakia koreensis and T. latimarginata as distinct species The 72th Annual Meeting of the Korean Association of Biological Sciences
Taxonomic and phylogeographic characterization of Tanakia species (Cyprinidae: Acheilognathinae) using COI and cyt b genes The 72th Annual Meeting of the Korean Association of Biological Sciences
2014 Phylogeographic exploration of Gobioid fishes based on 12S ribosomal RNA sequences 2nd Symposium of Benthological Society of Asia
2013 A small 12S rRNA fragment clarifies the origin and historical dispersal of Gobioidei The 68th Annual Meeting

of the Korean Association of Biological Sciences
Mate choice for additive versus non-additive fitness benefits in Korean rosy bitterling (Rhodeus uyekii) The 66th Annual Meeting of the Korean Association of Biological Sciences

Publications

2019 Seung-Gyu Lee, Kyoung Su Choi, Chang-Jun Kim, **Hyung-Bae Jeon**, Il-Kwon Kim. Complete mitochondrial genome of Leptaulax koreanus (Coleoptera: Passalidae), a Korean endemic bess beetle. Mitochondrial DNA Part B. http://doi.org/10.1080/23802359.2018.1536492

Han-Gyu Bae, Casey Nightingale, Duck Hee Jeoung, Sunho Cha, **Hyung-Bae Jeon**, Hangkyo Lim, Ho Young Suk. Genetic diversity and population structure of Kichulchoia multifasciata in South Korea. Conservation Genetics. http://doi.org/10.1007/s10592-019-01147-7

2018 **Hyung-Bae Jeon**, Dong-Young Kim, Yoon Jeong Lee, Han-Gyu Bae, Ho Young Suk. The genetic structure of Squalidus multimaculatus revealing the historical pattern of serial colonization on the tip of East Asian continent. Scientific Reports. http://doi.org/10.1038/s41598-018-28340-x

Jae-Min Park, **Hyung-Bae Jeon**, Hye-In Jo, Seong-Jang Cho, Ho Young Suk, Kyeong-Ho Han. Early Life History of Tanakia latimarginata. Korean Journal of Ichthyology. ISSN: 1225-8598

2017 **Hyung-Bae Jeon**, Dacotah Anderson, Hari Won, Hangkyo Lim, Ho Young Suk. Taxonomic characterization of Tanakia species (Acheilognathidae) using DNA barcoding analyses. Mitochondrial DNA Part A. http://doi.org/10.1080/24701394.2017.1398746

Yoon Jeong Lee, Han-Gyu Bae, **Hyung-Bae Jeon**, Dong-Young Kim, Ho Young Suk. Human-mediated processes affecting distribution and genetic structure of Squalidus multimaculatus, a freshwater cyprinid with small spatial range. Animal Cells and Systems. http://doi.org/10.1080/19768354.2017.1371074

Han-Gyu Bae, Yoon Jeong Lee, **Hyung-Bae Jeon**, Dong-Young Kim, Hari Won, Seulki Park, Junghwa An, Ho Young Suk. The complete mitochondrial genomes of three geographical lineages in short ninespine stickleback (Pungitius kaibarae) complex and their phylogenetic implication. Mitochondrial DNA Part B. http://doi.org/10.1080/23802359.2017.1361362

2016 **Hyung-Bae Jeon**, Junghwa An, Seon-Man Kweon, Soonok Kim, Jeong-Nam Yu, Byung-Jik Kim, Seigo Kawase, Ho Young Suk. Development of novel microsatellite loci and analyses of genetic diversity in the endangered Tanakia somjinensis. Biochemical Systematics and Ecology. http://doi.org/10.1016/j.bse.2016.05.006

Hyung-Bae Jeon, Yoon Jeong Lee, Hwa Jin Lim, Sun Ho Cha, Ho Young Suk. Complete mitochondrial genome of endangered Rhodeus pseudosericeus and its implications for the reconstruction of phylogenetic relationship among. Mitochondrial DNA Part B. http://doi.org/10.1080/23802359.2016.1172036

2014 **Hyung-Bae Jeon**, Ho Young Suk. Pseudo but actually genuine: Rhodeus pseudosericeus provides insight into the phylogeographic history of the Amur bitterling. Animal Cells and Systems. http://doi.org/10.1080/19768354.2014.936506

Daemin Kim, **Hyung-Bae Jeon**, Ho Young Suk (2014) Tanakia latimarginata, a new species of bitterling from the Nakdong River, South Korea (Teleostei: Cyprinidae). Ichthyological Exploration of Freshwaters.

2013 Daemin Kim, Kevin Conway, **Hyung-Bae Jeon**, Ye-Seul Kwon, Yong-Jin Won. High genetic diversity within the morphologically conservative dwarf loach, Kichulchoia brevifasciata (Teleostei: Cobitidae), an endangered freshwater fish from South Korea. Conservation Genetics. http://doi.org/10.1007/s10592-013-0462-2

2012 **Hyung-Bae Jeon**, Ho Young Suk. Male Colors and Female Mate Preference in Korean Rosy Bitterling, Rhodeus uyekii (Cyprinidae: Acheilognathinae). Korean Journal of Ichthyology.

Hyung-Bae Jeon, Seung-Ho Choi, Ho Young Suk. Exploring the Utility of Partial Cytochrome c Oxidase Subunit 1 for DNA Barcoding of Gobies. Animal Systematics, Evolution and Diversity. http://doi.org/10.5635/ASED.2012.28.4.269

in preparation - revision

Hyung-Bae Jeon, Ho Young Suk. Transcriptome analyses of rosy bitterling (Rhodeus ocellatus) providing insight into the genetic basis of alternative reproductive tactics. in preparation

Hyung-Bae Jeon, Hari Won, Woo-Jin Kim, Ho Young Suk. The evolution of major histocompatibility complex (MHC) class IIB in an acheilognathid species, Rhodeus sinensis. BMC Genetics. revision

Hyung-Bae Jeon, Hari Won, Hangkyo Lim, Ho Young Suk. Population genetic structure of two endemic Tanakia species, T. koreensis and T. latimarginata, on the Korean Peninsula. in preparation

Hyung-Bae Jeon, Hari Won, Ho Young Suk. Contemporary and historical events shapes the neutral and adaptive genetic structure in Rhodeus sinensis on the Korean populations. BMC Evolutionary Biology. in preparation

Hari Won, **Hyung-Bae Jeon**, Ho Young Suk. Genetic structure shaped by historical dispersal and population size fluctuation in a freshwater species, Rhodeus notatus. Journal of Fish Biology. revision

Hyung-Bae Jeon, Ho Young Suk. Complete mitochondrial genome of Tanakia latimarginata: heteroplasmy and phylogenetic implication. Mitochondrial DNA Part A. in preparation

Hyung-Bae Jeon, Hari Won, Ho Young Suk. Comparative phylogeography of Tanakia species and the reconstruction of paleo-hydrographic history of far eastern Asia. in preparation

Hyung-Bae Jeon, Ho Young Suk. Biogeography of bitterling fishes. in preparation

Hyung-Bae Jeon, Ho Young Suk. De novo transcriptome assembly of five bitterling fishes (Acheilognathidae): the evolutionary patterns of orthologous genes and their phylogenomic utility. in preparation

Hyung-Bae Jeon, et al. Development of species-specific marker for

Non-academic

2014 **Hyung-Bae Jeon** Conservation status of dwarf loach, Kichulchoia brevifasciata http://ecotopia.hani.co.kr/204783

Project

Goverment
2016–18 **NRF, Ministry of Education, Science and Technology, Korea** Environmental DNA project
2012–17 **NIBR, Ministry of Environment, Korea** Genetic Diversity of Animal Resources
2015 **NNIBR, Ministry of Environment** Discovery Biodiversity in Nakdong River System
2014–15 **NIBR, Ministry of Environment, Korea** Korean Tree of Life(KTOL) - Hymenoptera
2014 **Ministy of Environment, Korea** National Wetland Survey
2011–14 **NIER, Ministy of Environment, Korea** National Ecosystem Survey
2011 **NIBR, Ministry of Environment, Korea** Korean Tree of Life(KTOL) - Gobiiformes

NGO
2011 **The eco-park for toad protection** Aquatics survey project
2010 **Ijang Inc.** Fish survey in Imjin River system

Teaching & Service

Reviewer
2019 **Conservation Genetics**

University
2018 **Ewha Womans University** Guest lecture
2016 **Yeungnem University** General Biology (3 credits) 2nd semester
Yeungnam University Experiment of Biology (1 credit) 2nd semester
Yeungnem University General Biology (3 credits) 1st semester
2015 **Yeungnem University** General Biology (3 credits) 2nd semester
Yeungnem University Teaching Assistant (1 credit) 2nd semester
Yeungnem University Teaching Assistant (1 credit) 1st semester
2014 **Yeungnem University** Teaching Assistant (1 credit) 1st semester
Kyeongbuk National university Guest lecture
2013 **Yeungnem University** Teaching Assistant (1 credit) 2nd semester
Yeungnem University Teaching Assistant (1 credit) 1st semester

Mentoring
2018 **two exchange students(USA)**
2016–17 **two undergraduate students(Yeungnam University)**
2015 **a exchange student(USA)**
2012–16 **Master students in Suk's Lab**

Consulting
2011 **The eco-park for toad protection** Management of natural habitat
201

Citizens
2018 **The eco-park for toad protection** Citizen scientist program
2015 **Dong-a Pharm.** Eco camp for youth
2014 **Green Union** Bioblitz in Sangju
Teo, Eco Instutute Bioblitz in the Musim stream
Dong-a Pharm. Eco camp for youth
2013 **Green Union** Bioblitz in Uljin
Dong-a Pharm. Eco camp for youth
2012 **Yeungnam University** Science camp for high school students
Dong-a Pharm. Eco camp for youth
2011 **Yeungnam University** Science camp for high school students
Dong-a Pharm. Eco camp for youth
2010 **Maewha Middle School** Eco camp
Dong-a Pharm. Eco camp for youth

Leadership
2015 **Graduate student association at department of life sciences** president
2008– **Korean Fish Specialist Group(ASARI)** founder and president

Membership
The Korean association for conservation of freshwater fish

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Skills

Areas of expertise

Bioinformatics	Transcriptomics (RNA seq)	Conservation genetics
Statistics	Population genomics	environmental DNA (eDNA)
Data visualisation	development of genetic marker	16S metabarcoding
NGS and variant calling	Phylogeography	COI DNA barcoding
Animal taxonomy	Whole genome sequencing	Comparative transcriptomics
Fish morphology	Pool seq	MHC genetics
Ecoimmunology	Phylogenetic analysis	Behavioral ecology

Computing

R	UNIX	Affinity Desighner
Python	Cluster computing	Esri ArcMap
LaTeX	Adobe Photoshop	QGIS
Bash	Adobe Illustrator	MS Office
Git	Image J	Keynote Paper Numbers

Bioinformatic tools

Trinity	Iqtree	GATK
Bowtie	STRUCTURE	bwa
BLAST	Genodive	admixture
DESEQ	GenAlex	Bayescan
ggplot2	MLrelate	BOTTLENECK
EdgeR	COLONY	Lositan
OrthoMCL	BayesAss	DetSel
Mothur	NeEstimator	Plink
MEGA	NewHybrid	hisat
Geneious	VMD	bedtools
BEAST2	RAXML	prinseq
HyPhy	DAMBE	trinotate
RASP	Samtools	trimmomatic
PAML	VCFtools	Migrate-N
Datamonkey	GADMA	Genepop
MrBayes	STACK	Arlequin
Mesquite	PICARD	

Photo & Movie

Studio shooting	Field sketch	shooting standard specimen
Studio set-up	behavior recording	

Field & Husbandry

Gill net	Lift net	In vitro fertilization
Electro fishing	Microfishing (Tanago)	Drug treatment
Kick net	Lurefishing	Anesthesia
Fyke net	Managing up to 120 tanks	

License

Driver License (Korea)	(Korea)	(CMAS)
License for animal taxonomy	Scuba license openwater	

Projects

Research

I have been studying to reconstruct the evolutionary history of freshwater fishes based on population genetics and phylogenetics tools using microsatellites, MHC and mtDNA. Now, I am interested in the genomic consequences of harvesting in fish (also known as 'fisheries-induced evolution'), and I am working on introduced Brook trout to understand how populations evolve during harvesting. This study will contribute to establishing conservation strategies for endangered species as well as sustainable fisheries management

Blog

Asari

In 2008, I founded a specialist group for the understanding of fishes of the Korea called Asari. the groyp made up with over 200 of ichthyologist, aquarist, teacher, citizen scientist.
I helped to organise our monthly meetings and built our website: edinbr.org. Our meetings attract 30-50 statisticians, data scientists and developers for talks and discussion about the R language and its applications. We're sponsored by Revolution Analytics and have an organisational github account at github.com/EdinbR.

Column

Funding & Awards

2018 **Horizon Postdoctoral Fellowship (47,500 CAD per year)** Concordia University

2017 **Best Research Award** The 72th Annual Meeting of The Korean Association of Biological Sciences

Best Research Presentation Award (200,000 KRW) International Conference of Korean Federation of

Fisheries Science and Technology Societies

2016 **Participation Award (200,000 KRW)** The 3th Korea Ecology Information Contest KOBIC, NAVER & BRIC

2014 **acceptance incentive (250,000 KRW)** Yeungnam Univerisity

Participation Award (200,000 KRW) The 1st Korea Ecology Information Contest KOBIC, NAVER & BRIC

2013 **Best Poster Presentation Award (100,000 KRW)** The 68th Annual Meeting of the Korean Association of Biological Sciences

Participation Award (200,000 KRW) The Wildlife Photo Contest KOBIS

2008 **Siver prize (200,000 KRW)** The Korean association for conservation of freshwater fish The 1st Korean Freshwater Fish Photo Contest

2007 **World Educational Expedition Award (700,000 KRW)** Kunsan National University

Selling record

Ministry of Environment, Korea 20 photos
Hwaseong city, Korea 20 photos

Links

Email
github
twitter
instagram
Youtube
LinkedIn
Google scholar
researchgate
ORCiD
figshare

References

Available on request.