

CV



Lorenzo Zane

Full Professor of Ecology

Born in Venice, Italy, 05/06/1970. Italian citizen.

Married, two kids.

Current address: Department of Biology, University of Padova, Via G. Colombo 3, I-35131, Padova, ITALY.

Tel:+39 0498276220; Fax: +39 0498276209; e-mail: lorenzo.zane@unipd.it

Abstract

- Coordinator of the Department of Biology bachelor and master degrees
- Member of the board of CONISMA (Consorzio Universitario per le Scienze del Mare). Delegate for University of Padova.
- Teacher of Ecology, Molecular Ecology, Population Ecology and Genetics of Marine Organisms. Fully positive evaluations from students.
- Awarded with the young researcher prize "Felice Ippolito" from the Accademia dei Lincei and the Italian Program for Research in Antarctica.
- Author of over 115 papers on journals with Impact Factor, including *Nature*, *PNAS* and top journals of his field such as *Molecular Ecology*. Total IF more than 350, 4942 Scopus citations, H index = 33 (Scopus, Oct 2022)
- The paper Zane et al. (Mol Ecol 2002) has been "Fast Breaking Paper" ISI in the field Environment/Ecology, with over 1475 Scopus citations on Oct 2022.
- Reviewer for over 25 international journals and two International research foundations and MIUR. Top Reviewer for Molecular Ecology 2012 and 2014. Academic Editor PLoSOne, Frontiers in Marine Science
- PI or local PI of more than 10 National and International projects.

Training

PhD in Evolutionary Biology (University of Padua, 2000).

Graduation *cum laude* in Biological Sciences (University of Padua, 1995).

Positions

From October 2017: Full professor in Ecology, University of Padua.

2011-2017: Associate professor in Ecology, University of Padua.

2001-2011: Researcher in Ecology, University of Padua.

2000-2001: postdoc University of Padua;

1999-2000: postdoc University of Ferrara;

1996-1999: phD University of Padua;

1995-1996: mandatory National Service.

Research

LZ research focus on the study of marine organisms by molecular markers. Research includes markers development, both at the genomic and transcriptomic level, and their from molecular systematics to the study of mating systems of fish. LZ recent research is moving to the integration of empirical genetic data in population modeling approaches and to environmental DNA metabarcoding, aiming at achieving a better comprehension of contemporary and historical factors shaping intra- and interspecific patterns of biodiversity.

Current research lines are:

- *Differentiation and connectivity in estuarine and coastal organisms (Carcinus aestuarii, Chamelea gallina)*.
- *Transcriptomics and environmental genomics of non-model organisms*.
- *Population genetics, historical and contemporary processes in commercial fish species (Thunnus thynnus, Diplodus sargus sargus, Scomber scomber)*.
- *Estimates of genomic connectivity among relevant organisms of marine protected areas and bioconstructions*.
- *Environmental DNA application for metabarcoding fish and invertebrates ecological communities, and for intraspecific population genomics of fish*.

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| Research keywords | Fish, Fishery, Marine organisms, Antarctic, Genetic connectivity among populations, Effective population size, Historical and contemporary demography, High throughput sequencing, Gene expression profiling, Marine Protected Areas, Invasive Species. |
| Teaching | LZ, starting from 2002 held classes of general and specialized content for more than 1600 hours. LZ supervised more than 50 graduate students and 10 PhD students. |
| Activity abroad | <p><u>In blue, activity under PNRA</u></p> <p>January 1997 - July 1997: visitor student in J.C. Avise lab, University of Georgia, Athens, GA (USA). Isolation and application of microsatellites in the peciliid <i>Gambusia holbrooki</i>.</p> <p>November 1997 - December 1997: research activity in Antarctica. <i>Geneflow cruise</i>, British Antarctic Survey.</p> <p>February 2002 - March 2002: research activity in Antarctica. <i>ANTXIX/3 cruise</i> Alfred Wegener Institut fur Polar und Meeresforschung.</p> |
| Prizes | July 2004: awarded with the prize " Felice Ippolito " from Accademia dei Lincei and the Italian Program for Research in Antarctica to young researchers for research activity in Antarctica. |
| Research projects | <p><u>In blue, projects on Antarctic species</u></p> <p>1995-2007: member of the Padova Research Unit of the Italian program for Research in Antarctica.</p> <p>2002-2020: local grants from Padova University (ex60%, DOR).</p> <p>2001: young researcher grant from Padova University. Title: "Messa a punto di metodologie molecolari per l'identificazione genetica di specie di acipenseridi utilizzate in acquacoltura e nel ripopolamento".</p> <p>2003: tutor for post-doc project. Title: "Caratterizzazione genetica dello storione cobice, <i>Acipenser naccarii</i>".</p> <p>2003: participation to EEC project "Determining the genetic sex in sturgeon: application in the production of caviar" (CRAFT – 1999 - 72183).</p> <p>2004: young researcher grant from Padova University: "Studio del sistema d'accoppiamento e delle strategie riproduttive di <i>Zosterisessor ophiocephalus</i> (Gobiidae, Perciformes), mediante marcatori microsatellite"</p> <p>2004: PI for the research line "Bioindicatori genetici, indici di popolazione e condizioni ambientali" all'interno del progetto "Indicatori ed indici di qualità ambientale per la laguna di Venezia" from "Consorzio per la gestione del centro di coordinamento delle attività di ricerca inerenti il sistema lagunare di Venezia (CORILA)."</p> <p>2005: tutor for post-doc project. Title: "Time/space patterns of microsatellite DNA variabilità in the Southern Ocean krill (<i>Euphausia superba</i>) and some of its Notothenioid predators."</p> <p>2006: local PI for the project "Population genetics of the European Eel (<i>Anguilla anguilla</i>) with EST-linked microsatellites"; Italian Ministry for University and Research PRIN2006.</p> <p>2007: Marine Genomics Europe consumable grant.</p> <p>2008: local grant "Linking environment to genes. Genomic and transcriptomic response to pollution and parasitism in the endangered European eel."</p> <p>2008: tutor for post-doc project. "A transcriptomic approach for investigating molecular mechanisms of cold adaptation in Antarctic fish (Perciformes, Notothenioidea).".</p> |

2009: responsible for genetic analyses in “Progetto CLODIA: interventi di formazione ambientale e riconversione della pesca per lo sviluppo sostenibile degli ambienti costieri”, PI Maria Berica Rasotto, Veneto Region.

2010: local PI for the project “Genetic estimates of population connectivity in white seabream (*Diplodus sargus sargus*) populations at two different geographic scales.” Italian Ministry for University and Research PRIN2008.

2012: task leader, on behalf of CONISMA, in the project “Towards COast to COast NETworks of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential” FP7-Environment project ref. #287844.

2013: local PI for the project “Biocostruzioni costiere: struttura, funzione, e gestione”; Italian Ministry for University and Research PRIN2010.

2015: local grant “Implementing Population Genomics of non-model marine species to enhance identification and characterization of Sites of Community Importance (SCI)”.

2016. Italian Ministry for Scientific Research, National Program for Antarctic Research (PNRA). Defining species boundaries and assessing interspecific hybridization in the crocodile icefish (*Chionodraco spp.*, Perciformes, Channichthyidae) from the Weddell Sea using morphology, life history traits and genetics, Budget 45 K€.

2018. CORILA, (Consorzio per il coordinamento delle ricerche inerenti al sistema lagunare di Venezia). Venezia 2021 “Programma di ricerca scientifica per una laguna “regolata”. November 2018-December 2021. PI WP1.1.4 e 1.1.5, budget over 350 K€.

2018. EU, specific contract No. 03EASME/EMFF/2017/1.3.2.3/01/ SI2.793201 - SC03. Progetto MED_UNITS “Study on Advancing fisheries assessment and management advice in the Mediterranean by aligning biological and management units of priority species”. January 2019-December 2020. Participant, approximate budget 250 K€.

2020. Italian Ministry for Scientific Research, National Program for Antarctic Research (PNRA). RosS-MODe: Ross Sea biodiversity Monitoring through barcoding, metabarcODing and e-DNA. Participant, total budget 93.2 K€.

2020. Coordinator of the project “Preserving coastal marine ecosystem functions and services under climate change pressure and overfishing”; Italian Ministry for University and Research PRIN2020. Budget 647 K€, budget UNIPD about 150 K€.

Other

Reviewer for: Proceedings of Royal Society London: Biological Sciences, Marine Ecology Progress Series, Marine Biology, Journal of Applied Ichthyology, Heredity, Molecular and General Genetics, Transactions of the American Fisheries Society, Journal of Sea Research, Scientia Marina, Molecular Ecology Resources, Molecular Ecology, Canadian Journal of Fisheries and Aquatic Sciences, Crustaceana, Estuarine and Coastal Shelf Science, Deep Sea Research II, Genetica, PLoS ONE, BMC Evolutionary Biology, Biological Invasions, Marine Genomics, Nature Communications, Hydrobiologia.
Top Reviewer for Molecular Ecology 2012 and 2014.
Academic Editor for PLoS ONE since 2014 and for Frontiers in Marine Science from 2019.
Referee for proposals of National Science Foundation (USA), New Zealand Antarctic program and for the Italian Ministry of University and Research (MIUR).

ISI articles

“corresponding author” and “equal contributions” marked by *

In blue publications on Antarctic species

1. G Cananzi, I Gregori , F Martino, L Tiantsi, E Boscari, E Camatti , L Congiu, IAM Marino, M Pansera, A Schroeder, L Zane* (2022). Environmental DNA metabarcoding reveals spatial and seasonal patterns in the fish community in

- the Venice Lagoon. *Frontiers in Marine Science* doi: 10.3389/fmars.2022.1009490 *corresponding author
2. F Pirri, L Ometto, S Fuselli, FAN Fernandes, L Ancona, N Perta, D Di Marino, C Le Bohec, L Zane, Emiliano Trucchi (2022). Selection-driven adaptation to the extreme Antarctic environment in the Emperor penguin. *Heredity*, doi: 10.1038/s41437-022-00564-8
 3. IAM Marino, M Schiavina, G Aglieri, S Bevilacqua, E Boscari, L Congiu, S Faggion, C Kruschel, C Papetti, T Patarnello, M Paterno, E Voutsinas, L Zane*, P Melià (2022). Assessment of connectivity patterns of the marbled crab *Pachygrapsus marmoratus* in the Adriatic and Ionian seas through combination of genetic data and Lagrangian simulations. *Frontiers in Marine Science* doi: 10.3389/fmars.2022.944851 *corresponding author
 4. A Casanova, F Maroso, A Blanco, M. Hermida, N Ríos, G García, A Manuzzi, L Zane, A Veríssimo, JL García-Marín, C Bouza, M Vera (2021). Low impact of different SNP panels from two building-loci pipelines on RAD-Seq population genomic metrics: case study on five diverse aquatic species. *BMC Genomics* 22(1), 150
 5. L Schiavon, V Duliére, M La Mesa, IAM Maino, G Codogno, E Boscari, E Riginella, A Battistotti, M Lucassen, L Zane*, C Papetti (2021). Species distribution, hybridization and connectivity in the genus *Chionodraco*: Unveiling unknown icefish diversity in Antarctica. *Diversity and Distributions*, 2021, 27(5), pp. 766–783
 6. F Poli, IAM Marino, M Santon, E Bozzetta, G Pellizzato, L Zane, MB Rasotto (2021). Spatial asymmetry of the paternity success in nests of a fish with alternative reproductive tactics. *Scientific reports* 11 (1), 3091
 7. E Boscari, IAM Marino, C Caruso, J Gessner, M Lari, N Mugue, A Barmintseva, R Suciu, D Onara, L Zane, L Congiu (2021). Defining criteria for the reintroduction of locally extinct populations based on contemporary and ancient genetic diversity: The case of the Adriatic Beluga sturgeon (*Huso huso*). *Diversity and Distributions*, 27 (5), 816 - 827
 8. E Boissin, V Neglia, S Baksay, D Micu, L Bat, B Topaloglu, V Todorova, M Panayotova, C Kruschel, N Milchakova, E Voutsinas, S Beqiraj, I Nasto, G Aglieri, M Taviani, L Zane, S Planes (2020). Chaotic genetic structure and past demographic expansion of the invasive gastropod *Tritia neritea* in its native range, the Mediterranean Sea. *Scientific reports* 10 (1), 1-13
 9. Bargelloni L, Babbucci M, Ferrarese S, Papetti C, Vitulo N, Carraro L, Paulette M, Santovito G, Lucassen M, Mark FC, Zane L, Patarnello T (2020). Draft genome assembly and transcriptome data of the icefish *Chionodraco myersi* reveal the key role of mitochondria for a life without hemoglobin at subzero temperatures. *Communications Biology* 2, Article number: 443.
 10. Riginella E, Correale V, Marino IAM, Rasotto MB, Vrbatovic A, Zane L, Mazzoldi C (2020) Contrasting life-history traits of two sympatric smoothhound species: implication for vulnerability. *Journal of Fish Biology* 96: 853-857.
 11. Maduna SN, Hull KL, Farrell ED, Boomer JJ, Veríssimo Ana, Marino IAM, Mazzoldi C, Zane L, Wintner SP, Chesalin MV, da Silva C, Gubili C, Mariani S, Bester-Van Der Merwe AE (2020). Historical biogeography of smoothhound sharks (genus *Mustelus*) of Southern Africa reveals multiple dispersal events from the Northern Hemisphere. *Systematics and Biodiversity*, 18:7, 633-645.
 12. M Paterno, L Bat, J Ben Souissi, E Boscari, A Chassanite, L Congiu, G Guarnieri, C Kruschel, V Macic, IAM Marino, D Micu, N Milchakova, M Panayotova, C Papetti, S Planes, S Strungaru, V Todorova, E Voutsinas, L Zane* (2019). A genome-wide approach to the phylogeography of the mussel

- Mytilus galloprovincialis* in the Adriatic and the Black Seas. *Frontiers in Marine Science* 6, 566
13. Caccavo JA, Ashford JR, Ryan S, Papetti C, Schröder M, Zane L (2019). Spatial structuring and life history connectivity of Antarctic silverfish along the southern continental shelf of the Weddell Sea. *Marine Ecology Progress Series* 624, 195-212. Doi: 10.3354/meps13017
 14. Hull KL, Asbury TA, da Silva C, Dicken M, Verissimo A, Farrell ED, Mariani S, Mazzoldi C, Marino IAM, Zane L, Maduna SN, Bester-van der Merwe AE (2019). Strong genetic isolation despite wide distribution in a commercially exploited coastal shark. *Hydrobiologia* 838: 121-137. Doi: 10.1007/s10750-019-03982
 15. Boscaro E, Abbiati M, Badalamenti F, Bavestrello G, Benedetti-Cecchi L, Cannas R, Cau A, Cerrano C, Chimienti G, Costantini F, Fraschetti S, Ingrosso G, Marino IAM, Mastrototaro F, Papetti C, Paterno M, Ponti M, Zane L, Congiu L (2019). A population genomics insight by 2b-RAD reveals populations' uniqueness along the Italian coastline in *Leptopsammia pruvoti* (Scleractinia, Dendrophylliidae). *Diversity and Distributions* 25:1101-1117. Doi:10.1111/ddi.12918
 16. Lopez-Marquez V, Templado J, Buckley D, Marino I, Boscaro E, Micu D, Zane L, Machordom A (2019). Connectivity Among Populations of the Top Shell *Gibbula divaricata* in the Adriatic Sea. *Frontiers in Genetics*. 10:177 Doi:10.3389/fgene.2019.00177
 17. Manuzzi A, Zane L, Munoz-Merida A, Griffiths AM, Verissimo A (2019). Population genomics and phylogeography of a benthic coastal shark (*Scyliorhinus canicula*) using 2b-RAD single nucleotide polymorphisms. *Biological Journal of the Linnean Society*. 126:289-303. Doi:10.1093/biolinnean/bly185
 18. Caccavo JA, Papetti C, Wetjen M, Knust R, Ashford JR, Zane L (2018). Along-shelf connectivity and circumpolar gene flow in Antarctic silverfish (*Pleuragramma antarctica*). *Scientific Reports* 8 :17856. Doi:10.1038/s41598-018-36030-x
 19. Brooks CM, Caccavo JAC, Ashford J, Dunbar R, Goetz K, La Mesa M, Zane L (2018). Early life history connectivity of Antarctic silverfish (*Pleuragramma antarctica*) in the Ross Sea. *Fisheries Oceanography*, vol. 27:274-287, ISSN: 1054-6006, doi: 10.1111/fog.12251
 20. Papetti C, Schiavon L, Milan M, Lucassen M, Caccavo JAC, Paterno M, Boscaro E, Marino IAM, Congiu L, Zane L (2018). Genetic variability of the striped venus *Chamelea gallina* in the northern Adriatic Sea. *Fisheries Research*.201:68-78, ISSN: 0165-7836, doi: 10.1016/j.fishres.2018.01.006
 21. Marino IAM, Finotto L, Colloca F, Di Lorenzo M, Gristina M, Farrell ED, Zane L, Mazzoldi C (2018). Resolving the ambiguities in the identification of two smooth-hound sharks (*Mustelus mustelus* and *Mustelus punctulatus*) using genetics and morphology. *Marine Biodiversity*. \$8: 1551–1562. Doi: 10.1007/s12526-017-0701-8
 22. Ingrosso, Gianmarco, Abbiati, Marco, Badalamenti, Fabio, Bavestrello, Giorgio, Belmonte, Genuario, Cannas, Rita, Benedetti-Cecchi, Lisandro, Bertolino, Marco, Bevilacqua, Stanislao, Bianchi, Carlo Nike, Bo, Marzia, Boscaro, Elisa, Cardone, Frine, Cattaneo-Vietti, Riccardo, Cau, Alessandro, Cerrano, Carlo, Chemello, Renato, Chimienti, Giovanni, Congiu, Leonardo, Corriero, Giuseppe, Costantini, Federica, De Leo, Francesco, Donnarumma, Luigia, Falace, Annalisa, Fraschetti, Simonetta, Giangrande, Adriana, Gravina, Maria Flavia, Guarnieri, Giuseppe, Mastrototaro, Francesco, Milazzo, Marco, Morri, Carla, Musco, Luigi, Pezzolesi, Laura, Piraino, Stefano, Prada, Fiorella, Ponti, Massimo, Rindi, Fabio, Russo, Giovanni Fulvio,

- Sandulli, Roberto, Villamor, Adriana, Zane L, Boero, Ferdinando (2018). Mediterranean Bioconstructions Along the Italian Coast. *Advances in Marine Biology*. 79:61-136. Doi: 10.1016/bs.amb.2018.05.001
23. Paterno M, Schiavina M, Aglieri G, Ben Souissi J, Boscari E, Casagrandi R, Chassanite A, Chiantore MC, Congiu L, Guarnieri G, Kruschel C, Macic V, Marino IAM, Papetti C, Patarnello T, Zane L*, Melià P (2017). Population genomics meet Lagrangian simulations: Oceanographic patterns and long larval duration ensure connectivity among *Paracentrotus lividus* populations in the Adriatic and Ionian seas. *Ecology and Evolution*. 7:2463-2479. Doi:10.1002/ece3.2844
24. Carreras C, Ordóñez V, Zane L, Kruschel C, Nasto I, Macpherson E, Pascual (2017). Population genomics of an endemic Mediterranean fish: differentiation by fine scale dispersal and adaptation. *Scientific Reports* 7:43417. Doi:10.1038/srep43417
25. Boscari E, Vitulo N, Ludwig A, Caruso C, Mugue NS, Suciu R, Onara DF, Papetti C, Marino IAM, Zane L, Congiu L (2017). Fast genetic identification of the Beluga sturgeon and its sought-after caviar to stem illegal trade. *Food Control* 75: 145-152.
26. Jahnke M, Casagrandi R, Melià P, Schiavina M, Schultz ST, Zane L, Procaccini G (2017). Potential and realized connectivity of the seagrass *Posidonia oceanica* and their implication for conservation. *Diversity and Distributions*, vol. 23, p. 1423-1434, ISSN: 1366-9516, doi: 10.1111/ddi.12633
27. Fratini S, Ragonieri L, Deli T, Harrer A, Marino IAM, Cannicci S, Zane L*, Schubart CD (2016). Unravelling population genetic structure with mitochondrial DNA in a notional panmictic coastal crab species: sample size makes the difference. *BMC Evolutionary Biology* 16:150. Doi: 10.1186/s12862-016-0720-2
28. Boissin E, Micu D, Janczyszyn-Le Goff, Neglia V, Bat L, Todorova V, Panayotova M, Kruschel C, Macic V, Milchakova N, Keskin Ç, Anastasopoulou A, Nasto I, Zane L, Planes S (2016). Contemporary genetic structure and post-glacial demographic history of the black scorpionfish, *Scorpaena porcus*, in the Mediterranean and the Black Seas. *Molecular Ecology* 25: 2195-2209.
29. Pujolar JM, Vincenzi S, Zane L, Crivelli AJ (2016). Temporal changes in allele frequencies in a small marble trout *Salmo marmoratus* population threatened by extreme flood events. *Journal of Fish Biology* 88:1175-1190.
30. Marino IAM, Riginella E, Gristina M, Rasotto MB, Zane L*, Mazzoldi C (2015). Multiple paternity and hybridization in two smooth-hound sharks. *Scientific reports* 5: 12919.
31. Parker ML, Fraser WJ, Ashford J, Patarnello T, Zane L, Torres JJ (2015). Assemblages of micronektonic fishes and invertebrates in a gradient of regional warming along the Western Antarctic Peninsula. *Journal of Marine Systems* 152: 18-41.
32. Agostini C, Patarnello T, Ashford JR, Torres JJ, Zane L*, Papetti (2015). Genetic differentiation in the ice-dependent fish *Pleuragramma antarctica* along the Antarctic Peninsula. *Journal of Biogeography*, 42: 1103-1113.
33. Churcher AM, Pujolar JM, Milan M, Huertas M, Hubbard PC, Bargelloni L, Patarnello T, Marino IAM, Zane L, Canario AVM (2015). Transcriptomic profiling of male European eel (*Anguilla anguilla*) livers at sexual maturity. *Comparative Biochemistry and Physiology Part D: Genomics and Proteomics* 16: 28-35.
34. Marino IAM, Riginella E, Cariani A, Tinti F, Farrell ED, Mazzoldi C, Zane L* (2015). New Molecular Tools for the Identification of 2 Endangered Smooth-

- Hound Sharks, *Mustelus mustelus* and *Mustelus punctulatus*. *Journal of Heredity* 106: 123-130.
35. Almeida-Val VMF, Boscari E, Coelho MM, Congiu L, Grapputo A, Grosso AR, Jesus TF, Luebert F, Mansion G, Muller LAH, Tore D, Vidotto M, Zane L (2015). Genomic Resources Notes accepted 1 April 2015 – 31 May 2015. *Molecular Ecology Resources* 15: 1256–1257.
36. Schiavina M, Marino IAM, Zane L*, Melià P (2014). Matching oceanography and genetics at the basin scale. Seascapes connectivity of the Mediterranean shore crab in the Adriatic Sea. *Molecular Ecology* 23: 5496-5507.
37. Churcher AM, Pujolar JM, Milan M, Hubbard PC, Martins RST, Saraiva JL, Huertas M, Bargelloni L, Patarnello T, Marino IAM, Zane L, Canário AVM (2014). Changes in the gene expression profiles of the brains of male European eels (*Anguilla anguilla*) during sexual maturation. *BMC Genomics* 15: 799. Doi: 10.1186/1471-2164-15-799
38. Aglieri G, Papetti C, Zane L, Milisenda G, Boero F, Piraino S (2014). First Evidence of Inbreeding, Relatedness and Chaotic Genetic Patchiness in the Holoplanktonic Jellyfish *Pelagia noctiluca* (Scyphozoa, Cnidaria). *PLoS One* 9: e99647.
39. Polgar G, Zane L, Babbucci M, Barbisan F, Patarnello T, Rüber L, Papetti C (2014). Phylogeography and demographic history of two widespread Indo-Pacific mudskippers (Gobiidae: *Periophthalmus*). *Molecular Phylogenetics and Evolution* 73:161-176.
40. Agostini C, Papetti C, Patarnello T, Mark FC, Zane L*, Marino IAM (2013). Putative selected markers in the *Chionodraco* genus detected by interspecific outlier tests. *Polar Biology* 36:1509-18.
41. Marino IAM, Benazzo A, Agostini C, Mezzavilla M, Hoban SM, Patarnello T, Zane L*, Bertorelle G (2013). Evidence for past and present hybridization in three Antarctic icefish species provides new perspectives on an evolutionary radiation. *Molecular Ecology* 22:5148-5161.
42. Coppe A, Agostini C, Marino IAM, Zane L, Bargelloni L, Bortoluzzi S, Patarnello T (2013). Genome evolution in the cold: Antarctic icefish muscle transcriptome reveals selective duplications increasing mitochondrial function. *Genome Biology and Evolution* 5(1):45-60.
43. Pujolar JM, Schiavina M, Di Franco A, Melià P, Guidetti P, Gatto M, De Leo GA, Zane L (2013). Understanding the effectiveness of marine protected areas using genetic connectivity patterns and Lagrangian simulations. *Diversity and Distributions* 19:1531-1542.
44. Agostini C, Albaladejo RG, Aparicio A, ..., Zane L, Zhang S-W (2013). Permanent genetic resources added to Molecular Ecology Resources database 1 April 2013-31 May 2013. *Molecular Ecology Resources* 13:966-968.
45. Pujolar JM, Jacobsen MW, Frydenberg J, Als TD, Larsen PF, Maes GE, Zane L, Jian JB, Cheng L, Hansen MM (2013). A resource of genome-wide single-nucleotide polymorphisms generated by RAD tag sequencing in the critically endangered European eel. *Molecular Ecology Resources* 13:706-714.
46. Pujolar JM, Milan M, Marino IAM, Capoccioni F, Ciccotti E, Belpaire C, Covaci A, Malarvannan G, Patarnello T, Bargelloni L, Zane L*, Maes GE (2013). Detecting genome-wide gene transcription profiles associated with high pollution burden in the critically endangered European eel. *Aquatic Toxicology* 132-133:157-164.
47. Papetti C, Di Franco A, Zane L, Guidetti P, De Simone V, Spizzotin M, Zorica B, Keč VC, Mazzoldi C (2013). Single population and common natal origin for Adriatic *Scomber scombrus* stocks: Evidence from an integrated approach. *ICES Journal of Marine Science* 70:387-398.

48. Papetti C, Pujolar JM, Mezzavilla M, La Mesa M, Rock J, Patarnello T, Zane L* (2012). Population genetic structure and gene flow patterns between populations of the Antarctic icefish *Chionodraco rastrospinosus*. *Journal of Biogeography* 39:1361-1372.
49. Near TJ, Dornburg A, Kuhn KL, Eastman JT, Pennington JN, Patarnello T, Zane L, Fernandez DA, Jones CD (2012). Ancient climate change, antifreeze, and the evolutionary diversification of Antarctic fishes. *Proceedings of the National Academy of Sciences, USA* 109:3434-3439.
50. Mark FC, Lucassen M, Strobel A, Barrera-Oro E, Koschnick N, Zane L, Patarnello T, Portner HO, Papetti C (2012). Mitochondrial Function in Antarctic Nototheniids with ND6 Translocation. *PLOS ONE* 7:e31860 Doi: 10.1371/journal.pone.0031860
51. Di Franco A, Coppini G, Pujolar JM, de Leo GA, Gatto M, Lyubartsev V, Melià P, Zane L, Guidetti P (2012). Assessing dispersal patterns of fish propagules from an effective Mediterranean marine protected area. *PLoS ONE* 7(12):e52108. Doi: 10.1371/journal.pone.0052108
52. Pujolar JM, Marino IAM, Milan M, Coppe A, Maes GE, Capoccioni F, Ciccotti E, Bervoets L, Covaci A, Belpaire C, Cramb G, Patarnello T, Bargelloni L, Bortoluzzi S, Zane L (2012). Surviving in a toxic world: Transcriptomics and gene expression profiling in response to environmental pollution in the critically endangered European eel. *BMC Genomics* 13:507. doi:10.1186/1471-2164-13-507
53. Coppe A, Bortoluzzi S, Murari G, Marino IAM, Zane L*, Papetti C (2012). Sequencing and characterization of striped venus transcriptome expand resources for clam fishery genetics. *PLOS ONE* 7:e44185, doi: 10.1371/journal.pone.0044185.
54. Pujolar JM, Locatello L, Zane L*, Mazzoldi C (2012). Body Size Correlates with Fertilization Success but not Gonad Size in Grass Goby Territorial Males. *PLOS ONE* 7: e46711, doi: 10.1371/journal.pone.0046711
55. Pujolar JM, Zane L, Congiu L (2012). Phylogenetic relationships and demographic histories of the Atherinidae in the Eastern Atlantic and Mediterranean Sea re-examined by Bayesian inference. *Molecular Phylogenetics and Evolution* 63:857-865.
56. Arias MC, Arnoux E, ..., Zane L, Zannato B, Zemlak TS, Zhang CX, Zhao Y, Zhou X, Zhu LL (2012). Permanent Genetic Resources added to Molecular Ecology Resources Database 1 December 2011-31 January 2012. *Molecular Ecology Resources* 12:570-572.
57. Marino IAM, Pujolar JM, Zane L* (2011). Reconciling Deep Calibration and Demographic History: Bayesian Inference of Post Glacial Colonization Patterns in *Carcinus aestuarii* (Nardo, 1847) and *C. maenas* (Linnaeus, 1758). *PLOS ONE* 6: e28567, doi: 10.1371/journal.pone.0028567
58. Agostini C, Agudelo PA, Ba K, Barber PA, Bisol P, ..., Zane L, Zhu L, Zhuang Z-M, Zulahia AR (2011). Permanent Genetic Resources added to Molecular Ecology Resources Database 1 October 2010–30 November 2010. *Molecular Ecology Resources* 11:418-421.
59. Papetti C, Marino IAM, Agostini C, Bisol PM, Patarnello T, Zane L* (2011). Characterization of novel microsatellite markers in the Antarctic silverfish *Pleuragramma antarcticum* and cross species amplification in other Notothenioidei. *Conservation Genetics Resources* 3:259-262.
60. Patarnello T, Verde C, Di Prisco G, Bargelloni L, Zane L (2011). How will fish that evolved at constant sub-zero temperatures cope with global warming? Notothenioids as a case study. *Bioessays* 33:260-268.
61. Bortolotto E, Bucklin A, Mezzavilla M, Zane L*, Patarnello T (2011). Gone with the currents: lack of genetic differentiation at the circum-continental scale in

- the Antarctic krill *Euphausia superba*. *BMC Genetics* 12:32. Doi: 10.1186/1471-2156-12-32
62. Pujolar JM, Bevacqua D, Andrello M, Capoccioni F, Ciccotti E, De Leo GA, Zane L (2011). Genetic patchiness in European eel adults evidenced by molecular genetics and population dynamics modelling. *Molecular Phylogenetics and Evolution* 58:198-208.
 63. Pujolar JM, Bevacqua D, Capoccioni F, Ciccotti E, De Leo GA, Zane L (2011). No apparent genetic bottleneck in the demographically declining European eel using molecular genetics and forward-time simulations. *Conservation Genetics* 12: 813-825.
 64. Pujolar JM, Vincenzi S, Zane L, Jesenenk D, DeLeo GA, Crivelli AJ (2011) The Effect of Recurrent Floods on Genetic Composition of Marble Trout Populations. *PLOS ONE* 6: e23822. Doi: 10.1371/journal.pone.0023822
 65. Coppe A, Pujolar JM, Maes GE, Larsen PF, Hansen MM, Bernatchez, L, Zane L*, Bortoluzzi S (2010). Sequencing, de novo annotation and analysis of the first *Anguilla anguilla* transcriptome: EelBase opens new perspectives for the study of the critically endangered European eel. *BMC Genomics* 11:635. Doi:10.1186/1471-2164-11-635.
 66. Zane L*, Papetti C, Patarnello T (2010). Genetics of Northern krill. *Advances in Marine Biology* 57:41-57.
 67. Pujolar JM, Marčeta T, Saavedra C, Bressan M, Zane L (2010). Inferring the demographic history of the Adriatic *Flexopecten* complex. *Molecular Phylogenetics and Evolution* 57: 942-947.
 68. Babbucci M, Buccoli S, Cau A, Cannas R, Goni R, Diaz D, Marcato S, Zane L, Patarnello T (2010). Population structure, demographic history, and selective processes: Contrasting evidences from mitochondrial and nuclear markers in the European spiny lobster *Palinurus elephas* (Fabricius, 1787). *Molecular Phylogenetics and Evolution* 56: 1040-1050.
 69. Marino IAM, Barbisan F, Gennari M, Giomi F, Beltramini M, Bisol PM, Zane L* (2010). Genetic heterogeneity in populations of the Mediterranean shore crab, *Carcinus aestuarii* (Decapoda, Portunidae), from the Venice Lagoon. *Estuarine, Coastal and Shelf Science* 87:135-144.
 70. Riccioni G, Landi M, Ferrara G, Milano I, Cariani A, Zane L, Sella M, Barbujani G, Tinti F (2010). Spatio-temporal population structuring and genetic diversity retention in depleted Atlantic Bluefin tuna of the Mediterranean Sea. *Proceedings of the National Academy of Sciences, USA* 107: 2102-2107.
 71. Anderson CM, Aparicio GJ, Atangana, Beaulieu J, ..., Zane L, Zhang XJ, Zhang Y, Zhuang Z, Zucchi MI (2010). Permanent genetic resources added to molecular ecology resources database 1 December 2009–31 January 2010. *Molecular Ecology Resources* 10: 576-579.
 72. Ferrara G, Zane L, Van Houdt JKJ, Milano I, Cariani A, Maes GE, Tinti F (2010). Isolation, characterization and multiplex genotyping of 16 EST-SSR loci for the Atlantic bluefin tuna, *Thunnus thynnus*. *Molecular Ecology Research* 10: 576-579.
 73. Pujolar JM, Bevacqua D, Capoccioni F, Ciccotti E, De Leo GA, Zane L (2009). Genetic variability is unrelated to growth and parasite infestation in natural populations of the European eel (*Anguilla anguilla*). *Molecular Ecology* 18: 4604-4616.
 74. Papetti C, Susana E, Patarnello T, Zane L* (2009). Spatial and temporal boundaries to gene flow between *Chaenocephalus aceratus* populations at South Orkney and South Shetlands. *Marine Ecology Progress Series* 346:269-281.
 75. Kerdelhue C+ and Zane L+, Simonato M, Salvato P, Rousselet J, Roques A, Battisti A (2009). Quaternary history and contemporary patterns in a currently

- expanding species. *BMC Evolutionary Biology*. Doi: 10.1186/1471-2148-9-220 Highly accessed BioMed Central 2009. +equal contribution
76. Pujolar JM, De Leo GA, Ciccotti E, **Zane L** (2009). Genetic composition of Atlantic and Mediterranean recruits of European eel *Anguilla anguilla* based on EST-linked microsatellite loci. *Journal of Fish Biology* 74: 2034-2046.
 77. Pujolar JM, Maes GE, Van Houdt JKJ, **Zane L** (2009). Isolation and characterization of EST-linked microsatellite loci for the European Eel (*Anguilla anguilla*). *Molecular Ecology Resources* 9: 233-235.
 78. Baratti M, Filippelli M, Messana G, Papetti C, Patarnello T, **Zane L** (2009). Characterization of polymorphic microsatellite loci in the marine isopod *Sphaeroma terebrans*. (Crustacea, Isopoda). *Molecular Ecology Resources* 9: 1229-1231.
 79. Hoareau TB, Barbisan F, Dubois S, **Zane L**, Berrebi P (2009). Polymorphic microsatellite loci in the widespread amphidromous goby *Sicyopterus lagocephalus* and cross-genus amplification among Sicydiinae. *Molecular Ecology Resources* 9:607-609.
 80. Fratini S, **Zane L**, Ragionieri L, Tannini M, Cannicci M. (2008). Relationship between heavy metal and arsenic accumulation and genetic variability decrease in the intertidal crab *Pachygrapsus marmoratus* (Decapoda; Grapsidae). *Estuarine, Coastal and Shelf Science* 79:679-686.
 81. Marino IAM, Barbisan F, Gennari M, Bisol PM, **Zane L** (2008). Isolation and characterization of microsatellite loci in the Mediterranean shore crab *Carcinus aestuarii* (Decapoda, Portunidae). *Molecular Ecology Resources*. 8: 370-372.
 82. Papetti C, Susana E, La Mesa M, Kock KH, Patarnello T, **Zane L** (2007). Microsatellite analysis reveals genetic differentiation between year-classes in the icefish *Chaenocephalus aceratus* at South Shetlands and Elephant Island. *Polar Biology* 30:1605-1613.
 83. Susana E, Papetti C, Barbisan F, Bortolotto E, Buccoli S, Patarnello T, **Zane L** (2007). Isolation and characterization of eight microsatellite loci in the icefish *Chaenocephalus aceratus* (Perciformes, Notothenioidea, Channichthyidae). *Molecular Ecology Notes* 7:791-793.
 84. **Zane L** (2007). Adaptive peaks in a flat-fish. *Heredity*. 99:565-566.
 85. Simonato M, Mendel Z, Kerdelhue C, Rousselet J, Magnoux E, Salvato P, Roques A, Battisti A, **Zane L** (2007). Phylogeography of the pine processionary moth *Thaumetopoea wilkinsoni* in the Near East *Molecular Ecology* 16:2273-2283
 86. Bisol PM, Gallini A, Prevedello S, Rianna E, Bernardinelli E, Franco A, **Zane L** (2007). Low variation at allozyme loci and differences between age classes at microsatellites in grass goby (*Zosterisessor ophiocephalus*) populations. *Hydrobiologia* 577: 151-159.
 87. Papetti C, **Zane L**, Patarnello T (2006) Isolation and characterization of microsatellite loci in the icefish *Chionodraco rastrospinosus* (Perciformes, Notothenioidea, Channichthyidae). *Molecular Ecology Notes* 6 (1): 207-209.
 88. **Zane L**, Marcato S, Bargelloni L, Bortolotto E, Papetti C, Simonato M, Varotto V, Patarnello T (2006). Demographic history and population structure of the Antarctic silverfish *Pleuragramma antarcticum*. *Molecular Ecology* 15 (14): 4499-4511.
 89. Fratini, S; Ragionieri, L; Papetti, C; Pitruzzella, G; Rorandelli R, Barbaresi S, **Zane L** (2006). Isolation and characterization of microsatellites in *Pachygrapsus marmoratus* (Grapsidae; Decapoda; Brachyura). *Molecular Ecology Notes* 6 (1): 179-181.

90. Berrebi P, Lasserre B, Barbisan F, Zane L (2006). Isolation of microsatellite loci and cross-species amplifications in three gobiid fish of the genus *Pomatoschistus*. *Molecular Ecology Notes* 6 (3): 724-727.
91. Wuertz S, Gaillard S, Barbisan F, Carle S, Congiu L, Forlani A, Aubert J, Kirschbaum F, Tosi E, Zane L, Grillasca JP (2006). Extensive screening of sturgeon genomes by techniques revealed no sex-specific random screening marker. *Aquaculture* 258 (1-4): 685-688.
92. Babbucci M, Zane L, Andaloro F, Patarnello T (2006). Isolation and characterization of microsatellite loci from yellowtail *Seriola dumerilii* (Perciformes : Carangidae). *Molecular Ecology Notes* 6 (4): 1126-1128.
93. Grapputo A, Barbisan F, De Girolamo M, Pilastro A, Zane L (2006). Development and characterization of 11 microsatellite markers in the rock sparrow, *Petronia petronia*. *Molecular Ecology Notes* 6:1070-1072.
94. De Girolamo M, Grapputo A, Zane L, Santos RS, Pallavicini A (2005). Isolation of seven polymorphic microsatellites in *Ophioblennius atlanticus atlanticus* (Perciformes, Blenniidae). *Molecular Ecology Notes* 5:334-336.
95. Papetti C, Zane L, Bortolotto E, Bucklin A, Patarnello T (2005). Genetic differentiation and local temporal stability of population structure in the euphausiid *Meganyctiphanes norvegica*. *Marine Ecology Progress Series* 289:225-235.
96. Salvato P, Simonato M, Patarnello T, Zane L, Battisti A (2005). Do sexual pheromone traps provide a biased information of local gene pool in the pine processionary moth? *Agricultural and Forest Entomology* 7 (2): 127-132.
97. Forlani A, Crestanello B, Mantovani S, Livoreil B, Zane L, Bertorelle G, Congiu L (2005). Identification and characterization of microsatellite markers in Hermann's tortoise (*Testudo hermanni*, Testudinidae). *Molecular ecology notes* 5:228-230.
98. Gallini A, Zane L, Bisol PM (2005). Isolation and characterization of microsatellites in *Zosterisessor ophiocephalus* (Perciformes, Gobiidae). *Molecular Ecology Notes* 5:24-26.
99. Ludwig A, Congiu L, Pitra C, Fickel J, Gessner J, Fontana F, Patarnello T, Zane L (2003). Nonconcordant evolutionary history of maternal and paternal lineages in Adriatic sturgeon *Molecular Ecology* 12: 3253-3264.
100. Evans JP, Zane L, Francescato S, Pilastro A (2003). Directional postcopulatory sexual selection revealed by artificial insemination. *Nature* 421: 360-363.
101. Patarnello T, Marcato S, Zane L, Varotto V, Bargelloni L (2003). Phylogeography of the *Chionodraco* genus (Perciformes, Channichthyidae) in the Southern Ocean. *Molecular Phylogenetics and Evolution* 28: 420-429.
102. Congiu L, Fontana F, Patarnello T, Rossi R, Zane L (2002). The use of AFLP in sturgeon identification. *Journal of Applied Ichthyology* 18: 286-289.
103. Zane L, Patarnello T, Ludwig A, Fontana F, Congiu L (2002). Isolation and characterization of microsatellites in the Adriatic sturgeon (*Acipenser naccarii*). *Molecular Ecology Notes* 2: 586-588.
104. Salvato P, Battisti A, Concato S, Masutti L, Patarnello T, Zane L (2002). Genetic differentiation in the winter pine processionary moth (*Thaumetopoea pityocampa-wilkinsoni* complex), inferred by AFLP and mitochondrial DNA markers. *Molecular Ecology* 11: 2435-2444.
105. Zane L, Bargelloni L, Patarnello T. (2002). Strategies for microsatellite isolation: a review. *Molecular Ecology* 11: 1-16. "Fast Breaking Paper" ISI, field Environment/Ecology.
106. Congiu L, Dupanloup I, Patarnello T, Fontana F, Rossi R, Arlati G, Zane L (2001). Identification of interspecific hybrids by AFLP: the case of sturgeons. *Molecular Ecology* 10: 2355 - 2359.

**Book
Chapters
and non ISI
articles**

107. Ostellari L, Zane L, Maccatrazzo L, Bargelloni L, Patarnello T (2000). Novel microsatellite loci isolated from the Northern krill, *Meganyctiphanes norvegica* (Crustacea, Euphausiacea). *Molecular Ecology* 9: 377-378.
108. Zane L, Ostellari L, Maccatrazzo L, Bargelloni L, Cuzin-Roudy J, Buchholz F and Patarnello T (2000). Genetic differentiation in a pelagic crustacean (*Meganyctiphanes norvegica*, Euphausiacea) from the North East Atlantic and the Mediterranean Sea. *Marine Biology* 136 (2): 191-199.
109. Bargelloni L, Zane L, Derome N, Lecointre G and Patarnello T (2000). Molecular zoogeography of Antarctic euphausiids and notothenioids: from species phylogenies to intraspecific patterns of genetic variation. *Antarctic Science* 12: 259-268.
110. Bargelloni L, Marcato S, Zane L and Patarnello T (2000). Mitochondrial phylogeny of notothenioids: a molecular approach to Antarctic fish evolution and biogeography. *Systematic Biology* 9 (1): 114-129.
111. Zane L, Patarnello T (2000). Krill: a possible model for investigating the effects of ocean currents on the genetic structure of a pelagic invertebrate. *Canadian Journal of Fisheries and Aquatic Sciences* 57: 16-23.
112. Zane L, Nelson WS, Jones AG, Avise JC (1999). Microsatellites assessment of multiple paternity in natural populations of a live-bearing fish, *Gambusia holbrooki*. *Journal of Evolutionary Biology* 12: 61-69.
113. Zane L, Ostellari L, Maccatrazzo L, Bargelloni L, Battaglia B, and Patarnello T (1998). Molecular evidence for genetic subdivision of Antarctic krill (*Euphausia superba* DANA) populations. *Proceedings of the Royal Society, London: Biological Sciences* 265: 2387-2391.
114. Ashford J, Zane L*, Torres JJ, La Mesa M, Simms A (in press, 2017). Population structure and life history connectivity of antarctic silverfish (*Pleuragramma antarctica*) in the Southern Ocean ecosystem. In "The Antarctic Silverfish: a Keystone Species in a Changing Ecosystem". Eds: Vacchi M et al. *Advs Polar Ecology*, Vol. 3, Springer. *corresponding author.
115. Boero F, Foglini F, Fraschetti S, Goriup P, Macpherson E, Planes S, Soukissian T & The CoCoNet Consortium (including Zane L). 2016. CoCoNet: towards coast to coast networks of marine protected areas (from the shore to the high and deep sea), coupled with sea-based wind energy potential. *Scientific Research. Vol 6 Supplement I-II:1-95*, e-ISSN 2239-4303, doi 10.2423/i22394303v6Spl, CASPUR-CIBER Publishing, <http://caspur-ciberpublishing.it>
116. Kerdelhué C, Battisti A, Burban C, Zane L (2015). Genetic diversity and structure at different spatial scales in the processionary moths. In: Processionary Moths and Climate Change: An Update (A. Roques ed). Springer Netherlands, pp.163-226.
117. Fontana F, Zane L, Pepe A, Congiu L. (2006). Polyploidy in Acipenseriformes: cytogenetic and molecular approaches. In: "Fish Cytogenetics" Eds: E. Pisano, C. Ozouf-Costaz, F. Foresti & B. G. Kapoor. Science Publisher, Inc., Enfield, NH 03748, USA.
118. Bisol PM, Franco A, Gallini A, Rianna E, Prevedello S, Zane L. (2005). Biodiversity at the population level in the Venice Lagoon: a polymorphism analysis of *Zosterisessor ophiocephalus*. In UNESCO ROSTE. Venice Lagoon and Coastal Wetlands in the Global Change Context. Impacts and Management Issues. (pp. 1-5).
119. Kock KH, Jones CD, von Bertouch G, Doolittle DF, La Mesa M, Pshenichnov L, Riehl R, Romeo T, Schöling S, Zane L (2003). *Biological*

- characteristics of Antarctic fish species in the Elephant Island - South Shetland Islands region. *Berichte zur Polar- und Meeresforschung* 470: 18-22.
120. Kock KH, Jones CD, von Bertouch G, Doolittle DF, La Mesa M, Pshenichnov L, Riehl R, Romeo T, Schöling S, Zane L (2003). The composition of demersal fish fauna of the Elephant Island - South Shetland Islands region. *Berichte zur Polar- und Meeresforschung* 470: 23-24.
121. Kock KH, Jones CD, von Bertouch G, Doolittle DF, La Mesa M, Pshenichnov L, Riehl R, Romeo T, Schöling S, Zane L (2003). Fishing off D'Urville Island at the tip of Antarctic Peninsula. *Berichte zur Polar- und Meeresforschung* 470: 24-26.
122. Zane L (2003). Genetic studies of Antarctic fish. *Berichte zur Polar- und Meeresforschung* 470: 29-30.
123. Zane L, Angelini E, Longo N, Marcato S and Bisol PM (2001) Biodiversity at Ecogenetic Level in three species of Beach Fleas. In *Mediterranean Ecosystem Structures and processes*. (ed. by Faranda FM, Guglielmo L, Spezie G), pp. 392-398. Springer Verlag.
124. Bargelloni L, Zane L (1998) Gene flow cruise. In *Newsletter of the Italian Biological Research in Antarctica 1996-1998* (eds Tamburini M and D'Avino R). pp. 17-19. Università degli Studi di Camerino, Camerino, Italy.
125. Bargelloni L, Battaglia B, Marcato S, Patarnello T, Varotto V, Zane L (1997). Krill evolution in the Antarctic and sub-Antarctic regions: a molecular study. In *Proceedings of the Third Meeting on Antarctic Biology* (eds di Prisco G, Focardi S, Luporini P). Camerino University Press, pp. 337-343 Camerino, Italy.
126. Bargelloni L, Marcato S, Ostellari L, Penzo E, Varotto V, Zane L e Patarnello T (1998). Genetica e conservazione delle risorse marine: un esempio di applicazione di nuovi strumenti tecnici ed interpretativi. *Biol. Mar. Medit.* 5: 401-406.
127. Angelini E, Longo N, Zane L, Bisol PM (1996). Biodiversità in anfipodi talitridi da un punto di vista ecogenetico. *Biol. Mar. Medit.* 3: 115-119

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In faith,



Lorenzo Zane