Muhammed Alolade Oyinlola, PhD

- The University of British Columbia, 4207 6270 University Boulevard Vancouver BC, V6T1Z4
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- **6**047802711
- **Google Scholar**
- Permanent resident of Canada

Profile

I am a dedicated professional with a profound passion for environmental science and a commitment to addressing global challenges. My career goal is to leverage my expertise in environmental science, predictive models, scenario development, and interdisciplinary data to contribute meaningfully to the resolution of pressing issues such as anthropogenic impacts on the environment and ecosystems, climate change, and food security.

Education

2019/10 **PhD Zoology**

Vancouver, Canada University of British Columbia

Dissertation: "Global seafood production from mariculture: current status,

trends and its future under climate change."

Supervisor: Prof. William Cheung

2014/09 MSc International Studies in Aquatic Tropical Ecology

Bremen, Germany Universität Bremen

Thesis: "The dynamics and reproduction potential of Bonga Shad in Cross

River estuary and adjacent coastal waters." Supervisors: Dr Wener Ekau, Prof. Thomas Brey

2010/04 BSc Aquaculture and Fisheries Management

Abeokuta, Nigeria University of Agriculture, Abeokuta

Thesis: Growth, feed utilization and condition factor of Clarias gariepinus

fingerlings fed ad-libitum in outdoor and indoor hatcheries

Supervisor: Prof Abdul Waidi

Professional Experience

2021/09 – present Vancouver, Canada

Postdoctoral Fellow (Joint)

Institut National de la Recherche Scientifique (INRS), Quebec and Zoology Department, The University of British Columbia

- Investigate alternative management/policy for water releases to account for multiple species: Sockeye, Chinook, and White Sturgeon in the Nechako River;
- Develop a new approach to evaluate the impact of water releases on fish species using hydrological models and fish physiological data;

- Improve the understanding of thermal preferences and limits for key fish species in the Nechako River;
- Use climate change scenarios to investigate future flow and temperature and possible mitigation strategies;
- Organise Nechako River shareholders' meeting.

2019/11 – 2021/09 Vancouver, Canada

Postdoctoral Fellow

Institute for the Oceans and Fisheries

- Studied the effects of changing ocean on fisheries and aquaculture using bioeconomic models;
- Coordinated the documentation of the DIVERSE model;
- Designed scenarios development study for the Northern Shelf Bioregion;
- Organised stakeholder workshops.

2015/06 – 2019/10 Vancouver, Canada

Research Assistant

Institute for the Oceans and Fisheries

- Researched seafood production from mariculture under climate change;
- Updated the global mariculture database;
- Developed the global farm gate price database;
- Developed the site selection model for mariculture;
- Developed the Global Mariculture Potential Model (GOMAP);
- Organised mariculture workshops and public discussions.

2015/01 – 2015/04 Mosta, Malta

Aquatic Technician Intern

Aqua Biotech Group

- Wet-labs management and trials operations;
- Hatchery operations;
- Recirculatory aquaculture systems management;
- · Water quality assessment.

2014/09 – 2014/09 Bremen, Germany

Research Assistant

Leibniz Centre for Tropical Marine Ecology

- Survey data computation, analysis on marine resources use in Tanzania;
- · Literature review.

2013/10 – 2014/08 Bremen, Germany

Student Researcher

Leibniz Centre for Tropical Marine Ecology

- Conducted research campaign to Cross River estuary, Nigeria on Bonga shad fisheries;
- Estimation of population dynamics and reproduction potential;
- Age and growth determination by scales and otoliths analysis.

2013/04 – 2013/10 Calabar, Nigeria

Visiting Researcher

Institute of Oceanography, University of Calabar

- Conducted field surveys and sampling in Nigeria's coastal waters;
- collected data on the reproductive behaviours, timing, and environmental factors influencing *Ethmalosa fimbriata* reproduction.

2011/08 – 2013/09 Lagos, Nigeria	 Extension Officer Latia Global Agricultural Investment Limited, Ikotun Provided support to fish farmers; Coordinated fish breeding workshops; Provided business and marketing advice.
2009/08 – 2010/04 Abeokuta, Nigeria	 Student Researcher University of Agriculture, Abeokuta Conducted research into the growth performance of Clarias gariepinus Developed new economical compounded aquafeed for Clarias gariepinus Determination of optimal stocking density for Clarias gariepinus in recirculatory aquaculture systems
2009/01 – 2009/04 Ibadan, Nigeria	Aquaculture technician intern Chi Limited, Ajanla Farms, Lagos-Ibadan Express Road • General farm management.
2008/12 – 2008/12 Lagos, Nigeria	 Aquaculture technician intern Nigerian Institute for Oceanography and Marine Research (NIOMR) General farm management.
2008/10 – 2008/11 Abeokuta, Nigeria	Aquaculture technician intern UNAAB Integrated Fish Farm, Alabata Road • General farm management.
2008/07 – 2008/07	Research Assistant

University of Agriculture, Abeokuta

• Collection of morphometric data and fish gut content analysis

Teaching Experience

Abeokuta, Nigeria

2020 – present Vancouver, Canada	Guest Lecturer BIOL 420:Ocean conservation and sustainability UBC interdisciplinary conservation course Topic: The future of fishes, fisheries and aquaculture under climate change
2021/02 – 2021/02 Vancouver, Canada	Guest Lecturer Scripps Institution of Oceanography, University of California Seminar Topic: Global seafood production from mariculture
2021/11 – 2021/11 Vancouver, Canada	Guest Lecturer UBC EOSC 478 Introduction to Fisheries Science Topic: Global aquaculture: trends and future under climate change
2021/10 – 2021/10 Vancouver, Canada	Guest Lecturer UBC ZOOL 503: Comparative Animal Physiology Topic: Future of mariculture under climate change

2021/07 - 2021/07 **Guest Speaker** Bogor, Indonesia Vocational Studies IPB Univeristy, Indonesia summer course program Sustainability on Tropical Animal Production, with the specific theme Creating Innovation of the Animal Production Sector in the New Normal Era Topic: Aquaculture innovation to mitigate and adapt to climate change **Guest lecturer** 2020/12 – 2020/12 ZOOL 500B: Directed Studies in Zoology. Vancouver, Canada Topic: Ecological niches models and their usage 2018/07 - 2018/07 **Guest Lecturer** Xiamen, China Asia-Pacific Economic Cooperation (APEC) Training Workshop Eco-aquaculture and Utilization of Fishery Waste Topic: Specie distribution models application in aquaculture 2010/07 - 2011/06 **Training and Resource Officer** Makurdi, Nigeria Department of Fisheries, Training and Extension Centre, Ministry of Agriculture, Makurdi Organising several workshops and training classes for participants in fish production, farm design, and general fish farming management

■ Publications (Journal papers peer review)

2023	St-Hilaire, A., Oyinlola, M. A., Rincón, E., & Ferchichi, H. Six decades of research on river temperature in Canada □ Canadian Water Resources Journal / Revue Canadienne Des Ressources Hydriques, 1–25
2023	Cheung, W. W. L., Maire, E., Oyinlola, M. A., Robinson, J. P. W., Graham, N. A. J., Lam, V. W. Y., MacNeil, M. A., & Hicks, C. C. Climate change exacerbates nutrient disparities from seafood. Nature Climate Change. https://doi.org/10.1038/s41558-023-01822-1
2023	Oyinlola, M. A., Khorsandi, M., Penman, R., Earhart, M. L., Arsenault, R., Brauner, C. J., & St-Hilaire, A. Hydrothermal impacts of water release on early life stages of white Sturgeon in the Nechako river, (BC Canada). Journal of Thermal Biology, 103682.
2022	Sumaila, U. R., Pierruci, A., Oyinlola, M.A., Cannas, R., Froese, R., Glaser, S., Jacquet, J., Kaiser, B.A., Issifu, I., Micheli, F., Naylor, R., Pauly, D. Aquaculture over-optimism? Frontiers in Marine Science 9, doi:10.3389/fmars.2022.984354.
2022	Oyinlola, M. A., Reygondeau, G., Wabnitz, C. C. C., Frölicher, T. L., Lam, V. W. Y., & Cheung, W.W. L. Projecting global mariculture production and

adaptation pathways under climate change

Global Change Biology, 00, 1–17. https://doi.org/10.1111/gcb.15991

2022	Cheung, W.W., Palacios-Abrantes, J., Frölicher, T.L., Palomares, M.L., Clarke, T., Lam, V.W., Oyinlola, M.A., Pauly, D., Reygondeau, G., Sumaila, U.R. and Teh, L.C. Rebuilding fish biomass for the world's marine ecoregions under climate change. Global change biology, 28(21), pp.6254-6267.
2021	Cisneros-Montemayor, A.M., Moreno-Báez, M., Reygondeau, G., Cheung, W.W., Crosman, K.M., González-Espinosa, P.C., Lam, V.W., Oyinlola, M.A., Singh, G.G., Swartz, W., Zheng, C.W. and Ota, Y. Enabling conditions for an equitable and sustainable blue economy <i>Nature</i> , 591(7850), pp.396-401.
2021	Cheung, W.W., Frölicher, T.L., Lam, V.W., Oyinlola, M.A., Reygondeau, G., Sumaila, U.R., Tai, T.C., Teh, L.C. and Wabnitz, C.C. Marine high temperature extremes amplify the impacts of climate change on fish and fisheries Science Advances, 7(40), p.eabh0895.
2021	Tigchelaar, M., Cheung, W.W., Mohammed, E.Y., Phillips, M.J., Payne, H.J., Selig, E.R., Wabnitz, C.C., Oyinlola, M.A., Frölicher, T.L., Gephart, J.A. and Golden, C.D. Compound climate risks threaten aquatic food system benefits Nature Food, 2(9), pp.673-682.
2020	Gorosábel, A., Estigarribia, L., Lopes, L. F., Martinez, A. M., Martínez-Lanfranco, J. A., Adenle, A. A., Rivera-Rebella, C., and Oyinlola, M.A. Insights for policy-based conservation strategies for the Rio de la Plata Grasslands through the IPBES framework. Biota Neotropica, 20.
2020	Oyinlola, M. A., Reygondeau, G., Wabnitz, C. C., and Cheung, W. W. Projecting global mariculture diversity under climate change <i>Global change biology</i> , 26(4), 2134-2148.
2019	Cisneros-Montemayor, A.M., Moreno-Báez, M., Voyer, M., Allison, E.H., Cheung, W.W.L., Hessing-Lewis, M., Oyinlola, M.A., Singh, G.G., Swartz, W., and Ota, Y. Social equity and benefits as the nexus of a transformative Blue Economy: A sectoral review of implications. Marine Policy 109, 103702.
2018	Cheung, W. W., and Oyinlola, M. A. Vulnerability of flatfish and their fisheries to climate change. Journal of sea research, 140, 1-10.
2018	Oyinlola, M. A., Reygondeau, G., Wabnitz, C. C., Troell, M., and Cheung, W. W. Global estimation of areas with suitable environmental conditions for mariculture species.

PloS one, 13(1), e0191086.

🛊 Publications in progress

Oyinlola, M.A., Khorsandi, M., Mayer, N., Butler, N., Van Wert, J.C., Eliason, E.J., Arsenault. R., Brauner, C.J., Hinch, S.G., and St-Hilaire, A. Evaluating the effectiveness of the current Nechako water management program on Chinook salmon under climate change scenarios.

Under review in Journal of Environmental Management

Oyinlola, M.A and Cheung, W.W.L. Navigating Uncertainty: Exploring Future Changes in Canada's Mariculture Production, Prices, and Employment under Different Emissions Scenarios.

Manuscript in preparation

Oyinlola, M. A., Wabnitz, C. C., Lam, V.W.Y., Nesar, A., Angkiriwang, P., Cox, R., Cao, L., Engler-Palma, C., and Cheung, W. W. "Scenarios for mariculture development in the twenty-first century using shared socioeconomic pathways"

Manuscript in preparation

Oyinlola, M.A. Empowering Africa's Future: Agenda 2063's Impact on Sustainable Seafood Security. *Manuscript in preparation*

Oyinlola, M. A., Khorsandi, M., Penman, R., Earhart, M. L., Arsenault, R., McAdam, S., Brauner, C. J., & St-Hilaire. Balancing Act: Assessing the Impact of Climate Change and Water Management Programs on White Sturgeon Physiology in Nechako River, British Columbia

Manuscript in preparation

Books

2020

2019

Dichiera, A., Jung, E., Oyinlola, M.A., and Brauner, C.J. The Future of Amazonian Aquatic Biota (Chapter 23: Limited Thermal Capacity of Amazonian Fishes to Survive in a Warming World, Physiological and Biochemical Processes)

In-Press

Adeyanju S., Mogaji E., Olusola J., and Oyinlola M.A. Factors Influencing Students' Choice of a Federal University: A Case Study of a Nigerian Federal University. In: Mogaji E., Maringe F., Ebo Hinson R. (eds) Higher

Education Marketing in Africa

Palgrave Macmillan, Cham

Oyinlola, M.A. Mariculture: perception and prospects under climate change. In A.M. Cisneros-Montemayor, W.W.L. Cheung, & Y. Ota (Eds), Predicting future oceans: Sustainability of ocean and human systems

amidst global environmental change

Elsevier (pp 227-239).

Report

Cheung, W. W. L., and Oyinlola, M. A. Dynamic Integrated Marine Climate, 2019

Biodiversity, Fisheries, Aquaculture and Seafood Market Model (DIVERSE)

[R]. doi:http://dx.doi.org/10.14288/1.0387414

Oyinlola, M. A. Global seafood production from mariculture: current 2019

status, trends and its future under climate change (Doctoral dissertation,

University of British Columbia). http://hdl.handle.net/2429/72044

2019 PBL. Report on the workshop 'From visions to scenarios for nature and

nature's contributions to people for the 21st century'. PBL Netherlands

Environmental Assessment Agency

The Hague, 2019 PBL publication number: 3756

Data statistics and modelling skills

Statistics and Machine Learning

Packages

R-Statistics, Matlab, G-Power, JMP

Courses and certifications

Modelling Packages

Species distribution models, Populus, Simile,

and Arcview

GIS package

Natal, Brazil

ArcGIS, QGIS, Grass GIS

2019/11 Foundations of Pedagogy 1

Centre for the Integration of Research, Teaching and Learning (CIRTL) Vancouver, Canada

2019/10 Foundations of Project Management I

Vancouver, Canada UBC-Graduate Pathways to Success and Mitacs Training

2019/07 Scenarios and Modelling on Biodiversity and Ecosystem Services to

Support Human Well-Being São Pedro, Brazil

São Paulo School of Advanced Science, São Paulo Research Foundation –

FAPESP

2016/08 ClimEco5 - Towards more resilient oceans: Predicting and projecting

future changes in the ocean and their impacts on human societies -

Integrated Marine Biosphere Research – IMBER

2013/09 Sustainable Natural Resource Management in Sub-Sahara Africa

Berlin, Germany DAAD Graduate Academic (Summer School)

Proficiency Certificate in Management, (PCM) 2011/03

Nigeria Institute of Management Nigeria

Awards

2015/05 **Research Fellowship**

> Nippon Foundation - Nereus Program, Canada Four-year research fellowship (2015-2019)

UBC Faculty of Applied Science Graduate Award 2015/05

Faculty of Science

Tuition awards (2015-2019)

International Tuition Awards 2015/05

Graduate and Postdoctoral Studies Graduate School

Tuition Awards (2015 - 2019)

Erasmus Plus Grants 2015/01

European Union

Grants support towards education, research and training

2012/08 **MSc Scholarship**

> Deutscher Akademischer Austauschdienst, Germany Educational and research scholarship (2012-2014)

2009/01 **Educational Scholarship**

Nigerian Muslim Education Network (NIMENT), Nigeria

Two-year educational scholarship (2007-2009)

***** Selected Conference abstract

2023 Oyinlola, M.A. Hydrothermal impacts of water release on early life stage

of resident species in the Nechako River, \(\mathbb{Q}(B.C. Canada). \)

CWRA 2023 National Conference

2019 Oyinlola, M.A. Mariculture: perception and prospects under climate

Princeton University, change.

Halifax, Canada

Nippon Foundation Nereus Ocean Science Conference 2019 – Reflecting Back NJ, USA

and Moving Forward

2018 Oyinlola, M.A., Reygondeau, G., Cashion, T., Wabnitz, C. C., & Cheung, W.

Washington, DC, USA W. Changes in fishmeal and fish oil supply under climate change.

In the proceeding of the 4th international symposium: The effect of climate

change on the world's oceans

2016 Oyinlola, M.A., Reygondeau, G, and Cheung W.W.L. Aquaculture and it's Montpellier, France

future under climate change: A new approach to impacts, adaptation and

vulnerability research.

In the proceeding of the International Conference on Scenarios and Models of

Biodiversity and Ecosystem Services in Support of Decision Making

2014 Oyinlola, M.A. and Adeboyejo F.M. Modelling the impact of sea surface Stralsund, Germany temperature on global mariculture production using ArcGIS

In the proceeding of YouMares 2014: Opportunities and Solutions- Research for

Our Changing Oceans,

2013 Adeboyejo, F.M and Oyinlola, M.A. Hot spots to the potential impact of

sea-level rise within coastal communities in Lagos state

In the proceeding of Tropentag Conference 2013: Agricultural development

within the rural-urban continuum

2013 Oyinlola, M.A. and Abdul, W.O. Growth, Feed Utilization and Condition

Factor of Clarias gariepinus Fingerlings Fed ad-libitum in Different

Hatcheries

In the proceeding of Tropentag Conference 2013: Agricultural development

within the rural-urban continuum

2013 Oyinlola, M.A and Lubuku, V.M. Mollusk fisheries and aquaculture: A tool

for significant removal of CO2 from the global budget?

Annual ISATEC Seminar

Community service

Stuttgart, Germany

Stuttgart, Germany

Bremen, Germany

2015 - present The Truth Feeding Program, Vancouver

Vancouver, Canada Cook

2020/09 - 2023/09 Canadian Parks and Wilderness Society, BC Chapter

Vancouver, Canada **Board Member**

Nigerian Red Cross Society 2010/07 – 2011/06

Makurdi, Nigeria Member

Federal Road Safety Club, Nigeria 2010/07 - 2011/06

Makurdi, Nigeria Member

Media expose

2023/11 Seafood diets, nutrients threatened by rising global heat □

Sustainability Times

2023/11 Low-income countries could lose 30% seafood nutrients from climate

change 🛮

Deccan herald

Low-income countries could lose 30% of nutrients like protein and 2023/11

omega-3 from seafood due to climate change

☑

UBC News

2022/11	World - Global aquaculture deemed to be "in decline" ☑ Coastal News Todal
2022/11	Study highlights a slowed global aquaculture growth rate and need to rebuild wild fish stocks Global Seafood Alliance
2022/11	Seafood farming's growth rate has already peaked, and now it's in decline ② oceans.ubc.ca
2022/11	Global aquaculture deemed to be "in decline" ☑ The Fish Site
2022/04	Growing aquaculture industry faces climate challenges <i>□ Coastalreview.org</i>
2021/12	Lowering emissions, plant-based diets needed to prevent farmed seafood declines Pique newsmagazine
2021/12	Farmed seafood supply at risk if we don't act on climate change, study finds ☑ independent.co.uk
2021/12	Climate change poses risk to aquaculture Business in Vancouver
2021/12	Lowering emissions, plant-based diets needed to prevent farmed seafood declines Vancouver is awesome
2021/12	Study: Climate Change Puts Farmed Seafood Production At Risk The Maritime Executive:
2021/12	Farmed seafood supply is at risk due to climate change
2012/12	Lowering emissions, plant-based diets needed to prevent farmed seafood declines 🛮 coastreporter.net
2021/12	Farmed seafood supply at risk if we don't act on climate change and news.ubc.ca
2021/12	Global supplies of farmed seafood at risk if we refuse to act on climate change ☑ thefishsite.com

2021/12	Farmed seafood supply at risk if climate change goes unaddressed, study predicts upi.com
2021/12	Will Climate Change Impact Future Global Farmed Seafood Supply? azocleantech.com
2021/12	Farmed Seafood Supply at Risk if We Don't Act on Climate Change Environmental news network
2021/12	Study finds aquaculture production vulnerable to climate change
2021/12	Farmed seafood supply at risk if we don't act on climate change @ phys.org
2020/09	B.C. fish farming may be in hot water due to climate change <i>I nationalobserver.com</i>
2020/09	Climate change may push farmed salmon out of the market of cortescurrents.ca
2020/03	Latest Innovative Sustainability Research Studies How Climate Change Will Impact Seafood Security ☑ Fundingtheocean.org
2020/02	Specie hybridization, land-based tech needed to deter climate change impact ☑ rastechmagazine.com
2020/02	Study: Ocean fish farming in tropics and sub-tropics most impacted by climate change Phys.org
2020/02	Ocean fish farming in tropics and sub-tropics most impacted by climate change: UBC study ☑ UBC News
2020/02	Study: ocean fish farming in tropics and sub-tropics most impacted by climate change ② Savingseafood.org
2020/02	Study: Ocean fish farming in tropics and sub-tropics most impacted by climate change ② Domnung.com
2019/05	Algas comemstible 🛮 Ambientum

2019/04	Global area estimate for marine aquaculture development <i>Aquaculturealliance.org</i>
2018/03	What's holding back marine aquaculture? (It's not what you think) \(\textit{Z} \) Aquaculture North America
2018/03	What's hampering aquaculture? ☑ Fish Information and Services
2017/11	This Seaweed is good for you and the environment National Geographic
2013/09	Can you live without coffee? ☑ Tropentag blog
2007/11	Nigeria Muslim Network Supports Students ☑ This Day Newspaper

References

Dr. William Cheung, *Professor and Director*,

Institute for the Oceans and Fisheries, The University of British Columbia, Vancouver, Canada w.cheung@oceans.ubc.ca, (778) 837 7252

Dr. Colin Brauner, Professor,

Department of Zoology, The University of British Columbia, Vancouver, Canada brauner@zoology.ubc.ca, (604) 822 3372

Dr. André St-Hilaire, Professeur-chercheur,

Institut national de la recherche scientifique, Centre Eau Terre Environnement andre.st-hilaire@inrs.ca, (418) 654 3113