

Nico Salmaso CV – May 2016



Present Position

Senior Researcher and Head of the Research Group “Hydrobiology”, Sustainable Agro-Ecosystems and Bioresources Department
Research and Innovation Centre, Fondazione E. Mach, Istituto Agrario di S. Michele all’Adige.
Via E. Mach, 1. S. Michele all’Adige, Trento, Italy
E-mail: nico.salmaso@fmach.it - WEB: www.iasma.it - Tel. 0461-615323

Education

- Degree in “Natural Sciences”, with highest mark, University of Padua.
- Dottorato di Ricerca (PhD) in “Ecology”, with highest mark, University of Parma.

Habilitation

- National Scientific Habilitation 05/C1 - II Fascia, Ecology (31/01/2014)
- National Scientific Habilitation 05/A1 - II Fascia, Botany (28/01/2014)

Research experience and management

- February 2016 – present. Head of the Research Group "Hydrobiology", IASMA Research and Innovation Centre.
- January 2011-January 2016. Head of the Research Group "Limnology and River Ecology", IASMA Research and Innovation Centre.
- January 2009-December 2010. Head of the Research Program "Biocomplexity and Ecosystem Dynamics", IASMA Research and Innovation Centre.
- August 2007-December 2008. Deputy Coordinator of the Natural Resources Department, IASMA Research Centre.
- September 2005-July 2007. Head of the “Limnology and Fish Research Unit” at IASMA Research Center.
- May 2005-September 2005. Senior Research Scientist at IASMA Research Centre (Istituto Agrario di S. Michele all’Adige), Department of Natural Resources.
- February 1991-April 2005. Technical and Research Assistant at the University of Padua, Department of Biology.
- October 1989-January 1991. Research-Assistant, University of Padua, Department of Biology.

Research interests

- Effects caused by the interactions, covariations and synergies among nutrient concentrations, climatic changes and other anthropic stressors on the composition, abundance and phenology of plankton and microalgae at different temporal scales and in different aquatic ecosystems.
- Environmental and biotic mechanisms favouring the development of toxic cyanobacteria (including the appearance of new species and blooms); impact of cyanotoxins on trophic webs and water utilisation; detection of cyanobacteria toxic genotypes (PCR, sequencing and qPCR) in environmental samples and monospecific (single strains) cultures; phylogenetic analysis; taxonomy and autoecology of cyanobacteria and phytoplankton; invasive cyanobacteria.

- Evolutionary and ecological relationships between cyanobacteria and environmental constraints.
- Impact of atmospheric modes of variability (Atlantic Ocean and Mediterranean area) on the physical, chemical and biological characteristics of freshwater ecosystems.
- Long-Term Ecological Research (International LTER Research). Specific topic: – Long term limnological studies in Lake Garda (the lake is included in the International-LTER network; www.lteritalia.it; www.limno.eu).
- Ecological statistic using R, including multivariate analyses, generalised least squares models, mixed models, additive models; phylogenetic analyses with R.

Scientific Activity

- Editor in Chief of *Advances in Oceanography and Limnology*
<http://pagepressjournals.org/index.php/aiol/>
- Associate Editor of *Cryptogamie Algologie* (section Prokaryotic algae)
http://www.cryptogamie.com/pagint_en/editeur/revues.php
- Review Editor of *Frontiers Microbiology*, specialty Aquatic Microbiology
<http://journal.frontiersin.org/journal/microbiology>
- Member of the Editorial Board of the *Journal of Limnology*
www.aiol.info
- Vice-President (2016-2017) of the Italian Association of Oceanography and Limnology,
- 2004-2009; 2012-2013; 2014-2015: member of the Board of Directors of AIOL, Italian Association for Oceanology and Limnology.
- Contact person LTER (Long Term Ecological Research) for the research station “Lago di Garda” (IT08-004-A) (2006-present); contact person of the LTER-site “IT08-000-A, “Subalpine lakes” (lakes Garda, Como, Maggiore, Orta, Candia) (2012-present)
<http://www.lteritalia.it/>
- Official member of the working team coordinated by the Ministry of Health and the National Health Institute in charge of defining the Guidelines for the management of cyanobacterial blooms in bathing waters.
- Guest Editor for *Hydrobiologia* (Springer, IF=1.96) of the special issue “*Phytoplankton responses to human impacts at different scales: 16th workshop of the International Association of Phytoplankton Taxonomy and Ecology (IAP)*”. Editor for the book (Springer) *Developments in Hydrobiology*, Vol. 221, VI, 386 p.
- 2011-present. Member of the International network GLTC (Global Lake Temperature Collaboration).
- Referee for the International Journals (IF): - *Acta Protozoologica* - *Annales de Limnologie* - *International Journal of Limnology* – *Applied Water Science* – *Aquatic Biosystems* - *Aquatic Ecology* - *Archiv für Hydrobiologie/Fundamental Applied Limnology* - *Botanica Marina* - *Chinese Journal of Oceanology and Limnology* - *Desalination* - *Ecological Indicators* - *Environmental and Experimental Botany* - *Environmental and Engineering Science* - *Environmental Monitoring and Assessment* - *European Journal of Phycology* - *Fresenius Environmental Bulletin* - *Freshwater Biology* – *Frontiers in Microbiology* - *Global Change Biology* – *Harmful Algae* - *Hydrobiologia* - *International Journal of Environmental Research and Public Health* - *ISME Journal* - *Journal of Limnology* - *Journal of Phycology* - *Journal of Plankton Research* - *Knowledge and Management of Aquatic Ecosystems* - *Limnology and Oceanography* - *Limnologica* - *Marine and Freshwater Research* - *Marine Ecology* - *Oceanological and Hydrobiological Studies* - *Plant Biosystems* – *PlosOne* - *Science of the Total Environment* – *Toxins* – *Turkish Journal of Botany* – *Water Research* – *Water Resources Research* – *Wetlands*.

Projects

Planning and coordination of projects in freshwater ecosystems:

- - EU COST Action ES1105 (2012-2016; Italian representative in the Member Committee): Cyanobacterial blooms and toxins in water resources: Occurrence, impacts and management.
- - EU Project EULAKES, Central Europe Programme (01/04/2010 - 31/03/2013). European Lakes Under Environmental Stressors (Supporting lake governance to mitigate the impact of climate change).
- - 2008-2010, Hungarian–Italian intergovernmental S&T Cooperation Programme for 2008 – 2010 (Researchers mobility) (Fundings from the Italian, and Hungarian Ministry of Environment)
- - ACE-SAP, activity 2, WP1 (2008 - 2011) – Alpine Ecosystems in a Changing Environment: Biodiversity Sensitivity and Adaptive Potential (fundings from PAT).
- - River Adige, 2007-2010 (fundings from the Adige River Authority).
- - Many natural lakes and reservoirs in the Veneto Region (several studies since 1992) (external fundings from the Veneto Region and Environmental Agencies).
- - Long-Term Ecological Research (LTER) in Lake Garda (from 1991 to present). 2006-2011. Responsible of the Long-Term Ecological Research (LTER) station “Lago di Garda”. 2012-present.

Teaching

- Supervisor for 20 MSc theses in Biology and Natural Sciences at the Universities of Padua, Ferrara, Milano (2nd level degree, and 1st level). Supervisor for five doctoral theses (Universities of Parma, Firenze, Geneva, Konstanz, Berlin).
- University of Salento (Lecce), November 2013. Strumenti metodologici per lo studio della nicchia ecologica del fitoplancton – 15 h.
- Visiting Professor for the Training Course of Hydrobiology on the topic Taxonomy and Ecology of cyanobacteria. Teaching. University of Jinan (Guangzhou, China). 13-31 luglio 2012.
- March-June 2007; February-April 2008. Teaching of “Ecology” in the Specialisation School of the Environmental Agency of the Veneto Region (Master course).
- March-June 2009. Teaching of “Ecology” in the Specialisation School of the University of Venice and Environmental Agency of the Veneto Region (2nd level Master course).
- AA 2005/2006. Professor of “Ecology of Aquatic Systems” at the University of Padua.

Publications with Impact Factor, (last 3 years, since 2013)

Cerasino L, Shams S, Boscaini A, **Salmaso N** (2016) Multiannual trend of microcystin production in the toxic cyanobacterium *Planktothrix rubescens* in Lake Garda (Italy). *Chem Ecol* 32:492-506. doi: 10.1080/02757540.2016.1157175

Deng, J., Qin, B., Sarvala, J., **Salmaso, N.**, Zhu, G., Ventelä, A.-M., Zhang, Y., Gao, G., Nurminen, L., Kirkkala, T., Tarvainen, M., Vuorio, K., 2016. Phytoplankton assemblages respond differently to climate warming and eutrophication: A case study from Pyhäjärvi and Taihu. *J. Great Lakes Res.* 42, 386-396. doi:10.1016/j.jglr.2015.12.008

Minella, M., Leoni, B., **Salmaso, N.**, Savoye, L., Sommaruga, R., Vione, D., 2016. Long-term trends of chemical and modelled photochemical parameters in four Alpine lakes. *Sci. Total Environ.* 541, 247-256. doi:10.1016/j.scitotenv.2015.08.149

Pareeth S, Delucchi L, Metz M, Rocchini D, Devasthale A, Raspaud M, Adrian R, **Salmaso N**, Neteler M (2016) New Automated Method to Develop Geometrically Corrected Time Series of Brightness Temperatures from Historical AVHRR LAC Data. *Remote Sens* 8:169. doi: 10.3390/rs8030169

Hu R, Li Q, Han B-P, Naselli-Flores L, Padisak J, **Salmaso N**, 2016. Tracking management-related water quality alterations by phytoplankton assemblages in a tropical reservoir. *Hydrobiologia* 763, 109-124. doi:10.1007/s10750-015-2366-2

O'Reilly, C.M., Sharma, S., Gray, D.K., Hampton, S.E., Read, J.S., Rowley, R.J., Schneider, P., Leters, J.D., McIntyre, P.B., Kraemer, B.M., Weyhenmeyer, G.A., Straile, D., Dong, B., Adrian, R., Allan, M.G., Anneville, O., Arvola, L., Austin, J., Bailey, J.L., Baron, J.S., Brookes, J.D., de Eyto, E., Dokulil, M.T., Hamilton, D.P., Havens, K., Hetherington, A.L., Higgins, S.N., Hook, S., Izmest'eva, L.R., Joehnk, K.D., Kangur, K., Kasprzak, P., Kumagai, M., Kuusisto, E., Leshkevich, G., Livingstone, D.M., MacIntyre, S., May, L., Melack, J.M., Mueller-Navarra, D.C., Naumenko, M., Noges, P., Noges, T., North, R.P., Plisnier, P.-D., Rigosi, A., Rimmer, A., Rogora, M., Rudstam, L.G., Rusak, J.A., **Salmaso, N.**, Samal, N.R., Schindler, D.E., Schladow, S.G., Schmid, M., Schmidt, S.R., Silow, E., Soylu, M.E., Teubner, K., Verburg, P., Voutilainen, A., Watkinson, A., Williamson, C.E., Zhang, G., 2015. Rapid and highly variable warming of lake surface waters around the globe. *Geophysical Research Letters* n/a-n/a. doi:10.1002/2015GL066235

Sharma, S., Gray, D.K., Read, J.S., O'Reilly, C.M., Schneider, P., Qudrat, A., Gries, C., Stefanoff, S., Hampton, S.E., Hook, S., Leters, J.D., Livingstone, D.M., McIntyre, P.B., Adrian, R., Allan, M.G., Anneville, O., Arvola, L., Austin, J., Bailey, J., Baron, J.S., Brookes, J., Chen, Y., Daly, R., Dokulil, M., Dong, B., Ewing, K., de Eyto, E., Hamilton, D., Havens, K., Haydon, S., Hetzenauer, H., Heneberry, J., Hetherington, A.L., Higgins, S.N.,

- Hixson, E., Izsmest'eva, L.R., Jones, B.M., Kangur, K., Kasprzak, P., Köster, O., Kraemer, B.M., Kumagai, M., Kuusisto, E., Leshkevich, G., May, L., MacIntyre, S., Müller-Navarra, D., Naumenko, M., Noges, P., Noges, T., Niederhauser, P., North, R.P., Paterson, A.M., Plisnier, P.-D., Rigosi, A., Rimmer, A., Rogora, M., Rudstam, L., Rusak, J.A., **Salmaso, N.**, Samal, N.R., Schindler, D.E., Schladow, G., Schmidt, S.R., Schultz, T., Silow, E.A., Straile, D., Teubner, K., Verburg, P., Voutilainen, A., Watkinson, A., Weyhenmeyer, G.A., Williamson, C.E., Woo, K.H., 2015. A global database of lake surface temperatures collected by in situ and satellite methods from 1985-2009. *Sci. Data* 2, 150008. doi:10.1038/sdata.2015.8
- Salmaso N**, Capelli C, Shams S, Cerasino L, 2015. Expansion of bloom-forming *Dolichospermum lemmermannii* (Nostocales, Cyanobacteria) to the deep lakes south of the Alps: Colonization patterns, driving forces and implications for water use. *Harmful Algae* 50, 76-87. doi:10.1016/j.hal.2015.09.008
- Rogora, M., Mosello, R., Kamburska, L., **Salmaso, N.**, Cerasino, L., Leoni, B., Garibaldi, L., Soler, V., Lepori, F., Colombo, L., Buzzi, F., 2015. Recent trends in chloride and sodium concentrations in the deep subalpine lakes (Northern Italy). *Environmental science and pollution research international* 22, 19013-19026. doi:10.1007/s11356-015-5090-6
- Milan, M., Bigler, C., **Salmaso, N.**, Guella, G., Tolotti, M., 2015. Multiproxy reconstruction of a large and deep subalpine lake's ecological history since the Middle Ages. *Journal of Great Lakes Research* 41, 982-994. doi:10.1016/j.jglr.2015.08.008
- Sukenik A, Quesada A, **Salmaso N**, 2015. Global expansion of toxic and non-toxic cyanobacteria: effect on ecosystem functioning. *Biodiversity and Conservation* 4: 889-908
- Shams S, Capelli C, Cerasino C, Ballot A, Dietrich DR, Sivonen K, **Salmaso N**, 2015. Anatoxin-a producing *Tychonema* (Cyanobacteria) in European waterbodies. *Water Research* 69: 68-79.
- Salmaso N**, Naselli-Flores L, Padisák J, 2015. Functional classifications and their application in phytoplankton ecology. *Freshwater Biology* 60, 603-619.
- Tapolczai K, Anneville O, Padisák J, **Salmaso N**, Morabito G, Zohary T, Tadonleke RD, Rimet F, 2015. Occurrence and mass development of *Mougeotia* spp. (Zygnemataceae) in large, deep lakes. *Hydrobiologia* 745: 17-29.
- Manca M, Rogora M, **Salmaso N.**, 2014. Inter-annual climate variability and zooplankton: applying teleconnection indices to two deep subalpine lakes in Italy. *Journal of Limnology* 74(1): 123-132.
- Salmaso N**, Copetti D, Cerasino L, Shams S, Capelli C, Boscaini A, Valsecchi L, Pozzoni F, Guzzella L, 2014. Variability of microcystin cell quota in metapopulations of *Planktothrix rubescens*: Causes and implications for water management. *Toxicon*, 90: 82-96.
- Salmaso N**, Buzzi F, Cerasino L, Garibaldi L, Leoni B, Morabito G, Rogora M, Simona M, 2014. Influence of atmospheric modes of variability on the limnological characteristics of large lakes south of the Alps: a new emerging paradigm. *Hydrobiologia*, 731: 31-48.
- Shams S, Cerasino L, **Salmaso N**, Dietrich, DR, 2014. Experimental models of microcystin accumulation in *Daphnia magna* grazing on *Planktothrix rubescens*: Implications for water management. *Aquatic Toxicology* 148: 9-15.
- Salmaso, N.**; Boscaini, A.; Shams, S.; Cerasino, L. (2013). Strict coupling between the development of *Planktothrix rubescens* and microcystin content in two nearby lakes south of the Alps (lakes Garda and Ledro). *Annales de Limnologie - International Journal of Limnology*, 49 (4): 309-318. doi: 10.1051/limn/2013064
- D'Alelio D, **Salmaso N**, Gandolfi A., 2013. Frequent recombination shapes the epidemic population structure of *Planktothrix* (cyanoprokaryota) in Italian sub-alpine lakes. *Journal of Phycology*, 49: 1107-1117.
- Gallina N, **Salmaso N**, Morabito G, Beniston M. 2013. Phytoplankton configuration in six deep lakes in the peri-Alpine region: Are the key drivers related to eutrophication and climate? *Aquatic Ecology*, 47: 177-193.