

Lorenzo Mari – Curriculum vitæ

Personal information

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Nationality	Italian
Date of birth	May 22, 1981
Current position	<i>Associate Professor, Ecology</i> DEIB, PoliMi

Research statement

Research interests	<p>As an environmental engineer with a PhD in information technology, I am deeply interested in the analysis of ecological and environmental processes by means of quantitative tools. My research activity is mainly devoted to the study of spatiotemporal dynamics in ecology and epidemiology by means of simple (whenever possible) yet rigorous mechanistic models. Over the last years I have become more and more involved in the emerging field of ecohydrology, an interdisciplinary discipline aimed at studying the interactions between water and ecosystems.</p>
Research activities	<p>Examples of problems I have recently analyzed – or I am still struggling with – are: the modeling of the ongoing COVID-19 pandemic; the metapopulation dynamics of foundation species in the Mediterranean Sea; the spatiotemporal patterns of marine plastic pollution in the Mediterranean Sea; the short-term instability properties of ecological and epidemiological systems; the dynamics of water-borne and water-related diseases (cholera and schistosomiasis in particular) and the role of human mobility in promoting their spatial diffusion; and the transmission of fish diseases along river networks.</p> <p>In addition to scientific relevance, some of these topics have clear social and/or economic implications. This is the case, for instance, of building models for marine plastic pollution, the dynamics of foundation species that provide key ecosystem services (like the seagrass <i>Posidonica oceanica</i> in the Mediterranean Sea), cholera epidemics (like the one that stroke Haiti in 2010), parasitic infections (like schistosomiasis, which affects hundreds of millions of people in developing countries), and the ongoing COVID-19 pandemic. Mathematical models are key tools to understand drivers and controls of infectious disease dynamics and spatiotemporal dynamics in ecology.</p>
Current research and perspectives	<p>I am currently working on coupled physical-biological models to study the dispersal patterns of pelagic species in the Mediterranean Sea. Aim of the research is to understand the large-scale implications of connectivity for population ecology, conservation and management. I also continue working on waterborne disease dynamics. In particular, I am interested in the definition of formal conditions for pathogen epidemicity and endemicity, explicitly accounting for realistic environmental settings and for the interplay between epidemiological and ecological dynamics. The modeling tools developed for these two research lines (namely, computationally intensive individual-based simulations and stability analysis of large-scale spatially explicit systems) can be applied to a variety of problems that are crucial to conservation ecology like, for instance, the definition of persistence criteria for populations living in fragmented landscapes, dendritic networks or webs of marine protected areas, or the derivation of invasion/persistence conditions for alien species or agricultural pests.</p>

Employment

- Jul 2020 – Associate Professor at DEIB, PoliMi
Jul 2017 – Jun 2020 Assistant Professor at DEIB, PoliMi
Jan 2009 – Jun 2017 Postdoctoral Research Associate at DEIB, PoliMi, and at Laboratoire d'Écohydrologie (ECHO), Ecole Polytechnique Fédérale de Lausanne (EPFL)

Education

- Cursus studiorum**
- Jan 2006 – Dec 2008 PhD, Information Technology, PoliMi. Advisor: Prof. R. Casagrandi (DEIB, PoliMi). Tutor: Prof. C. Piccardi (DEIB, PoliMi). Degree awarded *with merit* on April 3 2009.
Major research: “Models for movement ecology”. Advisor: Prof. R. Casagrandi; co-advisor: Prof. M. Gatto (DEIB, PoliMi). Part of the research work has been published in *Freshwater Biology* [a1], *The American Naturalist* [a3], *Ecohydrology* [a5] and *Theoretical Population Biology* [a6].
Minor research: “The impact of hydrodynamics on the spatial distribution of an aquatic species: a numerical study”. Advisor: Prof. L. Bonaventura (MOX Laboratorio di Modellistica e Calcolo Scientifico, Dipartimento di Matematica “F. Brioschi”, PoliMi). The results of the minor research have been published in *Ecological Modelling* [a4].
- Oct 2003 – Oct 2005 MSc, Environmental and Land Engineering, PoliMi
Thesis title: “Modelli spazialmente espliciti per la dinamica di popolazioni animali: la determinazione genetica del rapporto sessi” (*Spatially explicit models for the dynamics of animal populations: the genetic determination of the sex ratio*). Advisor: Prof. M. Gatto; co-advisor: Prof. R. Casagrandi. Mark: 110/110 *cum laude*. The thesis has been awarded the CIRITA 2006 prize. Part of the work has been published on *Mathematical Biosciences and Engineering* [a2].
- Sept 2000 – Oct 2003 BSc, Environmental and Land Engineering, PoliMi
Thesis title: “Ruolo di sostanze tossiche in un modello di competizione algale” (*Role of toxicants in a model of algal competition*). Advisor: Prof. A. Graggani (DEIB, PoliMi). Mark: 103/110.
- Visiting positions**
- Sept – Dec 2007 Visiting research collaborator at Prof. S.A. Levin’s Theoretical Ecology Lab, Department of Ecology and Evolutionary Biology, Princeton University (NJ)
- Mar 2006 Visiting at Prof. R. Nathan’s Movement Ecology Lab, Department of Evolution, Systematics and Ecology, Hebrew University of Jerusalem (Israel)
- Awards**
- July 2016 Polisocial Award, PoliMi
- April 2015 D4D Health Prize, Data for Development Challenge, Orange
- Sept 2014 Young Researchers’ Award, Società Italiana di Ecologia (SIte)
- Nov 2012 Fondo Rotary Research Prize, Rotary Club Como
- Sept 2008 Marchetti Prize for young researchers in Ecology, SIte, as coauthor of the paper “Will the zebra mussel (*Dreissena polymorpha*) reach Florence along the Arno River? Results from a mechanistic network model”, XVIII Congresso della SIte
- Nov 2006 CIRITA (Centro Interdipartimentale di Ricerca in Informatica per il Territorio e l’Ambiente, PoliMi) Prize for the MSc Thesis “Modelli spazialmente espliciti per la dinamica di popolazioni animali: la determinazione genetica del rapporto sessi”

Publications

Journal articles

- [a61] A. Bernasconi, **L. Mari**, R. Casagrandi, S. Ceri (2021)
Data-driven analysis of amino acid change dynamics timely reveals SARS-CoV-2 variant emergence
Scientific Reports, 11:21068. doi: 10.1038/s41598-021-00496-z
- [a60] E. Stella, **L. Mari**, J. Gabrieli, C. Barbante, E. Bertuzzo (2021)
Mapping environmental suitability for Anthrax reemergence in the Arctic
Environmental Research Letters, 16:105013. doi: 10.1088/1748-9326/ac2527
- [a59] **L. Mari**, P. Melià, M. Gatto, R. Casagrandi (2021)
Identification of ecological hotspots for the seagrass *Posidonia oceanica* via metapopulation modeling
Frontiers in Marine Science, 8:628976. doi: 10.3389/fmars.2021.628976
- [a58] **L. Mari**, R. Casagrandi, E. Bertuzzo, D. Pasetto, S. Miccoli, A. Rinaldo, M. Gatto (2021)
The epidemicity index of recurrent SARS-CoV-2 infections
Nature Communications, 12:2752. doi:10.1038/s41467-021-22878-7
- [a57] F. Guerrini, **L. Mari**, R. Casagrandi (2021)
The dynamics of microplastics and associated contaminants: Data-driven Lagrangian and Eulerian modeling approaches in the Mediterranean Sea
Science of the Total Environment, 777:145944. doi: 10.1016/j.scitotenv.2021.145944
- [a56] C. Vanalli, **L. Mari**, L. Righetto, R. Casagrandi, M. Gatto, I.M. Cattadori (2020)
Within-host mechanisms of immune regulation explain the contrasting dynamics of two helminth species in both single and dual infections
PLoS Computational Biology, 16:e1008438. doi: 10.1371/journal.pcbi.1008438
- [a55] E. Stella, **L. Mari**, J. Gabrieli, C. Barbante, E. Bertuzzo (2020)
Permafrost dynamics and the risk of anthrax transmission: A modelling study
Scientific Reports, 10:16460. doi: 10.1038/s41598-020-72440-6
- [a54] M. Belharet, A. Di Franco, A. Calò, **L. Mari**, J. Claudet, R. Casagrandi, M. Gatto, J. Lloret, C. Sève, P. Guidetti, P. Melià (2020)
Extending full protection inside existing marine protected areas or reducing fishing effort outside can reconcile conservation and fisheries goals
Journal of Applied Ecology, 57:1948–1957. doi: 10.1111/1365-2664.13688
- [a53] E. Bertuzzo, **L. Mari**, D. Pasetto, S. Miccoli, R. Casagrandi, M. Gatto, A. Rinaldo (2020)
The geography of COVID-19 spread in Italy and implications for the relaxation of confinement measures
Nature Communications, 11:4264. doi: 10.1038/s41467-020-18050-2
- [a52] M. Gatto, E. Bertuzzo, **L. Mari**, S. Miccoli, L. Carraro, R. Casagrandi, A. Rinaldo (2020)
Spread and dynamics of the COVID-19 epidemic in Italy: Effects of emergency containment measures
Proceedings of the National Academy of Sciences USA, 117:10484–10491. doi: 10.1073/pnas.2004978117
- [a51] **L. Mari**, P. Melià, S. Frascetti, M. Gatto, R. Casagrandi (2020)
Spatial patterns and temporal variability of seagrass connectivity in the Mediterranean Sea
Diversity and Distributions, 26:169–182. doi: 10.1111/ddi.12998
- [a50] C.M. Hoover, S.H. Sokolow, J. Kemp, A.J. Lund, I. Jones, T. Higginson, G. Riveau, A. Savaya-Alkalay, S. Coyle, C. Wood, F. Micheli, R. Casagrandi, **L. Mari**, M. Gatto, A. Rinaldo, J. Perez-Saez, J.R. Rohr, J.N. Sanchirico, A. Sagi, J.V. Remais, G.A. De Leo (2019)
Modelled effects of prawn aquaculture on poverty alleviation and schistosomiasis control
Nature Sustainability, 2:611–620. doi: 10.1038/s41893-019-0301-7

- [a49] F. Guerrini, **L. Mari**, R. Casagrandi (2019)
Modelling plastics exposure for the marine biota: Risk maps for fin whales in the Pelagos Sanctuary (North-Western Mediterranean)
Frontiers in Marine Science, 6:299. doi: 10.3389/fmars.2019.00299
- [a48] **L. Mari**, R. Casagrandi, E. Bertuzzo, A. Rinaldo, M. Gatto (2019)
Conditions for transient epidemics of waterborne disease in spatially explicit systems
Royal Society Open Science, 6:181517. doi: 10.1098/rsos.181517
- [a47] D. Pasetto, S. Arenas-Castro, J. Bustamante, R. Casagrandi, N. Chrysoulakis, A.F. Cord, A. Ditttrich, C. Domingo, G. El Sarafy, A. Karnieli, G. Kordelas, I. Manakos, **L. Mari**, A. Monteiro, E. Palazzi, D. Poursanidis, A. Rinaldo, S. Terzago, A. Ziemba, G. Ziv (2018)
Integration of satellite remote sensing data in ecosystem modelling at local scales: Practices and trends
Methods in Ecology and Evolution, 9:1810–1821. doi: 10.1111/2041-210X.13018
- [a46] **L. Mari**, R. Casagrandi, A. Rinaldo, M. Gatto (2018)
Epidemicity thresholds for water-borne and water-related diseases
Journal of Theoretical Biology, 447:126–138. doi: 10.1016/j.jtbi.2018.03.024
- [a45] L. Carraro, **L. Mari**, M. Gatto, A. Rinaldo, E. Bertuzzo (2018)
Spread of proliferative kidney disease in fish along stream networks: a spatial metacommunity framework
Freshwater Biology, 63:114–127. doi: 10.1111/fwb.12939
- [a44] L. Carraro, E. Bertuzzo, **L. Mari**, I. Fontes, H. Hartikainen, N. Streppareva, H. Schmidt-Posthaus, T. Wahli, J. Jokela, M. Gatto, A. Rinaldo (2017)
An integrated field, laboratory and theoretical study of PKD spread in a Swiss prealpine river
Proceedings of the National Academy of Sciences of the USA, 114:11992–11997. doi: 10.1073/pnas.1713691114
- [a43] **L. Mari**, R. Casagrandi, A. Rinaldo, M. Gatto (2017)
A generalized definition of reactivity for ecological systems and the problem of transient species dynamics
Methods in Ecology and Evolution, 8:1574–1584. doi: 10.1111/2041-210X.12805
- [a42] E. Bertuzzo, **L. Mari** (2017)
Hydrology, water resources and the epidemiology of water-related diseases
Advances in Water Resources, 108:329–331. doi: 10.1016/j.advwatres.2017.09.011
- [a41] M. Ciddio, **L. Mari**, S.H. Sokolow, G. De Leo, R. Casagrandi, M. Gatto (2017)
The spatial spread of schistosomiasis: a multidimensional network model applied to Saint-Louis region, Senegal
Advances in Water Resources, 108:406–415. doi: 10.1016/j.advwatres.2016.10.012
- [a40] **L. Mari**, M. Ciddio, R. Casagrandi, J. Perez-Saez, E. Bertuzzo, A. Rinaldo, S.H. Sokolow, G.A. De Leo, M. Gatto (2017)
Heterogeneity in schistosomiasis transmission dynamics
Journal of Theoretical Biology, 432:87–99. doi: 10.1016/j.jtbi.2017.08.015
- [a39] **L. Mari**, L. Bonaventura, A. Storto, P. Melià, M. Gatto, S. Masina, R. Casagrandi (2017)
Understanding large-scale, long-term larval connectivity patterns: the case of the Northern Line Islands in the Central Pacific Ocean
PLoS ONE, 12:e0182681. doi: 10.1371/journal.pone.0182681
- [a38] A. Rinaldo, E. Bertuzzo, M. Blokesch, **L. Mari**, M. Gatto (2017)
Modeling key drivers of cholera transmission dynamics provides new perspectives on parasitology
Trends in Parasitology, 33:587–599. doi: 10.1016/j.pt.2017.04.002
- [a37] **L. Mari**, M. Gatto, M. Ciddio, E.D. Dia, S.H. Sokolow, G. De Leo, R. Casagrandi (2017)
Big-data-driven modeling unveils country-wide drivers of endemic schistosomiasis
Scientific Reports, 7:489. doi: 10.1038/s41598-017-00493-1

- [a36] E. Bertuzzo, F. Finger, **L. Mari**, M. Gatto, A. Rinaldo (2016)
On the probability of extinction of the Haiti cholera epidemic
Stochastic Environmental Research and Risk Assessment, 30:2043–2055. doi: 10.1007/s00477-014-0906-3
- [a35] L. Carraro, **L. Mari**, H. Hartikainen, N. Strepparava, T. Wahli, J. Jokkela, M. Gatto, A. Rinaldo, E. Bertuzzo (2016)
An epidemiological model for proliferative kidney disease in salmonid populations
Parasites and Vectors, 9:487. doi: 10.1186/s13071-016-1759-z
- [a34] F. Finger, T. Genolet, **L. Mari**, G. Constantin De Magny, N.M. Manga, A. Rinaldo, E. Bertuzzo (2016)
Mobile phone data highlights the role of mass gatherings in the spreading of cholera outbreaks
Proceedings of the National Academy of Sciences of the USA, 113:6421–6426. doi: 10.1073/pnas.1522305113
- [a33] J. Perez-Saez, T. Mande, N. Ceperley, E. Bertuzzo, **L. Mari**, M. Gatto, A. Rinaldo (2016)
Hydrology and density feedbacks control the ecology of the intermediate hosts of schistosomiasis across habitats in seasonal climates
Proceedings of the National Academy of Sciences of the USA, 113:6427–6432. doi: 10.1073/pnas.1602251113
- [a32] E. Bertuzzo, F. Carrara, **L. Mari**, F. Altermatt, I. Rodriguez-Iturbe, A. Rinaldo (2016)
Geomorphic controls on elevational gradients of species richness
Proceedings of the National Academy of Sciences of the USA, 113:1737–1742. doi: 10.1073/pnas.1518922113
- [a31] J. Perez-Saez, **L. Mari**, E. Bertuzzo, R. Casagrandi, S.H. Sokolow, G. De Leo, T. Mande, N. Ceperley, J.M. Frohlich, M. Sou, H. Karambiri, H. Yacouba, A. Maiga, M. Gatto, A. Rinaldo (2015)
A theoretical analysis of the geography of schistosomiasis in Burkina Faso highlights the roles of human mobility and water resources development in disease transmission
PLoS Neglected Tropical Diseases, 9:e0004127. doi: 10.1371/journal.pntd.0004127
- [a30] L. Righetto, R.U. Zaman, Z.H. Mahmud, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, S. Islam, A. Rinaldo (2015)
Detection of *Vibrio cholerae* O1 and O139 in environmental waters of rural Bangladesh: a flow cytometry-based field trial
Epidemiology and Infection, 143:2330–2342. doi: 10.1017/S0950268814003252
- [a29] **L. Mari**, E. Bertuzzo, F. Finger, R. Casagrandi, M. Gatto, A. Rinaldo (2015)
On the predictive ability of mechanistic models for the Haitian cholera epidemic
Journal of the Royal Society Interface, 20140840. doi: 10.1098/rsif.2014.0840
- [a28] M. Ciddio, **L. Mari**, M. Gatto, A. Rinaldo, R. Casagrandi (2015)
The temporal patterns of disease severity and prevalence in schistosomiasis
Chaos, 25:036405. doi: 10.1063/1.4908202
- [a27] **L. Mari**, R. Casagrandi, E. Bertuzzo, A. Rinaldo, M. Gatto (2014)
Floquet theory for seasonal environmental forcing of spatially-explicit waterborne epidemics
Theoretical Ecology, 7:351–365. doi: 10.1007/s12080-014-0223-y
- [a26] F. Finger, A. Knox, E. Bertuzzo, **L. Mari**, D. Bompangue, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo (2014)
Cholera in the Lake Kivu region (DRC): integrating remote sensing and spatially-explicit epidemiological modeling
Water Resources Research, 50:5624–5637. doi: 10.1002/2014WR015521
- [a25] S. Ceola, E. Bertuzzo, **L. Mari**, G. Botter, I. Hödl, T.J. Battin, M. Gatto, A. Rinaldo (2014)
Light and hydrologic variability as drivers of stream biofilm dynamics in a flume experiment: a modelling approach
Ecohydrology, 7:391–400. doi: 10.1002/eco.1357

- [a24] **L. Mari**, R. Casagrandi, E. Bertuzzo, A. Rinaldo, M. Gatto (2014)
Metapopulation persistence and species spread in river networks
Ecology Letters, 17:426–434. doi: 10.1111/ele.12242
- [a23] I. Hödl, **L. Mari**, E. Bertuzzo, S. Suweis, K. Besemer, A. Rinaldo, T.J. Battin (2014)
Biophysical controls on cluster dynamics and architectural differentiation of microbial biofilms in contrasting flow environments
Environmental Microbiology, 16:802–812. doi: 10.1111/1462-2920.12205
- [a22] A. Knox, E. Bertuzzo, **L. Mari**, D. Odermatt, E. Verrecchia, A. Rinaldo (2014)
Optimizing a remotely-sensed proxy for plankton biomass in Lake Kivu
International Journal of Remote Sensing, 35:5219–5238. doi: 10.1080/01431161.2014.939782
- [a21] **L. Mari** (2014)
The Haiti cholera epidemic: from surveillance to action
Pathogen and Global Health, 108:3. doi: 10.1179/2047772413Z.000000000169
- [a20] L. Righetto, E. Bertuzzo, **L. Mari**, E. Schild, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo (2013)
Rainfall mediations in the spreading of epidemic cholera
Advances in Water Resources, 60:34–46. doi: 10.1016/j.advwatres.2013.07.006
- [a19] M. Gatto, **L. Mari**, E. Bertuzzo, R. Casagrandi, L. Righetto, I. Rodriguez-Iturbe, A. Rinaldo (2013)
Spatially explicit conditions for waterborne pathogen invasion
The American Naturalist, 182:328–346. doi: 10.1086/671258
- [a18] S. Ceola, I. Hödl, M. Adlboller, G. Singer, E. Bertuzzo, **L. Mari**, G. Botter, J. Waringer, T.J. Battin, A. Rinaldo (2013)
Hydrologic variability affects invertebrate grazing on phototrophic biofilms in stream microcosms
PLoS ONE, 8:e60629. doi: 10.1371/journal.pone.0060629
- [a17] M. Gatto, **L. Mari**, E. Bertuzzo, R. Casagrandi, L. Righetto, I. Rodriguez-Iturbe, A. Rinaldo (2012)
Generalized reproduction numbers and the prediction of patterns in waterborne disease
Proceedings of the National Academy of Sciences of the USA, 109:19703–19708. doi: 10.1073/pnas.1217567109
- [a16] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo (2012)
On the role of human mobility in the spread of cholera epidemics: towards an epidemiological movement ecology
Ecohydrology, 5:531–540. doi: 10.1002/eco.262
- [a15] S. Suweis, E. Bertuzzo, **L. Mari**, I. Rodriguez-Iturbe, A. Maritan, A. Rinaldo (2012)
On species persistence-time distributions
Journal of Theoretical Biology, 303:15–24. doi: 10.1016/j.jtbi.2012.02.022
- [a14] A. Rinaldo, E. Bertuzzo, **L. Mari**, L. Righetto, M. Blokesch, M. Gatto, R. Casagrandi, M. Murray, S. Vesenbeckh, I. Rodriguez-Iturbe (2012)
Reassessment of the 2010–2011 Haiti cholera outbreak and rainfall-driven multi-season projections
Proceedings of the National Academy of Sciences of the USA, 109:6602–6607. doi: 10.1073/pnas.1203333109
- [a13] E. Bertuzzo, **L. Mari**, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo (2012)
Hydroclimatology of dual-peak annual cholera incidence: insights from a spatially explicit model
Geophysical Research Letters, 39:L05403. doi: 10.1029/2011GL050723
- [a12] L. Righetto, R. Casagrandi, E. Bertuzzo, **L. Mari**, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo (2012)
The role of aquatic reservoir fluctuations in long-term cholera patterns
Epidemics, 4:33–42. doi: 10.1016/j.epidem.2011.11.002

- [a11] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo (2012)
Modeling cholera epidemics: the role of waterways, human mobility and sanitation
Journal of the Royal Society Interface, 9:376–388. doi: 10.1098/rsif.2011.0304
- [a10] A. Rinaldo, M. Blokesch, E. Bertuzzo, **L. Mari**, L. Righetto, M. Murray, M. Gatto, R. Casagrandi, I. Rodriguez-Iturbe (2011)
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Annals of Internal Medicine, 155:403–404. doi: 10.1059/0003-4819-155-6-201109200-00018
- [a9] **L. Mari**, E. Bertuzzo, R. Casagrandi, M. Gatto, S.A. Levin, I. Rodriguez-Iturbe, A. Rinaldo (2011)
Hydrologic controls and anthropogenic drivers of the zebra mussel invasion of the Mississippi-Missouri river system
Water Resources Research, 47:W03523. doi: 10.1029/2010WR009920
- [a8] E. Bertuzzo, **L. Mari**, L. Righetto, M. Gatto, R. Casagrandi, M. Blokesch, I. Rodriguez-Iturbe, A. Rinaldo (2011)
Prediction of the spatial evolution and effects of control measures for the unfolding Haiti cholera outbreak
Geophysical Research Letters, 38:L06403. doi: 10.1029/2011GL046823
- [a7] E. Bertuzzo, S. Suweis, **L. Mari**, A. Maritan, I. Rodriguez-Iturbe, A. Rinaldo (2011)
Spatial effects on species persistence and implications for biodiversity
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- [a6] **L. Mari**, R. Casagrandi, M.T. Pisani, E. Pucci, M. Gatto (2009)
When will the zebra mussel reach Florence? A model for the spread of *Dreissena polymorpha* in the Arno water system (Italy)
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- [a5] **L. Mari**, M. Gatto, R. Casagrandi (2009)
Central-place seed foraging and vegetation patterns
Theoretical Population Biology, 76:229–240. doi: 10.1016/j.tpb.2009.08.001
- [a4] **L. Mari**, C. Biotto, A. Decoene, L. Bonaventura (2009)
A coupled eco-hydrodynamic model for the spatiotemporal dynamics of sessile species in thermally forced basins
Ecological Modelling, 220:2310–2324. doi: 10.1016/j.ecolmodel.2009.05.012
- [a3] **L. Mari**, R. Casagrandi, M. Gatto, T. Avgar, R. Nathan (2008)
Movement strategies of seed predators as determinants of vegetation patterns
The American Naturalist, 172:694–711. doi: 10.1086/591687
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Local resource competition and the skewness of the sex ratio: a demographic model
Mathematical Biosciences and Engineering, 5:813–830. doi: 10.3934/mbe.2008.5.813
- [a1] R. Casagrandi, **L. Mari**, M. Gatto (2007)
Modelling the local dynamics of the zebra mussel (*Dreissena polymorpha*)
Freshwater Biology, 52:1223–1238. doi: 10.1111/j.1365-2427.2007.01761.x
- Submitted*
- C. Trevisin, J.C. Lemaitre, **L. Mari**, D. Pasetto, M. Gatto, A. Rinaldo
Epidemicity of cholera spread and the fate of infection control measures
- F. Dagostin, C. Vanalli, B. Boag, R. Casagrandi, M. Gatto, **L. Mari**, I.M. Cattadori
The enemy of my enemy is my friend: Immune-mediated facilitation contributes to fitness of co-infecting helminths
- F. Guerrini, **L. Mari**, R. Casagrandi
A coupled model for the linked dynamics of marine pollution by microplastics and plastic-related organic pollutants

J.C. Lemaitre, D. Pasetto, M. Zanon, E. Bertuzzo, **L. Mari**, S. Miccoli, R. Casagrandi, M. Gatto, A. Rinaldo
Optimizing the spatio-temporal allocation of COVID-19 vaccines: Italy as a case study

Conferences

- [c112] F. Guerrini, **L. Mari**, R. Casagrandi
Microplastics as vectors of contaminants in the Mediterranean Sea: A modelling description
XXX Congresso della SItE, Lecce, Italy, October 25–27 2021 (online meeting)
- [c111] E. Stella, R. Pastres, D. Pasetto, **L. Mari**, E. Bertuzzo
Sparicotyle chrysophrii transmission in *Sparus aurata*: A modelling study
Aquaculture Europe 2021, Funchal, Madeira (Portugal), October 4–7 2021
- [c110] C. Vanalli, **L. Mari**, R. Casagrandi, M. Gatto, B. Boag, I.M. Cattadori
Non-linear interactions between climate change and host processes drive the future of a helminth-herbivore system
9th Conference of the Italian Society for Climate Sciences (SISC), September 22–24 2021 (online meeting)
- [c109] F. Guerrini, **L. Mari**, R. Casagrandi
Two sides of the same coin: A coupled modelling description of the dynamics of microplastics and associated contaminants in the Mediterranean Sea
MICRO 2020, Lanzarote, Spain, November 23–27 2020 (online meeting)
- [c108] F. Guerrini, **L. Mari**, R. Casagrandi
Microplastic as a vector of chemical contamination in the marine environment: A coupled Lagrangian-Eulerian approach
Global Oceans 2020, Singapore – U.S. Gulf Coast, October 5–14 2020 (online meeting)
- [c107] F. Guerrini, **L. Mari**, R. Casagrandi
The role of microplastics as vectors of contaminants: A modelling approach
BAMAR 2020, Workshop on Marine Litter, International Symposium on Marine Sciences, Barcelona, Spain, July 1–3 2020 (online meeting)
- [c106] M. Gatto, E. Bertuzzo, **L. Mari**, D. Pasetto, S. Miccoli, R. Casagrandi, A. Rinaldo
The routes of COVID-19 in Italy: Past and future scenarios
EHES Workshop: Modeling the propagation of COVID-19, Paris, France, May 18–20 2020 (online meeting)
- [c105] E. Stella, **L. Mari**, C. Barbante, J. Gabrieli, E. Bertuzzo
Spatiotemporal influence of permafrost thaw on anthrax diffusion
EGU General Assembly, Vienna, Austria, April 4–8 2020 (online meeting)
- [c104] **L. Mari**, P. Melià, M. Gatto R. Casagrandi
A Mediterranean-wide metapopulation model for the seagrass *Posidonia oceanica*
XXIX Congresso della SItE, Ferrara, Italy, September 10–12 2019
- [c103] F. Guerrini, **L. Mari**, R. Casagrandi
A modeling approach to analyse plastics exposure for *Balaenoptera physalus* in the Pelagos Sanctuary
XXIX Congresso della SItE, Ferrara, Italy, September 10–12 2019
- [c102] F. Guerrini, **L. Mari**, R. Casagrandi
Risk caused by plastic pollution on marine ecosystems: a seascape-driven approach
X World Congress of the International Association for Landscape Ecology, Milano, Italy, July 1–5 2019
- [c101] F. Guerrini, **L. Mari**, R. Casagrandi
Integrating Lagrangian simulations of plastic pollution with chemical advection-diffusion processes to account for cetacean ingestion risk within the Pelagos Sanctuary
LAPCOD VII, Venezia, Italy, June 17–21 2019

- [c100] C. Vanalli, B. Boag, R. Casagrandi, M. Gatto, **L. Mari**, I.M. Cattadori
Spatial risk of helminth infections and long-term predictions under climate change: gastrointestinal helminths of rabbits in the UK
17th Annual Ecology and Evolution of Infectious Diseases (EEID) meeting, Princeton (NJ), USA, June 10–13 2019
- [c99] F. Guerrini, **L. Mari**, R. Casagrandi
Microplastiche nel Mar Mediterraneo: Il caso dell'Area Marina Protetta Pelagos
25° Convegno di Igiene Industriale, Corvara, Italy, March 27–29 2019
- [c98] E. Stella, **L. Mari**, E. Bertuzzo
On the transmission of anthrax disease in the Arctic region
One Arctic – One Health Conference, Oulu, Finland, February 7–9 2019
- [c97] M. Belharet, P. Melià, M. Gatto, R. Casagrandi, **L. Mari**, T. Rinaldo, I. Bitetto, A. Calò, P. Carbonara, J. Claudet, M. Coll, X. Corrales, A. Di Franco, T. Font, P. Guidetti, G. Lembo, A. Ligas, J. Lloret, C. Piroddi, G. Prato, R. Sahyoun, P. Sartor, J. Steenbeek, D. Vilas
Age-structured metapopulation models to assess fisheries sustainability in the Northwestern Mediterranean Sea
Fish Forum 2018, Roma, Italy, December 10–14 2018
- [c96] F. Guerrini, **L. Mari**, R. Casagrandi
Plastic pollution in the Mediterranean: An ecosystem risk assessment
Innovative Solutions to Pollution in South East and Southern Europe, Belgrade, Serbia, December 4–5 2018
- [c95] **L. Mari**, P. Melià, S. Frascchetti, M. Gatto, R. Casagrandi
Hotspot identification and connectivity trends for the endemic seagrass *Posidonia oceanica* in the Mediterranean Sea
XXVIII Congresso della SItE, Cagliari, Italy, September 12–14 2018
- [c94] P. Melià, M. Belharet, **L. Mari**, M. Gatto, R. Casagrandi, A. Calò, P. Carbonara, J. Claudet, M. Coll, A. Di Franco, P. Guidetti, G. Lembo, A. Ligas, J. Lloret, G. Prato, P. Sartor
Sustainable management of small-scale fisheries in the northwestern Mediterranean Sea
XXVIII Congresso della SItE, Cagliari, Italy, September 12–14 2018
- [c93] **L. Mari**, M. Ciddio, S.H. Sokolow, G.A. De Leo, M. Gatto, R. Casagrandi
A multidimensional network model for the spatial dynamics of schistosomiasis
XXVII Congresso della SItE, Napoli, Italy, September 12–15 2017
- [c92] L. Carraro, **L. Mari**, M. Gatto, A. Rinaldo, E. Bertuzzo
A metacommunity model for the spread of proliferative kidney disease in stream networks
IECID 2017, Trieste, Italy, May 17–19 2017
- [c91] F. Finger, T. Genolet, **L. Mari**, G.C. de Magny, A. Rinaldo, E. Bertuzzo
Modeling the spread of cholera using human mobility estimates derived from mobile phone records
IECID 2017, Trieste, Italy, May 17–19 2017
- [c90] F.J. Perez-Saez, T. Mandel, N. Ceperley, E. Bertuzzo, **L. Mari**, M. Gatto, A. Rinaldo
Incorporating the ecology of intermediate hosts of schistosomiasis into spatially explicit models of disease transmission in seasonal climates
IECID 2017, Trieste, Italy, May 17–19 2017
- [c89] **L. Mari**, F. Dagostin, L. Raffa, M. Ciddio, L. Righetto, M. Gatto, R. Casagrandi
Spatially explicit modeling of potential Ebola spread in Senegal
NetMob 2017, Milano, Italy, April 5–7 2017
- [c88] L. Righetto, **L. Mari**, M. Gatto and R. Casagrandi
Drivers of spatial heterogeneity of HIV prevalence in Senegal: disentangling key features of human activity and mobility
NetMob 2017, Milano, Italy, April 5–7 2017

- [c87] M. Gatto, E. Bertuzzo, L. Carraro, R. Casagrandi, **L. Mari**, P. Melià, A. Rinaldo
Connectivity and dynamics of space-explicit ecological and epidemiological systems under variable climate
INdAM Workshop: Mathematical Approach to Climate Change Impacts, Roma, Italy, March 13 – 17 2017
- [c86] R. Casagrandi, **L. Mari**, P. Melià, S. Frascchetti, M. Gatto
Cross-scale effects of protecting *Posidonia oceanica* connectivity hotspots in the Mediterranean
1° Congresso nazionale congiunto SITE–UZI–SIB, Milano, Italy, August 30 – September 2 2016
- [c85] M. Ciddio, **L. Mari**, R. Casagrandi, M. Gatto
A schistosomiasis transmission model to study the effects of heterogeneity on human and snail prevalence
1° Congresso nazionale congiunto SITE–UZI–SIB, Milano, Italy, August 30 – September 2 2016
- [c84] **L. Mari**, R. Casagrandi, A. Rinaldo, M. Gatto
A novel anisotropic measure of the reactivity of ecological systems
1° Congresso nazionale congiunto SITE–UZI–SIB, Milano, Italy, August 30 – September 2 2016
- [c83] L. Righetto, **L. Mari**, M. Gatto, R. Casagrandi
Drivers of HIV prevalence in developing countries: evidence from mobile communication data and demographic surveys in Senegal
1° Congresso nazionale congiunto SITE–UZI–SIB, Milano, Italy, August 30 – September 2 2016
- [c82] G. Constantin de Magny, F. Finger, T. Genolet, **L. Mari**, N.M. Manga, A. Rinaldo, E. Bertuzzo
Modeling the role of mass gatherings in the spreading of cholera outbreaks in Senegal using human mobility estimates derived from mobile phone records
7th Vibrio conference, Roscoff Marine station, France, March 29 – April 1 2016
- [c81] M. Ciddio, **L. Mari**, R. Casagrandi, S.H. Sokolow, G. De Leo, M. Gatto
Human population movement and schistosomiasis transmission risk: the case study of Senegal
Epidemics 5, Clearwater Beach (FL), USA, December 1–4 2015
- [c80] F. Finger, T. Genolet, **L. Mari**, G. Constantin de Magny, A. Rinaldo, E. Bertuzzo
Modeling the spread of cholera using human mobility estimates derived from mobile phone records
Epidemics 5, Clearwater Beach (FL), USA, December 1–4 2015
- [c79] **L. Mari**, R. Casagrandi, E. Bertuzzo, F. Finger, A. Rinaldo, M. Gatto
Assessing the predictive ability of mechanistic models for the Haitian cholera epidemic
European Ecological Federation Conference/XXV Congresso della SItE, Roma, Italy, September 21–25 2015
- [c78] **L. Mari**, R. Casagrandi, M. Ciddio, M. Gatto
Floquet theory for seasonally forced models of waterborne pathogen transmission
European Ecological Federation Conference/XXV Congresso della SItE, Roma, Italy, September 21–25 2015
- [c77] T. Wahli, N. Strepparava, H. Schmidt-Posthaus, H. Segner, **L. Mari**, E. Bertuzzo, L. Carraro, A. Rinaldo, J. Holland, C.J. Secombes, J. Jokela, H. Hartikainen
Role of ecology, evolution and immunology for aquatic diseases in riverine landscapes: the case of proliferative kidney disease
17th EAFFP International Conference on Diseases of Fish and Shellfish, Las Palmas de Gran Canaria, Spain, September 7–10 2015
- [c76] M. Ciddio, **L. Mari**, R. Casagrandi, S.H. Sokolow, G. De Leo, M. Gatto
The impact of human mobility on schistosomiasis in Senegal: an analysis via mobile phone data
9th European Congress on Tropical Medicine and International Health, Basel, Switzerland, September 6–10 2015
- [c75] J. Perez-Saez, **L. Mari**, E. Bertuzzo, T. Mande, N. Ceperley, S.H. Sokolow, G. De Leo, R. Casagrandi, M. Gatto, A. Rinaldo
Spatial patterns of schistosomiasis in Burkina Faso: relevance of human mobility and water resources development
9th European Congress on Tropical Medicine and International Health, Basel, Switzerland, September 6–10 2015

- [c74] L. Carraro, E. Bertuzzo, **L. Mari**, M. Gatto, N. Strepparava, H. Hartikainen, A. Rinaldo
An epidemic model for the interactions between thermal regime of rivers and transmission of Proliferative Kidney Disease in salmonid fish
EGU General Assembly, Vienna, Austria, April 12–17 2015
- [c73] F. Finger, A. Knox, E. Bertuzzo, **L. Mari**, D. Bompangue, M. Gatto, A. Rinaldo
Integrating remote sensing and spatially explicit epidemiological modeling
EGU General Assembly, Vienna, Austria, April 12–17 2015
- [c72] J. Perez-Saez, E. Bertuzzo, J.M. Frohlich, T. Mande, N. Ceperley, M. Sou, H. Yacouba, H. Maiga, S. Sokolow, G. De Leo, R. Casagrandi, M. Gatto, **L. Mari**, A. Rinaldo
Spatial patterns of schistosomiasis in Burkina Faso: relevance of human mobility and water resources development
EGU General Assembly, Vienna, Austria, April 12–17 2015
- [c71] **L. Mari**, R. Casagrandi, M. Ciddio, S.H. Sokolow, G. De Leo, M. Gatto
Uncovering the impact of human mobility on schistosomiasis via mobile phone data
NetMob 2015, Cambridge (MA), USA, April 8–10 2015
- [c70] M. Ciddio, **L. Mari**, M. Gatto, A. Rinaldo, R. Casagrandi
Impact of environmental conditions on snails dynamics and schistosomiasis transmission
IECID 2015, Sitges, Spain, March 23–25 2015
- [c69] A. Rinaldo, E. Bertuzzo, **L. Mari**, F. Finger, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe
On spatially explicit models of epidemic and endemic cholera: the Haiti and Lake Kivu case studies
AGU Fall Meeting, San Francisco (CA), USA, December 15–19 2014
- [c68] M. Ciddio, **L. Mari**, R. Casagrandi, M. Gatto
A model for schistosomiasis transmission accounting for infection age in snails: sensitivity and bifurcation analyses
XXIV Congresso della SItE, Ferrara, Italy, September 15–17 2014
- [c67] **L. Mari**, R. Casagrandi, E. Bertuzzo, A. Rinaldo, M. Gatto
A spatially explicit criterion for metapopulation persistence in river ecosystems
XXIV Congresso della SItE, Ferrara, Italy, September 15–17 2014
- [c66] E. Bertuzzo, F. Finger, **L. Mari**, M. Gatto, A. Rinaldo
On the probability of extinction of the Haiti cholera epidemic
EGU General Assembly, Vienna, Austria, April 27–May 2 2014
- [c65] F. Finger, B. Schaeffli, E. Bertuzzo, **L. Mari**, A. Rinaldo
Parameter and uncertainty estimation for mechanistic, spatially explicit epidemiological models
EGU General Assembly, Vienna, Austria, April 27–May 2 2014
- [c64] A. Knox, C. Van der Hens, F. Finger, E. Bertuzzo, **L. Mari**, M. Blokesch, A. Rinaldo
Model-guided field validation: part of an integrated framework to improve cholera forecasts and interventions in Haiti
Life Sciences Switzerland Annual Meeting, Lausanne, Switzerland, January 4–5 2014
- [c63] F. Finger, E. Bertuzzo, **L. Mari**, A. Knox, M. Gatto, A. Rinaldo
Spatially explicit modelling of cholera epidemics
AGU Fall Meeting, San Francisco (CA), USA, December 9–13 2013
- [c62] F. Finger, E. Bertuzzo, **L. Mari**, A. Knox, M. Gatto, A. Rinaldo
Rainfall driven cholera outbreak modelling
Swiss Geoscience Meeting, Lausanne, Switzerland, November 15–16 2013
- [c61] M. Ciddio, L. Righetto, **L. Mari**
The role of climatic variability on cholera spreading in Bangladesh
1st Conference of the SISC, Lecce, Italy, September 23–24 2013
- [c60] **L. Mari**, P. Melià, M. Gatto, A. Storto, M. Vichi, S. Masina, R. Casagrandi
Larval connectivity in the central Pacific Ocean: lagrangian simulations in the Northern Line Islands
1st Conference of the SISC, Lecce, Italy, September 23–24 2013

- [c59] E. Bertuzzo, **L. Mari**, R. Casagrandi, L. Righetto, I. Rodriguez-Iturbe, M. Gatto, A. Rinaldo
Does space matter in cholera spreading?
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c58] F. Finger, E. Bertuzzo, **L. Mari**, A. Knox, L. Righetto, A. Rinaldo
Spatially explicit modelling of cholera epidemics
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c57] A. Knox, E. Bertuzzo, **L. Mari**, D. Bompangue, H. Sarmiento, D. Odermatt, E. Verrecchia, A. Rinaldo
Optical remote sensing in an eco-epidemiological study: The challenge of Lake Kivu, DRC
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c56] **L. Mari**, E. Bertuzzo, R. Casagrandi, L. Righetto, I. Rodriguez-Iturbe, A. Rinaldo, M. Gatto
Spatiotemporal invasion conditions for waterborne pathogens
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c55] **L. Mari**, P. Melià, M. Gatto, A. Storto, M. Vichi, S. Masina, R. Casagrandi
Assessing larval connectivity patterns in the Northern Line Islands: a long-term analysis with Lagrangian simulations
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c54] L. Righetto, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, A. Rinaldo
Vibrio cholerae in the waters of rural Bangladesh: from site-specific detection to population biology
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c53] L. Righetto, M. Ciddio, E. Bertuzzo, **L. Mari**, R. Casagrandi, A. Rinaldo, M. Gatto
A spatially explicit model of cholera spreading in Bangladesh: the role of climate and mobility
XXIII Congresso della Site, Ancona, Italy, September 16–18 2013
- [c52] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, I. Rodriguez-Iturbe, A. Rinaldo, M. Gatto
Outbreak conditions for waterborne disease epidemics: data and models
S.Co. 2013 – Complex Data Modeling and Computationally Intensive Statistical Methods for Estimation and Prediction, Milano, Italy, September 9–11 2013
- [c51] L. Righetto, R. Zaman, Z.H. Mahmud, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, M.S. Islam, A. Rinaldo, M. Blokesch
Field study of the ecology of *Vibrio cholerae* in the aquatic environment of rural Bangladesh
EMBO Conference on Aquatic Microbial Ecology: SAME13, Stresa, Italy, September 8–13 2013
- [c50] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, I. Rodriguez-Iturbe, A. Rinaldo, M. Gatto
A criterion for waterborne pathogen invasion in spatially explicit and temporally fluctuating environments
INTECOL Congress, London, UK, August 18–23 2013
- [c49] E. Bertuzzo, **L. Mari**, L. Righetto, A. Knox, F. Finger, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Predicting the evolution of large cholera outbreaks: lessons learnt from the Haiti case study
EGU General Assembly, Vienna, Austria, April 7–12 2013
- [c48] S. Ceola, E. Bertuzzo, **L. Mari**, G. Botter, I. Hödl, T.J. Battin, M. Gatto, A. Montanari, A. Rinaldo
Hydrologic and light variability as drivers of stream biofilm-invertebrate dynamics
EGU General Assembly, Vienna, Austria, April 7–12 2013
- [c47] M. Ciddio, **L. Mari**, L. Righetto
A spatially explicit model of endemic cholera in Bangladesh: the role of hydroclimatological forcings
Theoretical Approaches and Related Mathematical Methods in Biology, Medicine and Environment, CIMAB and GASVA-SIMAI workshop, Milano, Italy, April 4–6 2013
- [c46] E. Bertuzzo, **L. Mari**, L. Righetto, M. Gatto, R. Casagrandi, I. Rodriguez-Iturbe, A. Rinaldo
Hydroclimatology of dual-peak annual cholera incidence: insights from a spatially explicit model
AGU Fall Meeting, San Francisco (CA), USA, December 3–7 2012

- [c45] S. Ceola, I. Hödl, M. Adlboller, G. Singer, E. Bertuzzo, **L. Mari**, G. Botter, T.J. Battin, M. Gatto, A. Rinaldo
Hydrologic variability enhances stream biofilm grazing by invertebrates
AGU Fall Meeting, San Francisco (CA), USA, December 3–7 2012
- [c44] **L. Mari**, M. Gatto, E. Bertuzzo, R. Casagrandi, L. Righetto, I. Rodriguez-Iturbe, A. Rinaldo
A novel spatially-explicit condition for the onset of waterborne diseases in complex environments
AGU Fall Meeting, San Francisco (CA), USA, December 3–7 2012
- [c43] L. Righetto, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Rainfall-driven epidemic cholera: hydrologic controls on water-borne disease and multi-season projections
AGU Fall Meeting, San Francisco (CA), USA, December 3–7 2012
- [c42] A. Rinaldo, M. Gatto, **L. Mari**, R. Casagrandi, L. Righetto, E. Bertuzzo, I. Rodriguez-Iturbe
Spatially explicit models, generalized reproduction numbers and the prediction of patterns of waterborne disease
AGU Fall Meeting, San Francisco (CA), USA, December 3–7 2012
- [c41] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, I. Rodriguez-Iturbe, A. Rinaldo, M. Gatto
A novel condition for the onset of waterborne diseases in complex environments
XXII Congresso della SItE, Alessandria, Italy, September 10–13 2012
- [c40] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, I. Rodriguez-Iturbe, A. Rinaldo, M. Gatto
An ecohydrological model of cholera dynamics
SIDISA 2012, Milano, Italy, June 26–29 2012
- [c39] E. Bertuzzo, **L. Mari**, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
An epidemic model for the future progression of the current Haiti cholera epidemic
EGU General Assembly, Vienna, Austria, April 22–27 2012
- [c38] S. Ceola, E. Bertuzzo, **L. Mari**, G. Botter, I. Hödl, T. Battin, A. Rinaldo
Hydrologic drivers and controls of stream biofilm-grazer interactions
EGU General Assembly, Vienna, Austria, April 22–27 2012
- [c37] L. Righetto, S. Islam, Z.H. Mahmud, E. Bertuzzo, **L. Mari**, R. Casagrandi M. Gatto, I. Rodriguez-Iturbe, M. Blokesch, A. Rinaldo
Presence and viability of *V. cholerae* in the waters of rural Bangladesh (Matlab area)
EGU General Assembly, Vienna, Austria, April 22–27 2012
- [c36] T.J. Battin, I. Hödl, E. Bertuzzo, **L. Mari**, S. Suweis, A. Rinaldo
The biogeodynamics of microbial landscapes
AGU Fall Meeting, San Francisco (CA), USA, December 5–9 2011
- [c35] E. Bertuzzo, **L. Mari**, L. Righetto, M. Gatto, R. Casagrandi, I. Rodriguez-Iturbe, A. Rinaldo
A spatially explicit model for the future progression of the current Haiti cholera epidemic
AGU Fall Meeting, San Francisco (CA), USA, December 5–9 2011
- [c34] S. Ceola, E. Bertuzzo, **L. Mari**, G. Botter, I. Hödl, T.J. Battin, A. Rinaldo
Assessing the role of hydrologic variability in stream nutrient processing and transport
AGU Fall Meeting, San Francisco (CA), USA, December 5–9 2011
- [c33] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Hydrologic transport, human mobility and the spread of cholera epidemics: insights from a spatially explicit model
XXI Congresso della SItE, Palermo, Italy, October 3–6 2011
- [c32] L. Righetto, R. Casagrandi, E. Bertuzzo, **L. Mari**, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Modeling environmental drivers of cholera seasonality in Bengal endemic areas
European Conference on Ecological Modeling, Riva del Garda, Italy, May 30–June 2 2011
- [c31] E. Bertuzzo, **L. Mari**, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
A spatially distributed model for the future evolution of the current Haiti cholera outbreak
EGU General Assembly, Vienna, Austria, April 3–8 2011

- [c30] S. Ceola, G. Botter, E. Bertuzzo, **L. Mari**, I. Rodriguez-Iturbe, A. Rinaldo
Hydrologic controls on river trophic dynamics
EGU General Assembly, Vienna, Austria, April 3–8 2011
- [c29] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Hydrological transport, human mobility and cholera epidemics: a spatially explicit modeling approach
EGU General Assembly, Vienna, Austria, April 3–8 2011
- [c28] A. Rinaldo, E. Bertuzzo, **L. Mari**, L. Righetto, M. Gatto, R. Casagrandi, I. Rodriguez-Iturbe
Reactive transport on multiscale networks: controls and drivers of large-scale cholera outbreaks
EGU General Assembly, Vienna, Austria, April 3–8 2011
- [c27] S. Suweis, E. Bertuzzo, **L. Mari**, A. Maritan, I. Rodriguez-Iturbe, A. Rinaldo
Scaling and universality of species lifetimes
EGU General Assembly, Vienna, Austria, April 3–8 2011
- [c26] E. Bertuzzo, **L. Mari**, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Hydroclimatology of dual peak cholera incidence in Bengal region: inferences from a spatial explicit model
AGU Fall Meeting, San Francisco (CA), USA, December 13–17 2010
- [c25] R. Casagrandi, **L. Mari**, E. Bertuzzo, M. Gatto, S.A. Levin, I. Rodriguez-Iturbe, A. Rinaldo
Drivers and controls of the zebra mussel invasion of the Mississippi-Missouri river system
AGU Fall Meeting, San Francisco (CA), USA, December 13–17 2010
- [c24] **L. Mari**, E. Bertuzzo, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Human mobility patterns and cholera epidemics: a spatially explicit modeling approach
AGU Fall Meeting, San Francisco (CA), USA, December 13–17 2010
- [c23] S. Ceola, G. Botter, E. Bertuzzo, **L. Mari**, I. Rodriguez-Iturbe, A. Rinaldo
Ecohydrological streamflow distributions and hydraulic food chain models
AGU Fall Meeting, San Francisco (CA), USA, December 13–17 2010
- [c22] L. Righetto, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
The role of the aquatic reservoir in long-term cholera dynamics
AGU Fall Meeting, San Francisco (CA), USA, December 13–17 2010
- [c21] A. Rinaldo, E. Bertuzzo, **L. Mari**, L. Righetto, M. Gatto, R. Casagrandi, I. Rodriguez-Iturbe
On spatially explicit models of cholera epidemics: hydrologic controls, environmental drivers, human-mediated transmissions
AGU Fall Meeting, San Francisco (CA), USA, December 13–17 2010
- [c20] L. Righetto, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Ecohydrological drivers of cholera spreading along fluvial systems
Water and health: where science meets policy, Chapel Hill (NC), USA, October 25–26 2010
- [c19] E. Bertuzzo, **L. Mari**, L. Righetto, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Spreading of cholera through surface water
LATSIS Symposium 2010, Lausanne, Switzerland, October 17–20 2010
- [c18] **L. Mari**, E. Bertuzzo, R. Casagrandi, M. Gatto, S.A. Levin, I. Rodriguez-Iturbe, A. Rinaldo
Drivers and controls of the zebra mussel invasion of the Mississippi-Missouri river system
LATSIS Symposium 2010, Lausanne, Switzerland, October 17–20 2010
- [c17] L. Righetto, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, I. Rodriguez-Iturbe, A. Rinaldo
Ecohydrologic drivers and controls for cholera epidemics
LATSIS Symposium 2010, Lausanne, Switzerland, October 17–20 2010
- [c16] S. Suweis, E. Bertuzzo, A. Maritan, **L. Mari**, I. Rodriguez-Iturbe, A. Rinaldo
Diversity and geography of species lifetimes
LATSIS Symposium 2010, Lausanne, Switzerland, October 17–20 2010

- [c15] **L. Mari**, E. Bertuzzo, R. Casagrandi, M. Gatto, S.A. Levin, I. Rodriguez-Iturbe, A. Rinaldo
Modeling the spread of the zebra mussel in the Mississippi-Missouri river system: a multi-layer network approach
XX Congresso della SItE, Roma, Italy, September 27–30 2010
- [c14] **L. Mari**, E. Bertuzzo, R. Casagrandi, M. Gatto, S.A. Levin, I. Rodriguez-Iturbe, A. Rinaldo
A multi-layer network model for the zebra mussel invasion of the Mississippi-Missouri river system
SIMAI 2010, Joint SIMAI/SEMA Conference on Applied and Industrial Mathematics, Cagliari, Italy, June 21–25 2010
- [c13] L. Righetto, E. Bertuzzo, **L. Mari**, R. Casagrandi, M. Gatto, A. Rinaldo
Hydroclimatological and anthropogenic drivers for cholera spreading
European Geosciences Union General Assembly 2010, Wien, Austria, May 2–7 2010
- [c12] **L. Mari**, R. Casagrandi, M. Gatto
Social foraging and the formation of plant recruitment patterns
White Workshop on Mathematical Biology, Trento, Italy, December 17–19 2009
- [c11] **L. Mari**, Giuliano Bonanomi, Marino Gatto, Francesco Giannino, Stefano Mazzoleni, Renato Casagrandi
Plant-soil negative feedbacks and the formation of Janzen-Connell recruitment patterns
XIX Congresso della SItE, Bolzano, Italy, September 15–18 2009
- [c10] M. Gatto, P. Melià, **L. Mari**, R. Casagrandi
Movement and life cycles: the paradigmatic cases of European eel and zebra mussel
69° Congresso Nazionale dell'Unione Zoologica Italiana, Senigallia, Italy, September 22–25 2008
- [c9] **L. Mari**, L. Bonaventura
Modeling the spatiotemporal dynamics of sessile aquatic species: coupling ecological and hydrodynamic models
XVIII Congresso della SItE, Parma, Italy, September 1–3 2008
- [c8] M.T. Pisani, E. Pucci, **L. Mari**, R. Casagrandi, M. Gatto
Will the zebra mussel (*Dreissena polymorpha*) reach Florence along the Arno River? Results from a mechanistic network model
XVIII Congresso della SItE, Parma, Italy, September 1–3 2008
- [c7] **L. Mari**, R. Casagrandi, M. Gatto
A PDE model for central-place foraging of dispersed seeds
XVII Congresso della SItE, Ancona, Italy, September 17–20 2007
- [c6] R. Casagrandi, **L. Mari**, M. Gatto
A demographic model for the local dynamics of *Dreissena polymorpha*
VI Congresso Nazionale della Società Italiana di Biometria, Pisa, Italy, June 20–22 2007
- [c5] **L. Mari**, R. Casagrandi, M. Gatto
Un modello per la dinamica del mitilo zebra (*Dreissena polymorpha*)
MUA2007, Congresso del Centro Interuniversitario per la Matematica Applicata a Biologia, Medicina, Ambiente (CIMAB), Montecatini Terme, Italy, March 29–31 2007
- [c4] **L. Mari**, M. Gatto, R. Casagrandi
Rapporto sessi sbilanciato e competizione locale per le risorse
XVI Congresso della SItE, Viterbo-Civitavecchia, Italy, September 19–22 2006
- [c3] **L. Mari**, T. Avgar, R. Casagrandi, R. Nathan, M. Gatto
A spatially explicit approach to seed dispersal and predation
XVI Congresso della SItE, Viterbo-Civitavecchia, Italy, September 19–22 2006
- [c2] **L. Mari**, R. Casagrandi, M. Gatto
Predicting and controlling zebra mussels outbreaks in freshwater ecosystems: a nonlinear demographic model
Modeling Approaches in Biodiversity Research, Sede Boqer, Israel, March 19–23 2006
- [c1] R. Casagrandi, **L. Mari**, C. Baranzelli, A. Caimi, M. Gatto
A model for the population dynamics and control of zebra mussels (*Dreissena polymorpha*, Pallas)
XIV Congresso della SItE, Siena, Italy, October 4–6 2004

Other publications

- [o15] F. Guerrini, **L. Mari**, R. Casagrandi (2021)
Microplastic as a vector of chemical contamination in the marine environment: A coupled Lagrangian-Eulerian approach
Global Oceans 2020, pp. 1–7
Available online at <https://ieeexplore.ieee.org/document/9389405>
- [o14] **L. Mari**, P. Melià, M. Gatto, R. Casagrandi (2019)
Monitoring climate effects on marine connectivity in the Mediterranean Sea
Ecopotential project, Deliverable 8.5, pp. 49–55
Available online at <http://www.ecopotential-project.eu/images/ecopotential/documents/D8.5.pdf>
- [o13] M. Gatto, R. Casagrandi, **L. Mari**, P. Melià (2018)
From coast to coast: Simulating the connectivity of marine ecosystems
Rendiconti dell'Accademia Nazionale delle Scienze detta dei XL, Memorie di Scienze Fisiche e Naturali, 136°, Vol. XLII, Parte II, Tomo I, pp. 39–55
Available online at <http://media.accademiaxl.it/memorie/S5-VXLII-P2-2018/gattoetal39-55tomoI.pdf>
- [o12] **L. Mari**, R. Casagrandi (2018)
Hotspots identification of *Posidonia oceanica* connectivity within the LME in the last three decades
Ecopotential project, Deliverable 8.2, pp. 44–48
Available online at <http://www.ecopotential-project.eu/images/ecopotential/documents/D8.2.pdf>
- [o11] P. Melià, **L. Mari**, M. Gatto (2018)
Il ruolo dell'ecologia nella progettazione del paesaggio / The role of ecology in landscape design
in A. Tartaglia, D. Cerati (eds). *Progetto e valorizzazione dei territori rurali metropolitani. Proposte per il Sud-Abbatense / Design and enhancement of the metropolitan rural territories. Proposals for the South-Abbatense*
Maggioli Editore, Santarcangelo di Romagna. ISBN: 978-88-916-2693-6
- [o10] D. Pasetto, R. Casagrandi, G. El Serafy, **L. Mari**, A. Monteiro, A. Ziemba (2017)
Validation of ecological models through Earth observations
Ecopotential project, Deliverable 6.1, pp. 24–35
Available online at <http://www.ecopotential-project.eu/images/ecopotential/documents/D6.1.pdf>
- [o9] **L. Mari**, R. Casagrandi, M. Ciddio, S.H. Sokolow, G. De Leo, M. Gatto (2015)
Uncovering the impact of human mobility on schistosomiasis via mobile phone data
Data for Development Challenge Senegal – Book of Abstracts: Scientific Papers
Available online at <http://www.d4d.orange.com/>
- [o8] J. Perez-Saez, F. Finger, **L. Mari**, A. Rinaldo, E. Bertuzzo (2015)
Human mobility and the spreading of waterborne diseases
Data for Development Challenge Senegal – Book of Abstracts: Scientific Papers
Available online at <http://www.d4d.orange.com/>
- [o7] M. Gatto, **L. Mari**, A. Rinaldo (2013)
Leading eigenvalues and the spread of cholera
SIAM News, Volume 46, Number 7, September 2013
- [o6] M. Gatto, **L. Mari**, A. Rinaldo (2012)
Modelli spazio-temporali di diffusione, previsione e controllo delle epidemie di colera: dal Sudafrica ad Haiti
Rendiconti dell'Istituto Lombardo Accademia di Scienze e Lettere, 145:47–57
- [o5] **L. Mari** (2009)
Models for Movement Ecology
PhD thesis in Information Technology, PoliMi, A.Y. 2008/2009.
Advisor: Prof. R. Casagrandi; co-advisor: Prof. M. Gatto

- [o4] L. Bonaventura, C. Biotto, A. Decoene, **L. Mari**, E. Miglio (2009)
A coupled biological and hydrodynamic model for the spatial distribution of aquatic species in thermally forced basins
MOX Report 2009.2, Dipartimento di Matematica “F. Brioschi”, PoliMi
- [o3] **L. Mari**, L. Bonaventura (2007)
The impact of hydrodynamics on the spatial distribution of an aquatic species: a numerical study
Internal report 2007.60, DEIB, PoliMi
- [o2] **L. Mari** (2005)
Modelli spazialmente espliciti per la dinamica di popolazioni animali: la determinazione genetica del rapporto sessi
MSc thesis in Environmental Engineering, PoliMi, A.Y. 2004/2005
Advisor: Prof. M. Gatto; co-advisor: Prof. R. Casagrandi
- [o1] **L. Mari** (2003)
Ruolo di sostanze tossiche in un modello di competizione algale
BSc thesis in Environmental Engineering, PoliMi, A.Y. 2002/2003
Advisor: Prof. A. Gragnani

Students' meetings

- [s3] C. Vanalli, **L. Mari**, R. Casagrandi, M. Gatto, B. Boag, I.M. Cattadori (2021)
Interactions between climate change and coinfections: What should we expect from the future?
5th Huck Life Sciences Symposium, Penn State University, May 18–19, 2021 (online meeting)
- [s2] **L. Mari**, R. Casagrandi, M. Gatto (2008)
A model for the spread of the zebra mussel (*Dreissena polymorpha*) on the Arno River
PhDAY, June 26 2008, DEIB, PoliMi. Best paper candidate
- [s1] **L. Mari**, E. Bertuzzo, R. Casagrandi, A. Rinaldo, M. Gatto (2008)
Ecohydrology of the zebra mussel
Incontro Dottorandi in Ecologia e Scienze dei Sistemi Acquatici, April 14–16 2008, San Michele all'Adige

Invited seminars, talks and workshops

- June 2020 A spatially-explicit SEPIA model for COVID-19 transmission in Italy: Reproduction numbers and control strategies. Modellistica e COVID-19, Giornata di studio online UMI/SIMAI (Trento, Italy)
- May 2017 Disease dynamics on river and human mobility networks: Implications for control. NIMBioS workshop on optimal control of NTDs, University of Tennessee (Knoxville TN, US)
- Jan 2017 Spatially explicit modeling of schistosomiasis transmission dynamic. PoliMi (Milano, Italy)
- Jan 2016 Modeling cholera epidemics: Theoretical approach and real-world applications. PoliMi (Milano, Italy)
- April 2015 Uncovering the impact of human mobility on schistosomiasis via mobile phone data. NetMob 2015, Massachusetts Institute of Technology (Cambridge MA, US)
- Jan 2015 Spatially explicit models for schistosomiasis transmission. Hopkins Marine Station of Stanford University (Pacific Grove CA, US)
- Jun 2014 Ecohydrological modeling and waterborne disease epidemics. NIMBioS investigative workshop on leptospirosis modeling, University of Tennessee (Knoxville TN, US)
- Dec 2013 The spread of the invasive species *Dreissena polymorpha* along river networks. Università degli Studi di Milano (Milano, Italy)
- Nov 2011 Drivers and controls of the zebra mussel invasion of the Mississippi-Missouri river system. Eawag (Dübendorf, Switzerland)

- Dec 2008 | Bifurcation and chaos in a demographic model for the dynamics of the zebra mussel *Dreissena polymorpha*. PoliMi (Milano, Italy)
- Apr 2007 | On the role of toxicants in a model for algal competition. PoliMi (Milano, Italy)
- May 2006 | A demographic model for *Dreissena polymorpha*: local dynamics, prediction and control. PoliMi (Milano, Italy)

Involvement in research programs

- 2021 – | PoliMI unit coordinator “Assimilazione di dati epidemiologici e controllo ottimo per previsioni a breve termine e gestione dell’emergenza COVID-19 in Italia (EPIDOC)” (FISR-MIUR)
- 2017 – 2019 | Project manager for the project “MApping Schistosomiasis Transmission Risk in Saint-Louis, Senegal (MASTR-SLS)” (Polisocial Award, principal investigator: Prof. R. Casagrandi)
- 2016 – 2019 | Project “Improving future ecosystem benefits through earth observation (ECOPOTENTIAL)” (European Commission H2020, principal investigator: Prof. A. Provenzale, Consiglio Nazionale delle Ricerche), PoliMi research unit (principal investigators: Prof. R. Casagrandi and Prof. M. Gatto)
- 2015 – 2016 | Project “Uncovering the impact of human mobility on schistosomiasis via mobile phone data” (Bill & Melinda Gates Foundation, principal investigator: Prof. M. Gatto)
- 2014 – 2015 | Project “Towards coast to coast networks of marine protected areas (COCONET)” (European Commission FP7, principal investigator: Prof. F. Boero, Università del Salento), CoN-ISMa/PoliMi research unit (principal investigator: Prof. M. Gatto)
- 2014 | Project “Temperature driven emergence of Proliferative Kidney Disease in salmonid fish” (SNSF, principal investigator: Dr. H. Hartikainen), EPFL research unit (principal investigator: Prof. A. Rinaldo, ECHO/EPFL)
- 2014 | Project “Santé des populations: maladies d’origine hydrique” (Swiss Agency for Development and Cooperation, principal investigator: Prof. A. Rinaldo)
- 2012 – 2014 | Project “Dynamics and controls of large-scale cholera outbreaks (DYCHO)” (SNSF project 138104, principal investigator: Prof. A. Rinaldo)
- 2012 – 2013 | Project “Climate Change Assessment in Small Pacific Islands States” (Comune di Milano, principal investigator: Prof. R. Casagrandi)
- 2009 – 2013 | Project “River networks as ecological corridors for biodiversity, populations and waterborne disease (RINEC)” (ERC project 227612, principal investigator: Prof. A. Rinaldo)
- 2009 – 2013 | Project “Hydrologic controls on ecological processes: river networks as corridors for biodiversity, populations and pathogens of water-borne diseases” (SNSF project 124930, principal investigator: Prof. A. Rinaldo)
- 2007 | Project “Internazionalizzazione del Sistema Universitario” (Interlink II O4 CE 4968, MIUR), PoliMi research unit (“Conseguenze ed impatti dei cambiamenti climatici globali sulla gestione e conservazione delle risorse naturali”; principal investigator: Prof. M. Gatto)
- 2006–2007 | Project “Reti autorganizzanti di tipo cellulare e dinamiche non lineari caotiche per la modellizzazione ed il controllo di sistemi complessi” (FIRB2001-RBNE01CW3M, MIUR; principal investigator: Prof. L. Fortuna, Università degli Studi di Catania), PoliMi research unit (“Reti dinamiche non lineari: analisi e applicazioni”; principal investigator: Prof. S. Rinaldi, DEIB, PoliMi)

Teaching activities

As lecturer

Academic Years 2017–	“Industrial Ecology” (8 credits) Master Degree in Energy Engineering, PoliMi (Campus Piacenza)
A.Y.s 2016–	“Geo Fundamentals 1” (5 credits) Master Degree in Geoinformatics, PoliMi
A.Y.s 2016–2017, 2020–	“General Ecology” (4 credits) Master Degree in Sustainable Architecture and Landscape Design, PoliMi (Campus Piacenza)
A.Y.s 2018–2020	“Ecologia” (6 credits) Bachelor Degree in Civil and Environmental Engineering, Polimi (Campus Lecco)
A.Y.s 2012–2016	“Ecology and Sustainability” (6 credits) Master Degree in Environmental Engineering, PoliMi (Campus Como)
A.Y.s 2012–2014	“Analisi dei Sistemi II” (5 credits) Bachelor Degree in Environmental Engineering, PoliMi (Campus Como)
A.Y. 2011–2012	“Conservation Ecology and Sustainability” (6 credits) Master Degree in Environmental Engineering, PoliMi (Campus Como)
As teaching assistant	
A.Y. 2014–2015	“Global Change and Sustainability”, Alta Scuola Politecnica (4 hours)
A.Y. 2013–2014	“Water Resources Engineering”, Prof. A. Rinaldo (20 hours) Master Degree in Environmental Sciences and Engineering, EPFL “Global Change and Sustainability”, Alta Scuola Politecnica (4 hours)
A.Y. 2012–2013	“Water Resources Engineering”, Prof. A. Rinaldo (20 hours) Master Degree in Environmental Sciences and Engineering, EPFL “Ecologia”, Prof. R. Casagrandi (10 hours) Corso di Laurea in Ingegneria per l’Ambiente e il Territorio, PoliMi “Global Change and Sustainability”, Alta Scuola Politecnica (4 hours)
A.Y. 2011–2012	“Conservazione e Gestione degli Ecosistemi”, Prof. M. Gatto (20 hours) Corso di Laurea Magistrale in Ingegneria per l’Ambiente e il Territorio, PoliMi “Water Resources Engineering”, Prof. A. Rinaldo (20 hours) Master Degree in Environmental Sciences and Engineering, EPFL
A.Y.s 2009–2011	“Water Resources Engineering”, Prof. A. Rinaldo (20 hours) Master Degree in Environmental Sciences and Engineering, EPFL
A.Y. 2008–2009	“Modelling and Simulation”, Prof. G. Guariso (DEIB, PoliMi) (40 hours) Master Degree in Environmental Engineering, PoliMi (Campus Como) “Ecologia 1”, Prof. R. Casagrandi (20 hours) Corso di Laurea in Ingegneria per l’Ambiente e il Territorio, PoliMi (Campus Como) “Ecology 2”, Prof. R. Casagrandi (4 hours) Master Degree in Environmental Engineering, PoliMi (Campus Como) “Global Change and Sustainability”, Alta Scuola Politecnica (4 hours) “Modellistica e Controllo dei Sistemi Ambientali 1”, Prof. A. Gragnani (4 hours) Corso di Laurea in Ingegneria per l’Ambiente e il Territorio, PoliMi “Modellistica e Controllo dei Sistemi Ambientali 2”, Prof. A. Gragnani (4 hours) Corso di Laurea Magistrale in Ingegneria per l’Ambiente e il Territorio, PoliMi
A.Y. 2007–2008	“Ecologia 1 con Laboratorio”, Prof. M. Gatto (20 hours, lab tutor) Corso di Laurea in Ingegneria per l’Ambiente e il Territorio, PoliMi
A.Y. 2006–2007	“Ecologia 1”, Prof. R. Casagrandi (20 hours) Corso di Laurea in Ingegneria per l’Ambiente e il Territorio, PoliMi (Campus Como) “Ecologia 1 con Laboratorio”, Prof. M. Gatto (5 hours) Corso di Laurea in Ingegneria per l’Ambiente e il Territorio, PoliMi

A.Y. 2004–2009

Teaching seminars for graduate and undergraduate courses at PoliMi, including “Caos Deterministico e Applicazioni” (Prof. C. Piccardi), “Ecologia 2” (Prof. M. Gatto), “Modellistica e Controllo dei Sistemi Ambientali 1 e 2” (Prof. A. Gragnani), “Spatial Biology” (Prof. M. Gatto)

PhD courses

- 2020 “Analysis of Complex Networks: Theory and Applications”, Prof. C. Piccardi (lecturer, 2 hours)
PhD Program in Information Technology, DEIB, PoliMi
- 2017 “Analysis of Complex Networks: Theory and Applications”, Prof. C. Piccardi (lecturer, 2 hours)
PhD Program in Information Technology, DEIB, PoliMi
- 2013 “Spatial Dynamics in Biology”, Prof. M. Gatto (lecturer, 2 hours)
PhD Program in Information Technology, DEIB, PoliMi
- 2011 “Spatial Dynamics in Biology”, Prof. M. Gatto (lecturer, 2 hours)
PhD Program in Information Technology, DEIB, PoliMi

Tutoring of BSc/MSc projects

A.S. Almogabar Ruiz, L. Carminati, E. Gusso, S. Ingaramo, B.A. Khan, H. Kuai, G. Paola, L. Piermarini (2021). DRonE: A Decision support system to Respond to ongoing Epidemics. Alta Scuola Politecnica, PoliMi and Politecnico di Torino

M. Andreoli, I.E. Comotti (2020). Analisi quantitativa dei fattori di trasmissione della malaria nelle regioni del Senegal. BSc Civil and Environmental Engineering, PoliMi

T. Borghi (2020). Analisi dei pattern di dispersione passiva della specie lessepsiana *Fistularia commersonii* nel Mar Mediterraneo. BSc Civil and Environmental Engineering, PoliMi

F. Paruta (2020). Analisi di un modello preda-predatore per la specie invasiva *Mnemiopsis leidyi*: Impatti sullo zooplancton nel Mar Mediterraneo. BSc Civil and Environmental Engineering, PoliMi

A. Blanco Hernández (2020). Direct air capture by large scale reforestation of Sahara desert. MSc Energy Engineering, PoliMi

J. Sponchiado (2020). Marine plastic pollution, loopholes in the juridical chain from international to regional scale: A case study from the Pelagos sanctuary. MSc Marine Sciences, Università degli Studi di Milano – Bicocca

C. Bottin, C. Ebli (2020). Valutazione dell’input di plastica nel mar Mediterraneo da parte dei principali fiumi italiani. BSc Civil and Environmental Engineering, PoliMi

F. Cattaneo, M. Montani (2019). Mapping the risk of schistosomiasis transmission in Saint-Louis region, Senegal, using Volunteered Geographic Information and Machine Learning applied to aerial imagery. MSc Geoinformatics Engineering, PoliMi

G. Toffano (2019). Un approccio modellistico allo studio dell’interazione tra microplastiche e inquinanti in ambiente marino. MSc Environmental and Land Planning Engineering, PoliMi

C. Castelletti (2019). Analisi di un modello di competizione intraspecifica tra *Posidonia oceanica* e *Caulerpa* spp. BSc Civil and Environmental Engineering, PoliMi

E. Glavich, I. Marangoni (2019). Analisi della connettività di *P. oceanica* come base decisionale per l’istituzione di aree marine protette nel Mediterraneo. MSc Environmental and Land Planning Engineering, PoliMi

M. Rossi (2018). Raccolta e analisi di dati relativi all’immissione di rifiuti plastici in mare: Il caso dell’Area Marina Protetta Pelagos (Mar Tirreno). BSc Environmental and Land Planning Engineering, PoliMi

F. Guerrini (2018). Modelling exposure to plastics for the marine biota: Risk maps for fin whales in the Pelagos sanctuary (North-Western Mediterranean). MSc Environmental and Land Planning Engineering, PoliMi

- A. Comini (2017). Dinamica spazio-temporale del briozoo *Fredericella sultana*, ospite primario nel ciclo della malattia proliferativa renale. MSc Environmental and Land Planning Engineering, PoliMi
- F. Cattaneo, M. Montani (2017). Analisi di dati demografici spazialmente distribuiti nella regione di Saint-Louis, Senegal. BSc Environmental and Land Planning Engineering, PoliMi
- M. Stecco (2016). *Rotavirus gastroenteritis*: Epidemiological dynamic and relationship between the disease outbreak and environmental factors. MSc Environmental and Land Planning Engineering, PoliMi
- F. Guerrini (2016). Un approccio modellistico al problema del marine debris nel Mar Mediterraneo. BSc Environmental and Land Planning Engineering, PoliMi
- F. Dagostin, L. Raffa (2016). Diffusione spazio-temporale del virus Ebola in Senegal: Un modello predittivo basato su dati di telefonia cellulare. MSc Environmental and Land Planning Engineering, PoliMi
- N. Capella (2015). Un approccio modellistico per lo studio del rapporto tra malaria e deforestazione. BSc Environmental and Land Planning Engineering, PoliMi
- M. Ciddio (2012). Sviluppo di un modello spazialmente esplicito di diffusione del colera e sua applicazione al caso endemico del Bangladesh. MSc Environmental and Land Planning Engineering, PoliMi
- M.T. Pisani, E. Pucci (2008). Invasione di specie alloctone su reti fluviali: Un modello per il mitilo zebra (*Dreissena polymorpha*) sull'Arno. MSc Environmental and Land Planning Engineering, PoliMi

Academic and scientific service

- 2020– Member of the Editorial Board of *Data in Brief* (ISSN: 2352-3409)
- 2020– Member of the Editorial Board of *Water* (ISSN: 2073-4441)
- 2020– Member of the Scientific Board of the MaB-UNESCO Reserve *Po Grande*
- 2017– Tutoring and Web Coordination Boards, MSc in Geoinformatics Engineering, School of Civil, Environmental and Land Management Engineering, PoliMi
- 2016–2017 Guest Editor for the Special Issue “Hydrology, water resources and the epidemiology of water-related diseases”, *Advances in Water Resources*

2009– Reviewer for *Advances in Water Resources*, *Animals*, *Annals of Epidemiology*, *Applied Geography*, *Applied Mathematical Modelling*, *Applied Mathematics and Computation*, *Aquatic Invasions*, *Atmosphere*, *BMC Infectious Diseases*, *Bulletin of Mathematica Biology*, *Chaos, Solitons & Fractals*, *Computer Methods and Programs in Biomedicine*, *Communications in Nonlinear Science and Numerical Simulation*, *Continental Shelf Research*, *Data in Brief*, *Discrete Dynamics in Nature and Society*, *EcoHealth*, *Ecological Modelling*, *Ecology Letters*, *Environment International*, *Environmental Pollution*, *Epidemiology*, *Environmental Modelling and Software*, *ESAIM: Mathematical Modelling and Numerical Analysis*, *Freshwater Biology*, *Freshwater Science*, *Frontiers in Marine Science*, *Fundamental and Applied Limnology*, *International Journal of Environmental Research and Public Health*, *International Journal of Infectious Disease*, *Journal of Animal Ecology*, *Journal of Biological Dynamics*, *Journal of Ecology*, *Journal of Neuroinfectious Diseases*, *Journal of Statistical Mechanics*, *Journal of Theoretical Biology*, *Journal of the Royal Society Interface*, *Lancet Infectious Diseases*, *Marine Pollution Bulletin*, *Mathematical Biosciences and Engineering*, *Mathematical Methods in the Applied Sciences*, *Mathematical Modelling and Control*, *Mathematics and Computers in Simulation*, *Methods in Ecology and Evolution*, *Nature Communications*, *Nonlinear Analysis: Hybrid Systems*, *npj Clean Water*, *Oikos*, *PLoS Medicine*, *PLoS Neglected Tropical Diseases*, *PLoS One*, *Proceedings of the National Academy of Sciences of the USA*, *Proceedings of the Royal Society B*, *Risk Management and Healthcare Policy*, *Royal Society Open Science*, *Public Health*, *Science of the Total Environment*, *Scientific Data*, *Scientific Reports*, *Sustainability*, *The American Naturalist*, *Theoretical Population Biology*, *Tropical Medicine and Infectious Disease*, *Veterinary Sciences*, *Water Policy*, *Water Resources Research*, the IFAC World Congress, the International Federation of Automatic Control, the Fulbright Commission, the UK Natural Environment Research Council, the University of Firenze, and the US National Science Foundation

Scientific membership

2010–2012 Member of the American Geophysical Society (AGU) and European Geosciences Society (EGU)

2008 Member of the European Association of Environmental and Resource Economists (EAERE)

2006– Member of the SIteE

Milano, November 5, 2021

Lorenzo Mari