

Directeur de recherche CNRS de classe exceptionnelle (DCRE2)
Laboratoire d'Océanographie de Villefranche
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Situation professionnelle

- 2015-présent : Chercheur associé, Institut du développement durable et des relations internationales, SciencesPo, France
- 2005-présent : Directeur de recherche au CNRS, Laboratoire d'Océanographie de Villefranche

Distinctions (sélection)

- Prix Ruth Patrick de l'*Association for the Sciences of Limnology and Oceanography* (2020)
- Membre élu, *Academia Europaea* (2018)
- Médaille Blaise Pascal, *European Academy of Sciences* (2014)
- Membre élu, *European Academy of Sciences* (2014)

Thèmes de recherche

- Cycle du carbone et des carbonates dans l'océan
- Impacts des changements globaux (température, acidité, pollution) sur les organismes, les écosystèmes et les services écosystémiques
- Solutions aux changements climatiques

Activités éditoriales

- 2021-présent: éditeur, *Cambridge Prisms: Coastal Futures*
- 2018-2021 : éditeur de l'édition annuelle du *Copernicus State of the Ocean Report*
- 2011 : éditeur de l'ouvrage *Ocean acidification* publié par *Oxford University Press*
- 2010-2022 : éditeur, *Biogeosciences*
- 2006-présent : éditeur, *The Encyclopedia of Earth*
- 2004-2009 : éditeur-en-chef et fondateur, *Biogeosciences*

Assemblées consultatives nationales et internationales, organisation de congrès (sélection)

- 2023-présent : Membre, Haut-conseil pour le climat et la biodiversité de la métropole de Nice
- 2021-présent: Membre, Scientific Advisory Board, Research Mission of the German Marine Research Alliance (Marine carbon sinks in decarbonisation pathways; CDRmare)
- 2021-présent : Président, Ocean Acidification & other ocean Changes – Impacts and Solutions (OACIS), Fondation Prince Albert II de Monaco
- 2021-2022 : Membre, Scientific Committee, BNP Paribas Foundation
- 2021-présent : Membre, International Advisory Board of the Aqaba Marine Park, Jordan
- 2021-présent : Membre, Comité scientifique du Programme Prioritaire de Recherche "Océan de solutions"
- 2021-2022 : Membre, Conseil métropolitain sur le climat, Métropole Nice Côte d'Azur
- 2021-2022 : Membre, Agence de sécurité sanitaire, environnementale et de gestion des risques, Métropole Nice Côte d'Azur
- 2018-2022 : Membre, Scientific and Technical Advisory Committee, Copernicus Marine Environment Monitoring Service
- 2017-2019 : Coordinating Lead and Contributing Author, IPCC Special Report on the Ocean and Cryosphere in a Changing Climate
- 2017-2019 : Contributing Author, IPCC Special Report on Global Warming of 1.5 °C
- 2016-présent : Membre, Comité scientifique de la Division Terre et Environnement de l'Académie Européenne des Sciences

- 2013-2020 : Membre, Conseil scientifique de Office parlementaire d'évaluation des choix scientifiques et technologiques (OPECST)
- 2012-present : Membre, Advisory Board of the Ocean Acidification International Coordination Centre
- 2008-2012 : Membre, Comité scientifique du programme IGBP-SCOR *Integrated Marine Biogeochemistry and Ecosystem Research* (IMBER)
- 2008-2012 : Coordinateur du projet européen sur l'acidification des océans ([EPOCA](#))

Contrats de recherche (liste partielle)

- *The future of Arctic coastal ecosystems - Identifying transitions in fjord systems and adjacent coastal areas*, European Commission H2020 (2020-2024)
- La conchyliculture dans un monde riche en CO₂, Fonds européen pour les affaires maritimes et la pêche (2020-2022)
- *Southern Ocean pH Monitoring*, Fondation Prince Albert II de Monaco (2017-2018)
- *The Ocean Solutions Initiative*, Veolia Fondation, Fondation Prince Albert II de Monaco, Ocean Acidification International Coordination Centre (2016-2020)
- *Integrated Arctic Observation System* (INTAROS), European Commission (2016-2020)
- HighCO₂Seas, Fondation Total, (2016-2018)
- *Small islands addressing climate change: towards storylines of risk and adaptation* (STORISK), ANR (2016-2021)
- AWIPEV-CO₂, Institut polaire français Paul Émile Victor (2015-2020)

Sélection d'articles—Une liste complète est disponible ici: <https://bit.ly/3BMZH3j>

Ma production comporte un "hot paper"¹ et 9 "highly cited papers". J'ai été désigné "Highly cited researcher" en 2021 et 2022.

- <2018 Gattuso J.-P., Frankignoulle M. & Wollast R., 1998. Carbon and carbonate metabolism in coastal aquatic ecosystems. *Annual Review of Ecology and Systematics* 29:405-434.
- Gattuso J.-P., Frankignoulle M. & Smith S. V., 1999. Measurement of community metabolism and significance of coral reefs in the CO₂ source-sink debate. *Proceedings of the National Academy of Science U.S.A.* 96:13017-13022.
- Gattuso J.-P. & Buddemeier R. W., 2000. Ocean biogeochemistry: calcification and CO₂. *Nature* 407:311-312.
- Gattuso J.-P. & Hansson L. (eds.), 2011. *Ocean acidification*, 326 p. Oxford: Oxford University Press.
- Kroeker K., Kordas R., Crim R., Hendriks I., Ramajo L., Singh G., Duarte C. & Gattuso J.-P., 2013. Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming. *Global Change Biology* 19:1884-1896.
- Wong P. P., Losada I. J., Gattuso J.-P., Hinkel J., Khattabi A., McInnes K., Saito Y. & Sallenger A., 2014. Coastal systems and low-lying areas. In: Field C. B. et al. (Eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 361-409. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.
- Gattuso J.-P., Hoegh-Guldberg O. & Pörtner H.-O., 2014. Coral reefs. In: Field C. B. et al. (Eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 97-100. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.
- Gattuso J.-P., Brewer P., Hoegh-Guldberg O., Kleypas J. A., Pörtner H.-O. & Schmidt D., 2014. Ocean acidification. In: Field C. B. et al. (Eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 129-131. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.
- Gattuso J.-P., Kirkwood W., Barry J. P., Cox E., Gazeau F., Hansson L., Hendriks I. E., Kline D. I., Mahacek P., Marker M., Martin S., McElhany P., Peltzer E. T., Reeve J., Roberts D., Saderne V.,

Tait K., Widdicombe S. & Brewer P., 2014. Free-ocean CO₂ enrichment (FOCE) systems: present status and future developments. *Biogeosciences* 11:4057-4075.

Gattuso J.-P., Magnan A., Billé R., Cheung W. W. L., Howes E. L., Joos F., Allemand D., Bopp L., Cooley S., Eakin C. M., Hoegh-Guldberg O., Kelly R. P., Pörtner H., Rogers A. D., Baxter J. M., Laffoley D., Osborn D., Rankovic A., Rochette J., Sumaila U. R., Treyer S. & Turley C., 2015. Contrasting futures for ocean and society from different anthropogenic CO₂ emissions scenarios. *Science* 349:aac4722.

Orr J. C., Epitalon J.-M. & Gattuso J.-P., 2015. Comparison of ten packages that compute ocean carbonate chemistry. *Biogeosciences* 12:1483-1510.

Riebesell U. & Gattuso J.-P., 2015. Lessons learned from ocean acidification research. *Nature Climate Change* 5:12-14.

Magnan A. K., Colombier M., Billé R., Hoegh-Guldberg O., Joos F., Pörtner H.-O., Waisman H., Spencer T. & Gattuso J.-P., 2016. Implications of the Paris Agreement for the ocean. *Nature Climate Change* 6:732-735.

Moya A., Howes E. L., Lacoue-Labarthe T., Forêt S., Hanna B., Medina M., Munday P. L., Ong J.-S., Teyssié J.-L., Torda G., Watson S.-A., Miller D. J., Bijma J. & Gattuso J.-P., 2016. Near-future pH conditions severely impact calcification, metabolism and the nervous system in the pteropod *Heliconoides inflatus*. *Global Change Biology* 22:3888-3900.

Kapsenberg L., Alliouane S., Gazeau F., Mousseau L. & Gattuso J.-P., 2017. Coastal ocean acidification and increasing total alkalinity in the northwestern Mediterranean Sea. *Ocean Science* 13:411-426.

2018 Bittig H. C., Steinhoff T., Claustre H., Fiedler B., Williams N. L., Sauzède R., Körtzinger A. & Gattuso J.-P., 2018. An alternative to static climatologies: robust estimation of open ocean CO₂ variables and nutrient concentrations from T, S, and O₂ data using Bayesian neural networks. *Frontiers in Marine Science* 5:328.

Boyd P. W., Collins S., Dupont S., Fabricius K., Gattuso J. P., Havenhand J., Hutchins D. A., Riebesell U., Rintoul M. S., Vichi M., Biswas H., Ciotti A., Gao K., Gehlen M., Hurd C. L., Kurihara H., McGraw C. M., Navarro J. M., Nilsson G. E., Passow U. & Pörtner H.-O., 2018. Experimental strategies to assess the biological ramifications of multiple drivers of global ocean change - a review. *Global Change Biology* 24:2239-2261.

Cramer W., Guiot J., Fader M., Garrabou J., Gattuso J.-P., Iglesias A., Lange M. A., Lionello P., Llasat M. C., Paz S., Peñuelas J., Snoussi M., Toreti A., Tsimplis M. N. & Xoplaki E., 2018. Climate change and interconnected risks to sustainable development in the Mediterranean. *Nature Climate Change* 8:972-980.

Gattuso J.-P., Magnan A. K., Bopp L., Cheung W. W. L., Duarte C. M., Hinkel J., Mcleod E., Micheli F., Oschlies A., Williamson P., Billé R., Chalastani V. I., Gates R. D., Irisson J.-O., Middelburg J. J., Pörtner H.-O. & Rau G. H., 2018. Ocean solutions to address climate change and its effects on marine ecosystems. *Frontiers in Marine Science* 5:337.

Kapsenberg L., Miglioli A., Bitter M. C., Tambutté E., Dumollard R. & Gattuso J.-P., 2018. Ocean pH fluctuations affect mussel larvae at key developmental transitions. *Proceedings of the Royal Society of London. Series B: Biological Sciences* 285:20182381.

Orr J. C., Epitalon J.-M., Dickson A. G. & Gattuso J.-P., 2018. Routine uncertainty propagation for the marine carbon dioxide system. *Marine Chemistry* 207:84-107.

2019 Abram N., Gattuso J.-P., Prakash A., Chen L., Chidichimo M. P., Crate S., Enomoto H., Garschagen M., Gruber N., Harper S., Holland E., Kudela R. M., Rice J. D., Steffen K. & von Schuckmann K., 2019. Framing and context of the report. In: Pörtner H.-O., Roberts D., Masson-Delmotte V. & Zhai P. (Eds.), *Special Report on Ocean and Cryosphere in a Changing Climate*, pp. 73-129. Geneva: Intergovernmental Panel on Climate Change.

Bitter M. C., Kapsenberg L., Gattuso J.-P. & Pfister C. A., 2019. Standing genetic variation fuels rapid adaptation to ocean acidification. *Nature Communications* 10:5821.

IPCC, 2019. Summary for Policymakers. In: Pörtner H.-O., Roberts D. C., Masson-Delmotte V., Zhai P., M T., Poloczanska E., Mintenbeck K., Nicolai M., Okem A. & Petzold J. (Eds.), *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*, pp. 3-35. Geneva: Intergovernmental Panel on Climate Change.

Magnan A. K., Garschagen M., Gattuso J.-P., Hay J. E., Hilmi N., Holland E., Isla F., Kofinas G., Losada I. J., Petzold J., Ratter B., Schuur T., Tabe T. & van de Wal R., 2019. Integrative cross-chapter box on low-lying islands and coasts. In: Pörtner H.-O., Roberts D., Masson-Delmotte

V. & Zhai P. (Eds.), *Special Report on Ocean and Cryosphere in a Changing Climate*, pp. 657-674. Geneva: Intergovernmental Panel on Climate Change.

- Stark J. S., Peltzer E. T., Kline D. I., Queirós A. M., Erin Cox T., Headley K., Barry J., Gazeau F., Runcie J. W., Widdicombe S., Milnes M., Roden N. P., Black J., Whiteside S., Johnstone G., Ingels J., Shaw E., Bodrossy L., Diego Gaitan-Espitia J., Kirkwood W. & Gattuso J. P., 2019. Free Ocean CO₂ Enrichment (FOCE) experiments: scientific and technical recommendations for future in situ ocean acidification projects. *Progress in Oceanography* 172:89-107.
- von Schuckmann K., Le Traon P.-Y., Smith N., Pascual A., Djavidnia S., Gattuso J.-P., Grégoire M. & Nolan G., 2019. Copernicus Marine Service Ocean State Report. *Journal of Operational Oceanography* 12:S1-S123.
- 2020** Coppola L., Boutin J., Gattuso J.-P., Lefèvre D. & Metzl N., 2020. The carbonate system in the Ligurian Sea. In: Migon C., Nival P. & Sciandra A. (Eds.), *The Mediterranean Sea in the era of global change (volume 1) - Evidence from 30 years of multidisciplinary study of the Ligurian sea*, pp. 79-104. London: ISTE Science Publishing LTD.
- Duarte C. M., Agustí S., Barbier E., Britten G. L., Castilla J. C., Gattuso J.-P., Fulweiler R. W., Hughes T. P., Knowlton N., Lovelock C. E., Lotze H. K., Predragovic M., Poloczanska E., Roberts C. & Worm B., 2020. Rebuilding marine life. *Nature* 580:39-51.
- Fourrier M., Coppola L., Claustre H., d'Ortenzio F., Sauzède R. & Gattuso J. P., 2020. A regional neural network approach to estimate water-column nutrient concentrations and carbonate system variables in the Mediterranean Sea: CANYON-MED. *Frontiers in Marine Science* 7:620.
- Gattuso J.-P., Gentili B., Antoine D. & Doxaran D., 2020. Global distribution of photosynthetically available radiation on the seafloor. *Earth System Science Data* 12:1697-1709.
- Teixidó N., Caroselli E., Alliouane S., Ceccarelli C., Comeau S., Gattuso J.-P., Fici P., Micheli F., Mirasole A., Monismith S. G., Munari M., Palumbi S. R., Sheets E., Urbini L., De Vittor C., Goffredo S. & Gambi M. C., 2020. Ocean acidification causes variable trait shifts in a coral species. *Global Change Biology* 26:6813-6830.
- 2021** Bitter M. C., Kapsenberg L., Silliman K., Gattuso J.-P. & Pfister C. A., 2021. Magnitude and predictability of pH fluctuations shape plastic responses to ocean acidification. *The American Naturalist* 197:486-501.
- Carbonne C., Teixidó N., Moore B., Mirasole A., Guttierrez T., Gattuso J.-P. & Comeau S., 2021. Two temperate corals are tolerant to low pH regardless of previous exposure to natural CO₂ vents. *Limnology and Oceanography* 66:4046-4061.
- Duvat V. K. E., Magnan A. K., Perry C. T., Spencer T., Bell J. D., Wabnitz C., Webb A. P., White I., McInness K. L., Gattuso J.-P., Graham N. A. J., Nunn P. D. & Le Cozannet G., 2021. Risks to future atoll habitability from climate-driven environmental changes. *WIREs Climate Change* 12:e700.
- Gattuso J.-P., Epitalon J.-M., Lavigne H. & Orr J., 2021. seacarb: seawater carbonate chemistry. R package version 3.2.16. <https://CRAN.R-project.org/package=seacarb>
- Gattuso J.-P., Williamson P., Duarte C. & Magnan A. K., 2021. The potential for ocean-based climate action: negative emissions technologies and beyond. *Frontiers in Climate* 2:575716.
- Kleypas J., Allemand D., Anthony K., Baker A. C., Beck M., Hale L. Z., Hilmi N., Hoegh-Guldberg O., Hughes T., Kaufman L., Kayanne H., Magnan A., Mcleod E., Mumby P., Palumbi S., Richmond R., Rinkevich B., Steneck R. S., Voolstra C. R., Wachenfeld D. & Gattuso J.-P., 2021. Designing a blueprint for coral reef survival. *Biological Conservation* 257:109107.
- Magnan A. K., Pörtner H.-O., Duvat V. K. E., Garschagen M., Guinder V. A., Hoegh-Guldberg O., Zommers Z. & Gattuso J.-P., 2021. Estimating the global aggregated risk of anthropogenic climate change. *Nature Climate Change* 11:879-885.
- von Schuckmann K., Le Traon P.-Y., Smith N., Pascual A., Djavidnia S., Gattuso J.-P. (eds), 2021. Copernicus Marine Service Ocean State Report, Issue 5. *Journal of Operational Oceanography* 14:1-185.
- Williamson P., Pörtner H.-O., Widdicombe C. E. & Gattuso J.-P., 2021. Ideas and Perspectives: When ocean acidification experiments are not the same, repeatability is not tested. *Biogeosciences* 18:1787-1792.
- 2022** Carbonne C., Comeau S., Chan P. T. W., Plichon K., Gattuso J.-P. & Teixidó N., 2022. Early life stages of a Mediterranean coral are vulnerable to ocean warming and acidification. *Biogeosciences* 19:4767-4777.

- Duarte C. M., Gattuso J.-P., Hancke K., Gundersen H., Filbee-Dexter K., Pedersen M. F., Middelburg J. J., Burrows M. T., Krumhansl K. A., Wernberg T., Moore P., Pessarrodona A., Bachmann Ørberg S., Pinto I. S., Assis J., Queirós A. M., Smale D. A., Bekkby T., Serrão E. A. & Krause-Jensen D., 2022. Global estimates of the extent and production of macroalgal forests. *Global Ecology and Biogeography* 31:1422-1439.
- Fourrier M., Coppola L., d'Ortenzio F., Migon C. & Gattuso J.-P., 2022. Impact of intermittent convection in the northwestern Mediterranean Sea on oxygen content, nutrients and the carbonate system. *Journal of Geophysical Research- Oceans* 127:e2022JC018615.
- Garrabou J., Gómez-Gras D., Medrano A., Cerrano C., Ponti M., Schlegel R., Bensoussan N., Turicchia E., Sini M., Gerovasileiou V., Teixido N., Mirasole A., Tamburello L., Cebrian E., Rilov G., Ledoux J., Souissi J. B., Khamassi F., Ghanem R., Benabdi M., Grimes S., Ocaña O., Bazairi H., Hereu B., Linares C., Kersting D. K., la Rovira G., Ortega J., Casals D., Pagès-Escolà M., Margarit N., Capdevila P., Verdura J., Ramos A., Izquierdo A., Barbera C., Rubio-Portillo E., Anton I., López-Sendino P., Díaz D., Vázquez-Luis M., Duarte C., Marbà N., Aspillaga E., Espinosa F., Grech D., Guala I., Azzurro E., Farina S., Cristina Gambi M., Chimienti G., Montefalcone M., Azzola A., Mantas T. P., Fraschetti S., Ceccherelli G., Kipson S., Bakran-Petricioli T., Petricioli D., Jimenez C., Katsanevakis S., Kizilkaya I. T., Kizilkaya Z., Sartoretto S., Elodie R., Ruitton S., Comeau S., Gattuso J.-P. & Harmelin J., 2022. Marine heatwaves drive recurrent mass mortalities in the Mediterranean Sea. *Global Change Biology* 28:5708-5725.
- Gattuso J.-P., Jiao N., Chen F., Jouzel J., Le Quéré C., Lu Y., Tréguer P., von Schuckmann K., Wang Z. L. & Zang J., 2022. *Ocean-based climate action*. 12 p. Beijing and Brussels: Chinese Academy of Sciences and European Academy of Sciences.
- Jiang L.-Q., Pierrot D., Wanninkhof R., Feely R. A., Tilbrook B., Alin S. R., Barbero L., Byrne R. H., Carter B. R., Dickson A. G., Gattuso J.-P., Greeley D., Hoppema M., Humphreys M. P., Karstensen J., Lange N., Lauvset S. K., Lewis E., Olsen A., Pérez F. F., Sabine C., Sharp J., Tanhua T., Trull T., Velo A., J. Allegra A. J., Barker P., Burger E., Cai W.-J., Chen C. T. A., N Cross J. N., Garcia H., Hernandez-Ayon J. M., Hu X., Kozyr A., Langdon C., Lee K., Salisbury J., Wang Z. A. & Xue L., 2022. Best practice data standards for discrete chemical oceanographic observations. *Frontiers in Marine Science* 8:705638.
- Kapsenberg L., Bitter M. C., Miglioli A., Aparicio-Estalella C., Pelejero C., Gattuso J.-P. & Dumollard R., 2022. Molecular basis of ocean acidification sensitivity and adaptation in *Mytilus galloprovincialis*. *iScience* 25:104677.
- Pessarrodona A., Assis J., Filbee-Dexter K., Burrows M. T., Gattuso J.-P., Duarte C. M., Krause-Jensen D., Moore P. J., Smale D. A. & Wernberg T., 2022. Global seaweed productivity. *Science Advances* 8:10.1126/sciadv.abn2465.
- Williamson P. & Gattuso J.-P., 2022. Carbon removal using coastal blue carbon ecosystems is uncertain and unreliable, with questionable climatic cost-effectiveness. *Frontiers in Climate* 4.
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- Fourrier M., Coppola L., d'Ortenzio F., Migon C. & Gattuso J.-P., 2022. Impact of intermittent convection in the northwestern Mediterranean Sea on oxygen content, nutrients and the carbonate system. *Journal of Geophysical Research- Oceans* 127:e2022JC018615.
- Lebrun A., Comeau S., Gazeau F. & Gattuso J.-P., 2022. Impact of climate change on coastal Arctic benthic communities. *Global and Planetary Change* 219:103980.
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- 2023** Boyd P. W., Claustre H., Legendre L., Gattuso J.-P. & Le Traon P.-Y., in press. Operational monitoring of open-ocean carbon dioxide removal deployments: detection, attribution, and determination of side-effects. *Oceanography* 36.
- Schlegel R., Bartsch I., Bischof K., Bjørst L., Dannevig H., Diehl N., Duarte P., Hovelsrud G., Juul-Pedersen T., Lebrun A., Merillet L., Miller C., Ren C., Sjer M., Søreide J. & Gattuso J.-P., 2023. Drivers of change in Arctic fjord socio-ecological systems: examples from the European Arctic. *Cambridge Prisms: Coastal Futures* 1:E13.