

Carlos Octavio Letelier-Gordo – Short CV

ORCID

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Degrees

- BSc, Marine Science – Universidad Catolica del Norte, Chile, 2007.
- Aquacultural Engineer – Universidad Catolica del Norte, Chile, 2009.
- MSc, Eng. Civil environmental Engineer - Technical University of Denmark, Denmark, 2013.
- PhD, Aquaculture - Technical University of Denmark, Denmark, 2017.

Positions

Academia

- Project Engineer/manager – Universidad Catolica del Norte, Chile. 2005-2008.
- PhD. student - Technical University of Denmark, Denmark - 2014-2017.
- Post doc - Technical University of Denmark, Denmark - 2017-2019.
- Research scientist - Technical University of Denmark, Denmark - 2019-2023
- Senior Researcher – Technical University of Denmark 2024- up to date

Industry

- Project Manager and Engineer / Project Co Director, Universidad Católica del Norte, Chile, 2005-2010.
- System Engineering consultant, Gourmet Marine Ltd, Ireland. 2011-2013.
- CEO and Project Engineer, Aquaculture Consultant Engineering (ACE Ltda), Chile, 2008-2011.

Memberships of scientific committees/Community leadership

- Vice president study board Aquacultural engineering career, Universidad Catolica del Norte, Chile 2000-2003
- Vice president Aquacultural Engineering Society (AES), US – 2018-2020.
- President Aquacultural Engineering Society (AES), US – 2020-2022.
- BOD Aquacultural Engineering Society (AES), US – 2022-2023.

Research area

Originally trained as an Aquacultural Engineer in Chile, working on the Applied Aquaculture Engineering Unit, where he was involved in the design of marine culture centers and recirculating marine aquaculture systems (RAS). Later earned an MSc in Civil and Environmental Engineering and a PhD from the Technical University of Denmark (DTU). Currently, working in End-of-Pipe, focusing on the valorization of residual resources in RAS. His research emphasizes denitrification, phosphorus removal, biogas production, aquaponics, and hydrogen sulfide (H₂S) management.

Memberships of scientific committees (last 5 years)

- BOD Niva Chile, Chile – 2023 – up to date´.

Publications

Type of publication:	Number
Web of Science publications:	17
Citations:	382
h-index:	12
Other peer review publications:	8
Books:	
Book chapters:	1
Reports:	2

International conferences (last 5 years)

Type of participation:	Number
Contributions as first author:	22
Invited:	8
Organizing role:	4

Evaluation tasks and reviews (last 5 years)

- Evaluation research proposals Saltonstall-Kennedy (S-K) Grant Program Federal Funding Opportunity (FFO)
- Review assignments (+20) for various peer reviewed journals (Aquacultural Engineering, Aquaculture, Journal of Environmental Science, Science of Total Environment, Bioresource Technology, Agronomy Society and Environment).

Advisory tasks (last 5 years)

Educational tasks at academical level (last 5 years)

At academical level

Lecturer at Technical University of Denmark, Denmark (DTU)

- 2013-2016: Lecture for DTU Aqua MSc program. Denitrification in Aquaculture, Course: 25316 Recirculating Aquaculture Systems
- 2014-2015: Lecture for DTU Aqua MSc program. Denitrification in Aquaculture. Course: 25322 Advanced Recirculating Aquaculture Systems: Design and Application.
- 2017-2019: Bacteria in Aquaculture, DTU BSc program, Course: 12701 Introduction to Living systems
- 2020-2022: Lecture for DTU Aqua MSc program. End-of-Pipe treatment in Aquaculture. Course: 25322 Advanced Recirculating Aquaculture Systems: Design and Application.
- 2024: Course coordinator 25351 Aquaculture End-of-pipe treatment with focus on residual resources

Supervisor MSc Thesis

- 2018. Levels of H₂S gas produced in RAS with different salinities and the effect of adding nitrate in commercial salmon hatcheries. Simen Thorsed (NTNU).
- 2018. Denitrification in saltwater recirculating aquaculture systems (RAS) using an up-flow sludge blanket reactor (USB). Martin Herreros (DTU).
- 2019. Application of sequencing batch reactor in seawater aquaculture denitrification. Xiaoyu Huang (DTU).
- 2019. Evaluation of coagulation/flocculation aids on the removal of suspended solids and phosphates from a saltwater RAS effluent. Niels Llonch Llusa (DTU).
- 2021. Start-up of sulfur based autotrophic denitrification reactors in RAS. Sarah Perche (DTU).
- 2024 Strategies for removing hydrogen sulfide in brine-based RAS. Andreas Blach (DTU)
- 2025. Utilizing Fluorescence Spectroscopy to monitor and optimize the growth of *Asparagopsis* sp. Sarah Bartels.

Co-supervisor PhD Thesis

- 2021-2023. Hydrogen sulfide in marine recirculating aquaculture systems and the effects of hydrogen sulfide exposure on the metabolism, welfare, and production performance of Atlantic salmon (*Salmo salar*). Julie Hansen Bergstedt, 2023. DTU Aqua (delivered)
- 2022-2025. Engineering biorefineries of RAS effluents to combine marine aquaculture and algae production. Sarah Perche, 2023. University of Murcia (ongoing). Eco-Innovative Aquaculture System Training for European Industrial Doctorates EASYTRAIN. Marie Curie agreement 656129.

Supervisor Special courses

- 2017. Development and application of a method for quantifying sludge degradability in saline recirculating aquaculture systems (RAS). Miguel Martin.
- 2022. Aquaculture engineering and design. Bence Daniel Kovacs.
- 2022. Defining C:N ratio set point operation for activated sludge denitrification in salt water RAS. Andreas Blach.

- 2022. Oxidation of Hydrogen sulfide under different ozone dosages. Antonio Tsakaris.
- 2022. Basic engineering design of integrated aquaponic systems. Olivia Anne Hjortbak Kanaskie.
- 2022. Design and Evaluation of a Pilot Scale Aquaponic System. Andreas Black, Asa Maria Olsen, Lillie Zegeling.
- 2023: Defining C:N ratio setpoint deirft for activated sludge denitrification in saline RAS. Andreas Black
- 2023: Oxidation kinetics of hydrogen sulfide with ozone. Andreas Black
- 2023: Internship; Spectro inlets real-time mass pectrometry and detection of gases in aquaculture
- 2024: Computer vision and system design for plant cultivation in an aquaponic system. Lui Tonglei, Jaime Pons, Madelyn Saranto
- 2024. Bioremediation of wastewater from aquaculture by production of red alageAsparagopsis sp. And optimization of cultivation conditions. Sarah Baterls, Emma Jensen
- 2024. Shrimp farming design. Jaime Pons
- 2025. Water quality characterization and evaluation of Chilean RAS. Internship Sergio Goncalves.
- 2025. Modelling and optimizatiuon in Recirculation Aquaculture System (RAS) End-of-pipe (EOP) treatment.

Supervisor Internships

- 2019. Erasmus traineeship – Ferran Llorente Poblador. Universidad Politecnica de Cataluna.
- 2023. Internship Spectro Inlets real time mass spectrometry and detection of gasses in aquaculture. Andreas Black. DTU Aqua.
- 2023. End-of-pipe Treatment Solutions for Recirculating Aquaculture Systems. Hu Ching Seow. Wageningen University.
- 2024 Nutrient uptake from different vegetables in deep water culture. Paul Helmet, Department of Nature and Engineering, Hoxhschule Bremen
- 2024. Evaluating decoupled aquaponics in dee water culture. Benjamin Arellano, Tampere University of Applied Sciences, Finland.

Life long learning

- 2022-2028 Competence and education in land-based RAS production of salmon.The Artic University of Norway (UiT)

Supervision (ongoing or finished in the last 5 years)

	Principal/main supervisor	Co-supervisor
Other (MSc etc.)	7	0
PhD:	0	2
Postdoc:	3	0

Innovation activities (last 5 years)

	Number
Patents:	1 (in progress)

- List main innovation activities

Collaboration with other stakeholders (within last 5 years)

Grants (competitive) (ongoing or finished within last 5 years)

Coordinator

- 2024-2026: End of pipe digitalized solutions. The European Maritime and Fisheries Fund (EMFF) and the Danish Fisheries Agency.
- 2021-2023. Innovative final cleaning technologies for nitrogen, phosphorous and organic matter from recirculating aquaculture systems. The European Maritime and Fisheries Fund (EMFF) and the Danish Fisheries Agency.
- 2020. Eurostart "Greengold"

- 2010-2011. Training the knowledge's required to develop sustainable seaweed culture throughout Hatchery and sea culture. Chilean governmental fund CORFO.
- 2010-2012. Transfer of the knowledge's and technologies required for the development of industrial Chilean red sea urchin culture (*Loxechinus albus*). Governmental funded project. CORFO

Leader of a work package

- 2025-2026: Interflow, integrated flow of nutrient dense fish farm wastewater for bioremediation and generation of high value seaweed biomass used to eradicate cow methane emission. Innovation Fund Denmark. Agrifoodture.
- 2024-2026: New and improved biological and mechanical water treatment technologies for the reduction of the environment impact from aquaculture facilities. The European Maritime and Fisheries Fund (EMFF) and the Danish Fisheries Agency.
- 2024-2026. Efficient N and P removal in RAS aquaculture. The Danish Ministry of Food, Agriculture and Fisheries through the Green Development and Demonstration Program (GUDP).
- 2022-2024: Sustainable utilization of MARIne resources to foster GREEN plant production in Europe
- 2021-2023. Aquaculture On-Line: Real-time mass spectrometric measurements in recirculating aquaculture systems. MUDP (Danish Eco-Innovation program)
- 2022-2024. Sustainable utilization of Marine Resources to foster Green plant production in Europe. EU Horizon 2020 Bluebio cofund.
- 2022-2023. Aquaponic production as part of social enterprise. European Regional development Fund and the Danish Board of Business Development.
- 2018-2020. Sustainable Value Chains in Colombia. Danida.
- 2017-2020. Innovative removal of N, P and organic matter in effluents from recirculating aquaculture systems. EU Horizon 2020 and Innovation Denmark.
- 2014-2017. Cost effective solutions for reducing the waste discharged in land-based marine recirculating aquaculture systems. The Danish Ministry of Food, Agriculture and Fisheries through the Green Development and Demonstration Program (GUDP).
- 2007-2010. Development of recirculating technology to reduce the risk in land-based abalone culture, increasing company competitiveness. The Scientific and Technological Development Support Fund, Chile (FONDEF).
- 2006-2009. Increase of the efficiency in the production of red and green abalone (*Haliotis discus hannai*) seeds throughout the control of abiotic variables in a closed system and the development of a specific diet for broodstock. The Scientific and Technological Development Support Fund, Chile (FONDEF).

Participant

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- 2023-2026: CO2 fix: Fixation potential and nutritional value of microalgae produced in modular mobile photo-bioreactors. Danish Maritime, Fisheries and Aquaculture Programme (EMFAF).
- 2022-2028: CandRAS: Competence and education in land-based RAS production of salmon. The Research Council of Norway
- 2022-2025: Revealing and controlling previously unexplored H2S bacteria. Sapere Aude grant (Independent Research Fund Denmark).
- 2020-2023. Prevalence and consequences of hydrogen sulphide in land-based Atlantic salmon production (The Research council of Norway).
- 2019-2023. Sulphate removal by membrane filtration technology to reduce the risk of fish death due to H₂S in recirculating aquaculture systems (The Research council of Norway).
- 2018-2021. Industrial 4.0 meta system for all operators in the aquaculture sector (MUDP)
- 2013-2016. Environmentally effective nitrogen removal in fish farming using sludge hydrolysis (GUDP).
- 2012-2015. Development of sustainable technologies and modeling tools in aquaculture aiming at increasing overall production (EFF).
- 2008-2010. Design of a purification plant for fisherman association Peñuelas. The Scientific and Technological Development Support Fund, Chile (FONDEF).
- 2006-2009. Research and development of a base technology for the production of Cojinoba del Norte (*Serieolella violacea*). The Scientific and Technological Development Support Fund, Chile (FONDEF).

Selected publications

Rapid H₂S production in layers of freshwater and marine fish organic waste from recirculating aquaculture systems. Nguyen-tiêt, A. M., Letelier-Gordo, C. O. & Aalto, S. L., 2025, In: Aquacultural Engineering. 111, 9 p., 102578.

Exposure to sublethal levels of H₂S does not influence the short-term growth or feed utilization in post-smolt Atlantic salmon (*Salmo salar*) during restrictive feeding. Julie Hansen Bergstedt*, Carlos Octavio Letelier-Gordo, Peter Vilhelm Skov. Aquaculture, 590, Article 741093

Saline fish wastewater in biogas plants - Biomethanation toxicity and safe use.
Letelier-Gordo, C. O., Mancini, E., Pedersen, P. B., Angelidaki, I., Fotidis, I., 2020
Journal of environmental science. 275, 111233.

Increased sulfate availability in saline water promotes hydrogen sulfide production in fish organic waste
Letelier-Gordo, C. O., Aalto, S. L., Suurnäkki, S., Pedersen, P. B., 2020.
Aquacultural Engineering. 89, 102062.

Denitrifying granules in a marine Upflow Anoxic Sludge Bed (UASB) reactor
Letelier-Gordo, C. O., Herreros, M. M., 2019. Aquacultural Engineering. 84, 42-29.