

## Dr Chrysoula Gubili (or Gkoumpili)

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### ***Current Research Interests***

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I am an evolutionary biologist with an interest in genetics as a tool to address a wide variety of questions regarding the ecology, evolution and behaviour of various species (from benthic megafauna to large predators). I also maintain a strong interest in conservation biology, as my work focuses on threatened, fragile or commercially important wild populations with the goal of improving management strategies. My research endeavours have developed around the study of elasmobranchs and deep-water species, but currently, my primary focus is understanding how evolutionary processes have shaped patterns of modern biodiversity in a range of species. This includes investigating the effects of environmental change, natural and anthropogenic on different communities taking advantage of the new tools provided by genomics and spatial modeling.

### ***Academic achievements***

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**01/01/2017 – present**      **Researcher**, Fisheries Research Institute, Nea Peramos, Kavala, Greece.

Title: Population Biology of fishes.

**01/06/2015 – 31/12/2016**      **Postdoctoral Researcher**, School of Environment & Life Sciences, University of Salford, Salford, England, UK.

Project titles: 1) Population Genomics of Tropical eels; 2) “F.I.S.HUB: Fish Identification Software Hub”

Synopsis: Investigation of the ecological genomics and hybridisation levels of tropical eels in a collaboration with the University of Salzburg. I also participated in the development of a software tool (mobile phone application) used in the field by both professionals and inexperienced people to detect species substitution.

**01/04/2014 – 28/02/2015**      **Postdoctoral Researcher**, Instituto Nacional de Pesquisas da Amazônia, INPA, Manaus, Amazonas, Brazil.

Project title: “Contribution of Molecular Genetics in Assessing Amazonian Biodiversity” funded by FAPEAM and CAPES (Brazil).

Synopsis: Throughout this appointment, I was able to identify and investigate the delimitation of various neotropical species (avian, primates and reptiles), whilst assess genetic variation among populations: examples include the re-evaluation of *Rhegmatorhina* and *Pionites* species complexes, the identification of high prevalence of Hepatitis B in New World primates, and investigation of population dynamics in Antbirds and river turtles, such as *Podocnemis expansa*. Finally, I was appointed co-supervisor of two postgraduate students, who successfully defended their projects.

**15/11/2012 – 14/11/2013**      **Postdoctoral Researcher**, Faculty of Environmental Design, University of Calgary, Calgary, Alberta, Canada.

Project title: “Spatial Genetics and Ecological Variation in the North American reindeer” funded by the Natural Sciences and Engineering Research Council of Canada (NSERC).

Synopsis: During this post, I applied distance based analysis testing alternative hypotheses on the effects of geographic, topographic, environmental and herd specific variables on genetic differentiation and relatedness among individual caribou. I focused on evaluating biological processes on an individual level, as individuals are fundamental evolutionary units. Finally, I examined the relative costs and benefits of gene flow, particularly in small-scale habitats that have been fragmented by recent anthropogenic activities.

**01/10/2010 – 31/03/2012**      **Postdoctoral Researcher**, University of Southampton and National Oceanography Centre, Southampton, England, UK.

Project title: “Genetic Identification, Molecular Phylogeny and Biodiversity of benthic megafauna (Echinodermata)” funded by HERMIONE (Hotspot Ecosystem Research and Man’s impact on European Seas).

Synopsis: I have worked on genetic identification and investigated phylogenetic affinities of benthic and abyssal species from the North Atlantic. I have acquired and enhanced my wet laboratory skills and knowledge on analysing molecular population genetic datasets. I have applied a range of techniques in forensic identification of deep-water echinoderms. As an example, I examined the extensive spatial and temporal variation of population structure of the abyssal holothurian, *Psychropotes longicauda*. I was also responsible for the laboratory work of three postgraduate students.

**01/10/2004 – 07/07/2009 Degree of Doctor of Philosophy** in Genetics, University of Aberdeen, Scotland, UK.

Ph.D. Thesis: Application of Molecular Genetics for Conservation of the Great White Shark, *Carcharodon carcharias*, L. 1758.

Supervisors: Dr. Leslie R. Noble (UoA) and Dr. Catherine S. Jones (UoA).

Synopsis: My Ph.D. studies focused on the application of novel and less invasive methodologies that allowed the use of variable genetic markers capable of distinguishing species and various stocks, whilst study the evolutionary forces driving population differentiation, phylogenetic relationships within taxa, breeding systems and relatedness among individuals of various shark species.

**21/09/2003 – 05/09/2004 M.Sc. Marine and Fisheries Sciences**, University of Aberdeen, Scotland, UK.

M.Sc. Thesis: Application of modern genetic techniques on Great White Sharks with subsequent GIS implementation.

Supervisors: Drs Leslie R. Noble and Cathy Jones (University of Aberdeen).

**01/10/1997 – 07/07/2002 B.Sc. (Hons) Chemistry**, Aristotle University of Thessaloniki, Greece.

B.Sc. Thesis: Ion Chromatographic Determination of Bromide and Bromate in Drinking and Surface Water

Supervisors: Dr. Victoria Samanidou and Prof. Ioannis Papadoyiannis.

### ***Other work experience***

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Mar 2009 – Jul 2009 **Research Assistant**, University of Aberdeen, Scotland, UK. Population ecology of Lamnid Sharks; preliminary analyses using stable isotopes.

Jul 2009 – Jul 2009 **Socio-economic Consultant**, Moray Firth Partnership and ACES, University of Aberdeen (With Drs B. Davies, D. Lusseau and D. Roberts), Scotland, UK.

Jun 2006 – Jun 2006 **Research Consultant**, Basking shark project (DEFRA), University of Aberdeen, Scotland, UK.

Oct 2005 – May 2008 **Student Demonstrator**, Demonstrator of the B.Sc. courses at the University of Aberdeen, UK.

### ***Training and Development***

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15/01/2017–20/01/2017 TripleA Winter School. Whole Genome Sequencing. Locarno, Switzerland.

31/08/2015–05/09/2015 ConGen2015. Population Genomic Data Analysis Course. University of Montana, USA.

26/11/2011 – 7/11/2011 Biogeography and Phylogeography of Atlantic Fishes, Lisbon, Portugal.

### ***Publications***

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1. **C. Gubili**, T. Pazartzi, S. Siaperopoulou, S. Maradidou, D. Loukovitis, A. Chatzisprou, A.M. Griffiths, G. Minos, A. Imsiridou. High levels of mislabeling in shark meat – investigating patterns of species utilisation with DNA barcoding in Greek retailers. *Food Control*, *Under Review*.

2. S. Karkabounas, N. Papadopoulos, C. Anastasiadou, **C. Gubili**, D. Peschos, R. Daskalou, N. Fikioris, Y.V. Simos, E. Kontargiris, X. Gianakopoulos, V. Ragos & M. Charzidimitriou (2018)

Effects of  $\alpha$ -Lipoic acid, carnosine and thiamine supplementation in obese patients with type 2 diabetes mellitus: a randomized, double-blind study. *Journal of Medicinal Food*, *In Press*.

3. **C. Gubili**, R. Schabetsberger, C. Poellabauer, B. Bates, R.M. Wagstaff, L.M. Woodward, U. Sichrowsky, A. Scheck, D.T. Boseto, E. Feunteun, A. Acou, R. Jehle (2018) High genetic diversity and lack of pronounced population structure in five species of sympatric Pacific eels. *Fisheries Management and Ecology*, *In Press*.

4. R. Schabetsberger, A. Scheck, R. Kaiser, R. Leaana, **C. Gubili**, F. Økland (2018) Oceanic migration behaviour of Pacific eels from Samoa. *Fisheries Management and Ecology*, *In Press*.

5. C.C. Ribas, A. Aleixo, **C. Gubili**, F.M. d'Horta, R.T. Brumfield, J Cracraft (2018). Biogeography and diversification of Rhegmatorhina (Aves: Thamnophilidae): implications for the recent evolution of Amazonian landscapes. *Journal of Biogeography*. 45:917-928.

6. É.L. Choueri, **C. Gubili**, S.H. Borges, G. Thom, A.O. Sawakuchi, E.A.A. Soares & C.C. Ribas (2017). Phylogeography and population dynamics of Antbirds (Thamnophilidae) from Amazonian fluvial islands. *Journal of Biogeography*. 44:2284-2296.

7. **C. Gubili**, S. Mariani, P. Galpern, B.V. Weckworth, A.D. McDevitt, M. Hebblewhite, B. Nickel & M. Musiani (2017). Environmental and anthropogenic drivers on connectivity patterns: a basis for prioritizing conservation efforts for threatened populations. *Evolutionary Applications*. 10:199-211.

8. A. Veríssimo, D. Zaera-Perez, R. Leslie, S.P. Iglésias, B. Séret, P. Grigoriou, A. Serioti, **C. Gubili**, J. Navarro, C. Duffy, S. Hernández, I. Batzakas & A.M. Griffiths (2017). Molecular diversity and distribution of eastern Atlantic and Mediterranean dogfishes *Squalus* highlight taxonomic issues in the genus. *Zoologica Scripta*. 46:414-428.

9. **C. Gubili**, E. Ross, D.S.M. Billett, A. Yool, C. Tsairidis, H.A. Ruhl, A. Rogacheva, V. Huvenne, D. Masson, P.A. Tyler & C. Hauton (2017). Cryptic diversity, global phylogeography and time series shifts in the genetics of an abyssal holothurian, *Psychropotes longicauda* (Echinodermata). *Deep Sea Research Part II*. 137:288-296.

10. S. Mascolino, C. Benvenuto, **C. Gubili**, C. Sacchi, B. Boufana & S. Mariani. The ART of mating: alternative reproductive tactics and mating success in a nest-guarding fish. *Journal of Fish Biology*. 89: 2643-2657.

11. **C. Gubili**, C. D. Ritter, J. Motta, I.P. Farias, J. Bates, R. Canton, J.M.G. Capurucho, C. Cornelius, K.A. Feldheim & C.C. Ribas (2016) Isolation and Characterization of Polymorphic Microsatellite DNA Markers from an Amazonian white-sand vegetation specialist bird, *Xenopipo atronitens* (Aves: Pipridae). *The Wilson Journal of Ornithology*, 128(3):668-672.

12. **C. Gubili**, K. Macleod, W. Perry, P. Hanel, I. Batzakas, E. Farrell, A. Lynghammar, C. Mancusi, S. Mariani, G. Menezes, F. Neat, G. Scarcella & A.M. Griffiths (2016). Connectivity in the Deep: Phylogeography of the Velvet Bellied Lanternshark. *Deep Sea Research I*, 115:233-239.

13. **C. Gubili**, C.E.C. Robinson, G. Cliff, S.P. Wintner, E. de Sabata, S. de Innocentis, S. Canese, D.W. Sims, A.P. Martin, L.R. Noble & C.S. Jones (2015). DNA from historical and trophy samples provides insights into white shark population origins and genetic diversity. *Endangered Species Research*, 27:233-241.

14. R. Schabetsberger, F. Økland, D. Kalfatak, U. Sichrowsky, M. Tambets, K. Aarestrup, G. Dall'Olmo, J. Sarginson, **C. Gubili**, B. Boufana, R. Jehle, M.J. Miller, A. Scheck, R. Kaiser & G. Quartly (2015). Genetic and migratory evidence for sympatric spawning of tropical Pacific eels from Vanuatu. *Marine Ecology Progress Series*, 521:171-187.

15. **C. Gubili**, D.W. Sims, A. Veríssimo, P. Dominici, J. Ellis, P. Grigoriou, A. Johnson, M. McHugh, F. Neat, G. Scarcella, B. Serra-Pereira, A. Soldo, M.J. Genner & A.M. Griffiths (2014). A tale of two

seas: contrasting patterns of population structure in the small-spotted catshark across Europe. Royal Society Open Science, 1:140175.

16. C. D. Ritter, C.M.E. Figueredo, **C. Gubili**, K.A. Feldheim, J. Bates, C. Cornelius & C.C. Ribas (2014) Isolation and Characterization of Seventeen Polymorphic Microsatellite DNA Markers from Rufous-crowned Elaenia ruficeps (Aves: Tyrannidae). Conservation Genetics Resources, 6:1015-1018.

17. L. Lieber, S. Berrow, E. Johnston, G. Hall, J. Hall, **C. Gubili**, D.W. Sims, C.S. Jones & L.R. Noble (2013) Mucus: aiding elasmobranch conservation through non-invasive genetic sampling. Endangered Species Research, 21:215-222.

18. **C. Gubili**, R. Bilgin, E. Kalkan, S.Ü. Karhan, D.W. Sims, H. Kabasakal, C.S. Jones & L.R. Noble (2011) Antipodean white sharks on a Mediterranean walkabout?: historical dispersal of a top marine predator accounts for an endangered anomalous population. Proceedings of the Royal Society B, 278:1679-1686.

19. **C. Gubili**, R. Johnson, E. Gennari, W.H. Oosthouizen, D. Kotze, M. Meÿer, D.W. Sims, C.S. Jones & L.R. Noble (2009) Concordance of genetic and fin photo identification in the great white shark, *Carcharodon carcharias*, off Mossel Bay, South Africa. Marine Biology, 156:2199-2207.

### Book chapters

**C. Gubili**, C. Duffy, G. Cliff, S. Wintner, M. Shivji, D. Chapman, B. Bruce, A.P. Martin, D.W. Sims, C.S. Jones & L.R. Noble. Application of Molecular Genetics for Conservation of the Great White Shark, *Carcharodon carcharias*, L. 1758. In *Global Perspectives on the Biology and Life History of the Great White Shark*, ed. Michael L. Domeier, CRC Press, Boca Raton, FL, 2012.

### Non-peer-reviewed publications

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March 2009. Report on the “Economic Value of the Moray Firth Bottlenose Dolphins”. PHASE 1. This report was produced for the Moray Firth Partnership held by Aberdeen Centre for Environmental Sustainability (ACES). Principal Investigator: Dr Ben Davies (ben.davies@abdn.ac.uk).

**C. Gubili**. 2007. Population genetics of the Great White Shark, *Carcharodon carcharias*. *Genetics Society News*. Issue 56, pp 31-32. (<http://www.genetics.org.uk/files/pdf/Genetics%20soc%20issue%2056.pdf>).

### Scientific Conferences

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27-29/09/2017 Poster Presentation: Crustacean decapod diversity associated with *Cymodocea nodosa* meadows from the North Aegean Sea (Eastern Mediterranean Sea). 1<sup>ST</sup> SouthEast European Ichthyological Conference (SEEIC). Sarajevo, Bosnia-Herzegovina.

13-15/06/2017 Oral Presentation: *Panmixia in the tropics: lack of genetic structure in sympatric eels*. 1<sup>st</sup> UK International Eel Science Symposium, London, Great Britain.

10-11/05/2017 Oral Presentation: *Food or Wildlife? Consumers' poor knowledge of fish appearance hampers seafood market transparency and sustainability*. Food Integrity Conference, Parma, Italy

10-11/05/2017 Oral Presentation: *Fist Identification software hub (F.I.S.HUB) classifier*. Food Integrity Conference, Parma, Italy.

09/09/2016 Oral Presentation: Connectivity in the Deep: Phylogeography of the Velvet Belly Lanternshark. 2<sup>nd</sup> Deep-Sea SIG Conference, Liverpool, UK.

18-22/07/2016 Oral Presentation: Genetic and migratory evidence for sympatric spawning of tropical pacific eels. 2016 FSBI Symposium, Bangor, UK.

6-12/12/2014 Oral Presentation: Biogeography and diversification patterns of the Neotropical Genus *Rhegmatorhina* (Aves: Thamnophilidae) inferred from multilocus phylogenetic analysis. 21<sup>th</sup> Congresso Brasileiro de Ornitologia, Rio de Janeiro, Brazil.

1-3/11/2013 Oral Presentation: Population genetic structure and phylogeography of the Small-Spotted Catshark (*Scyliorhinus canicula*) in European waters. 17<sup>th</sup> European Elasmobranch Association, Plymouth, UK.

11-14/09/2012 Oral Presentation: Global phylogeography and long-term change and biodiversity shifts of *Psychropotes longicauda* (Echinodermata: Holothuroidea) in slopes and deep basins along the European margins. 3<sup>rd</sup> HERMIONE conference, Carvoeiro, Portugal.

11-14/09/2012 Poster Presentation: Phylogenetic analysis of deep-sea corals (Octocorallia) in the Atlantic Ocean. 3<sup>rd</sup> HERMIONE conference, Carvoeiro, Portugal.

11-15/04/2011 Oral Presentation: Genetic Identification and Molecular Phylogeny of Elaspodida (Echinodermata: Holothuroidea) in North Atlantic slopes, basins and canyons. 2<sup>nd</sup> HERMIONE conference, Estepona, Spain.

10-13/11/2010 Poster Presentation: Amplification of Degraded Nuclear and Mitochondrial DNA from Great White Shark Teeth. 14<sup>th</sup> European Elasmobranch Association, Galway, Ireland.

7-10/02/2010 Oral Presentation: Application of Molecular Genetics for Conservation of the Great White Shark, *Carcharodon carcharias*, L. 1758. International White Shark Symposium, Hawaii, Honolulu, USA.

23-26/11/2007 Oral Presentation: Population structure of the Great White Shark: an insurmountable opportunity for conservation. 11<sup>th</sup> European Elasmobranch Association, Brest, France.

1-4/03/2002 Oral Presentation: Ion Chromatographic Determination of Bromide and Bromate in Drinking and Surface Water. 1<sup>st</sup> Greek Environmental Convention, Thessaloniki, Greece

### ***Reviewer in Scientific Journals***

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2011-current: Reviewer for numerous Scientific Journals, including *Scientific Reports*, *Journal of Biogeography*, *Marine Biology*, *Fisheries Research*, *Marine and Freshwater Research*, *BMC Genetics*, *PeerJ* and *African Journal of Aquatic Science*.

### ***Grants and Scholarships***

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2019-2019 Project funded by the Fisheries Society of the British Isles (FSBI): “Species composition of the Greek ray trade”.

2018-2021 Project funded by the EU-H2020: “PERICLES – PrEseRving Cultural Heritage and Landscapes in European Seas”.

2018-2021 Project funded by the Greek National Fisheries Program: “Melanosis Inhibition in Commercial Shrimps: a case study in Hellenic Fisheries”

2018-2021 Project funded by the Greek National Fisheries Program: “European Anchovy Shelf Life Extension using Ozonated Micro-Nano-bubbles”

2011	HERMIONE training bursary
2010	International White Shark Symposium Travel Grant
2007	Aberdeen University Travel Grant
2006	Heredity Fieldwork and Training grant
2004-2007	University of Aberdeen Ph.D. studentship
2004-2007	CASE Ph.D. studentship (Marine Biological Association)

### ***Other Qualifications***

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2002	Degree in Piano – Practical and teaching skills
1997	Diploma from the International Air Transport Association
1995	Degree in Theory of Music

### ***Field expeditions***

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July 2018 – July 2018 MEDITS (International Bottom Trawl Survey in the Mediterranean), North Aegean, Greece.

Aug 2011 – Aug 2011 RRS *James Cook* Cruise JC062, National Oceanography Centre,

Southampton, UK, Fieldwork for HERMIONE project.

Nov 2006 – Nov 2006 South Africa. Fieldwork campaign for Ph.D.

Oct 2004 – Oct 2004 Natal Sharks Board, Durban, South Africa. Fieldwork campaign for Ph.D.

***Supervisory responsibilities***

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01/05/2016 – present *Felipe Ennes Silva*: Ph.Dd. Thesis: Taxonomy, Systematics, Biogeography and Conservation of the white uakari monkey, *Cacajao calvus*. (**co-supervisor**, main advisor: Dr. Jean Boubli)

01/05/2016 – 31/12/2016 *Amy Green*: M.Sc. Thesis: The phylogeography of *Callicebus lugens*, of the Rio Negro basin and its implication for our understanding of the Historical Biogeography of Amazonia. (**co-supervisor**, main advisor: Dr. Jean Boubli)

01/04/2014 – 31/12/2015 *Erik L. Choueri*: M.Sc. thesis: Phylogeography and population dynamics of Antbirds (Thamnophilidae) from Amazonian fluvial islands. (**co-supervisor**, main advisor: Dr. C.C. Ribas)

01/04/2014 – 31/12/2015 *Camila Vieira*: M.Sc. thesis: Population structure of the giant Amazon river turtle, *Podocnemis expansa* (Chelonia; Podocnemididae). (**co-supervisor**, main advisor: Dr. C.C. Ribas)

01/10/2013 – 28/02/2014 *James S. Berry*: Undergraduate Thesis: Smoothly Hounded – Investigating the Biodiversity within smooth hound sharks in the North Atlantic. (**co-supervisor**, main advisor: Prof. Stefano Mariani)

01/10/2008 – 30/05/2009 *Heather A. McMillan*: M.Sc. Thesis: Phylogeographic Distribution & Biogeography of the Angel Shark, *Squatina dumeril*, L. 1818, from the Northwest Atlantic Ocean. (**co-supervisor**, main advisor: Dr. C.S. Jones)

01/11/2009 – 31/03/2010 *Lilian Lieber*: Undergraduate Thesis: Global phylogeography of the basking shark, *Cetorhinus maximus*. (**co-supervisor**, main advisor: Drs L.R. Noble and C.S. Jones)

01/10/2007 – 30/05/2008 *Simon Gulak*: MSc Thesis: Global phylogeography of the bull shark, *Carcharhinus leucas* (**co-supervisor**, main advisor: Drs L.R. Noble and C.S. Jones)

01/10/2006 – 28/02/2007 *Stephanie L. Smith*: Undergraduate Thesis: Multiple paternity in the Pacific shortfin mako shark, *Isurus oxyrinchus*. (**co-supervisor**, main advisor: Drs L.R. Noble and C.S. Jones)