



ECOLOGICAL SOCIETY OF NIGERIA (ECOSON)
DELTA STATE UNIVERSITY (DELSU),
ABRAKA, NIGERIA



UNIVERSITY HOSTS & CHIEF HOST

Prof. A. H. Erhenhi

HOD Department of Botany (Host)

Professor Austin Atonuje

Dean, Faculty of Science (Host)

Prof. Andy Ogochukwu Egwunyenga

Vice Chancellor, Delta State University,
Abraha, Delta State (Chief Host)

SUB-THEMES:

1. Wetland Valuation and Management
2. Wetland Biodiversity, Associates and Biotechnology
3. Agroecology, Wetland Sustainability and Environmental Education
4. Wetland Degradation and Remediation
5. Wetland Grassland Ecology
6. Mangrove Forest Conservation/Regeneration/Restoration
7. Socioecology, Resilience and Traditional Management Practices of Wetland Community Inhabitants
8. Exploration/Radioactivity and Wetland Environment
9. Legal Issues and Regulations Affecting Wetlands

KEYNOTE SPEAKERS

Prof. Nenibarini Zabbey

Project Coordinator, Hydrocarbon Pollution Remediation Project (HYPREP),
Federal Ministry of Environment, Abuja

Prof. Elijah Ohimain

Former Vice President (International Chapter)
Society for Wetland Scientists, Department of Microbiology,
Niger Delta University, Wilberforce Island Bayelsa State

Prince Irikefe V. Dafe

Expert Member, UN Harmony with Nature Programme
Representing Africa and Co-Director, Integrated Institute
of Environment and Development, Federal University of Petroleum Resources Effurun, Delta State



ECOLOGICAL SOCIETY OF NIGERIA (ECOSON)
DELTA STATE UNIVERSITY (DELSU),
ABRAKA, NIGERIA



Programme

**ECOLOGICAL SOCIETY OF NIGERIA
ECOSON – HYBRID CONFERENCE
ABRAKA 2024**

CONFERENCE OF THE ECOLOGICAL SOCIETY OF NIGERIA

THEME:

**WETLAND ECOSYSTEMS:
HOTSPOTS FOR
BIODIVERSITY**

DATE:

5TH - 9TH MAY, 2024

VENUE:

DELTA STATE UNIVERSITY,
ABRAKA, DELTA STATE, NIGERIA

HOST:

DEPARTMENT OF BOTANY
DELTA STATE UNIVERSITY, ABRAKA, DELTA STATE



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National Anthem

Arise, O compatriots, Nigeria's call obey
To serve our fatherland
With love and strength and faith
The labour of our heroes past
Shall never be in vain
To serve with heart and might
One nation bound in freedom, peace and unity.

O God of creation, direct our noble cause
Guide our leaders right
Help our Youth the truth to know
In love and honesty to grow
And living just and true
Great lofty heights attain
To build a nation where peace
And justice shall reign.

The National Pledge

I pledge to Nigeria, my country
To be faithful, loyal, and honest
To serve Nigeria with all my strength
To defend her unity
and uphold her honour and glory
So help me God

DELTA STATE UNIVERSITY ANTHEM

Delta State University
The founding of our fathers
Nurturing our cherished generations,
A vision to harness the past and present
Projecting the realities of tomorrow,
Beyond gender, race and colour.

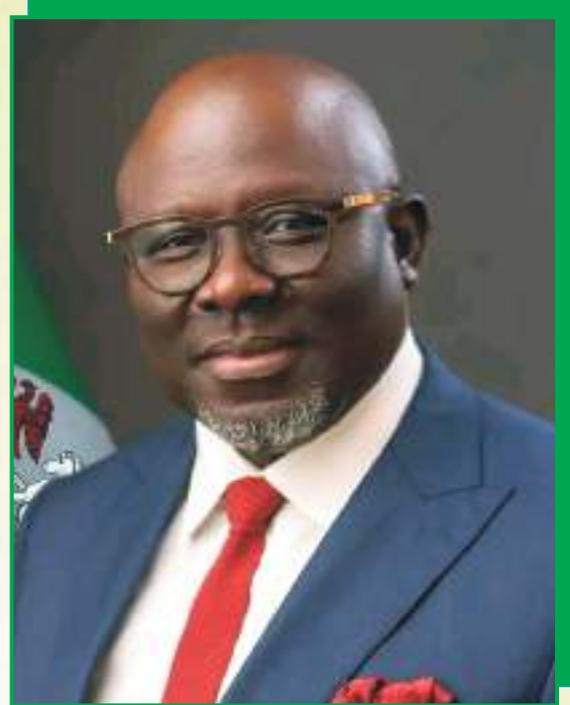
Refrain:

Great DELSU, great brains
Thrives in hard work for self reliance
Great knowledge, character and service,
We pledge to be good ambassadors
We pledge to be good ambassadors.

Oh Divine Giver of wisdom,
Guide our focus and determination,
Of excellence in all human endeavour,
That through knowledge spread across
Faculties, we rethink humankind
For a new universe
Where freedom and noble values are
Anchored.



His Excellency
Senator Bola Ahmed Tinubu GCFR
President, Federal Republic of Nigeria



His Excellency
Rt. Hon. (Elder) Sheriff G.O. Oborewori
Governor, Delta State



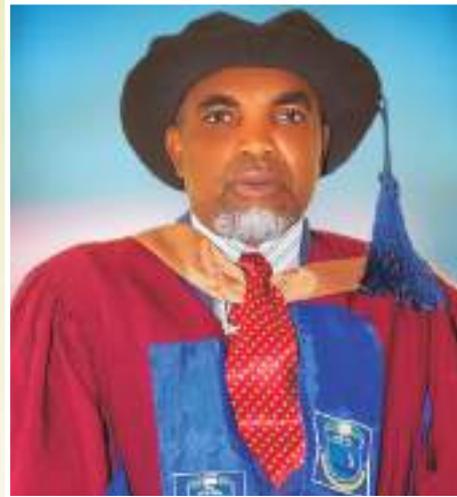
Prof. Andy Ogochukwu Egwunyenga
Vice Chancellor, Delta State University,
Abiraka, Delta State (Chief Host)



Prof. Nyerhovwo F. Taonukari
Commissioner, Higher Education



PROF. RASHEED O. AWODOYIN FNSPP
President, ECOSON



Prof. Franklin B.G. Tenee
Vice President, ECOSON



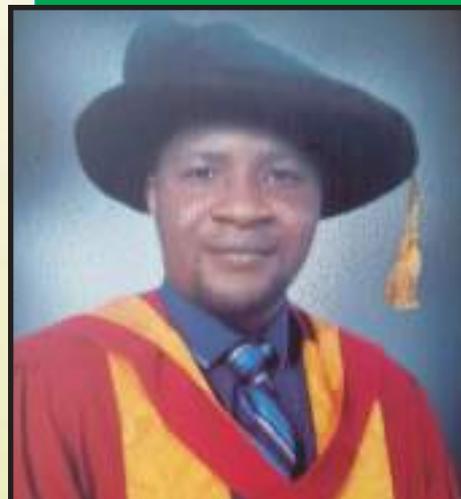
PROF. AUSTIN ATONUJE
Dean, Faculty of Science (Host)



PROF. A. H. ERHENHI
HOD, Department of Botany



PROF. (MRS.) O. M. AGBOGIDI
LOC Chairperson



DR. AYODELE A. OYEDEJI
National Secretary
ECOSON



BOARD OF TRUSTEES

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NATIONAL EXECUTIVE COUNCIL (NEC) MEMBERS

- | | | |
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| 8. Dr. O.S. Olubode | Editor-in-Chief, NJE | University of Ibadan |
| 9. Prof. Segun Oladoye | Business Manager | Federal University of Agriculture Abeokuta |

LOCAL ORGANIZING COMMITTEE

- | | |
|----------------------------------|---|
| 1. Prof. (Mrs.) O. Mary Agbogidi | -Chairperson, Delta State University, Abraka, DELSU) |
| 2. Prof. A. H. Erhenhi | HOD/LOC Secretary(DeltaStateUniversity,Abraka, DELSU) |
| 3. Mr. W. O. Egboduku | Publicity Secretary(DeltaStateUniversity,Abraka, DELSU) |
| 4. Dr. (Mrs.) Grace Obi- Iyeke | Member (Department of Botany, Delta State University, Abraka, DELSU) |
| 5. Prof. (Mrs.) N. E. Edema | Member (Department of Botany, DELSU) |
| 6. Mr. E. O. Michael. | Member (Department of Botany, DELSU) |
| 7. Mr. O. P. Okpewho. | Member (Department of Botany, DELSU) |
| 8. Prof. (Mrs.) K. I. Iloba | Member (Department of Animal & Environmental Biology, DELSU) |
| 9. Prof. J. K. Ekelemu | Member (Department of Fisheries & Aquaculture, DELSU) |
| 10. Prof. (Mrs.) A. A. Nwabueze | Member (Department of Fisheries & Aquaculture, DELSU) |
| 11. Dr. O. F. Nwachi. | Member (Department of Fisheries & Aquaculture, DELSU) |
| 12. Mr. D. Akpotor | Member (Department of Fisheries & Aquaculture, DELSU) |
| 13. Mr. O. K. Awhefeada | Member (Department of Fisheries and Aquaculture, DELSU) |
| 14. Mr. M. C. Umehai | Member (Department of Agricultural Extension, DELSU) |
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| 16. Dr. O. A. Ohwo | Member (Department of Forestry & Wildlife, DELSU) |
| 17. Dr. (Mrs.) P. N. Emilimor | Member (Department of Forestry & Wildlife, DELSU) |
| 18. Dr. (Mrs.) U. Akpovwovwo. | Member (Department of Geography, DELSU) |
| 19. Mr. O. Adagha | Member (Department of Fisheries & Aquaculture, Dennis Osadebay University, Asaba) |
| 20. Mr. A. E. Irabor | Member (Department of Fisheries & Aquaculture, Dennis Osadebay University, Asaba) |
| 21. Mr. B.O.J. Umukoro | Member (Department of Plant Science & Biotechnology, Delta State University of Science & Technology, Ozoro) |
| 22. Mrs. P. C. Okubor | Member (Department of Biological Sciences. University of Delta, Agbor) |
| 23. Mrs. E. E. Ikenga. | Member (Department of Agricultural Education, Federal College of Education, Technical, Asaba) |
| 24. Mrs. Juliana E. Mukoro | Member (Department of Fisheries and Aquaculture, DELSU) |
| 25. Miss Ogbe Orevu | Member (Department of Botany, DELSU) |
| 26. Mr. Stanley Edokpiawe, | Corper, (Department of Botany, DELSU) |
| 27. Ms. Ogbemudia, C.O. | Member (Department of Botany, DELSU) |
| 28. Mr. Festus O. Stephen | Member (Department of Botany, DELSU) |
| 29. Ms. Ruth Irru | Member (Department of Botany, DELSU) |



Programme of Events

Date and Time Events Sunday 5th May, 2024 Arrival of Participants

16:00 – 18:00 Pre-conference meeting (NEC – LOC)

Monday 6 May, 2024 Opening Ceremony

08:00 – 10:00 Registration & Courtesy visit to the VC DELSU

10:00 – 10:15 Welcome Address by the Chairperson, LOC

10:15 – 10:30 Welcome Address by the President, NEC

10:30 – 11:00 Opening Address by the Vice Chancellor, DELSU

11:00 – 12:00 Keynote Address I – **Prof. Nenibarini Zabbey**

12:00 – 12:30 Group Photos and Tea Break

12:30 – 13:30 Keynote Address II – **Professor Elijah Ige Ohimain**

13:30 – 14:30 Keynote Address III - **Irikefe V. Dafe**

15:30 - 16:00 Announcements

16:30 – 18:00 Cocktail

Tuesday 7th May, 2024

09:00 – 11:00 Plenary sessions

12.00 - 13.00 Group Photo & Tea break

13:00 – 14:00 Keynote Address II

14:00 - 15:00 Keynote Address III

15:00 - 15:30 Announcement

16:00 - 18:00 Cocktail

Wednesday 8th May, 2024 - ECOSON AGM

Thursday 9th May, 2024 Departure of Participants



**Welcome address presented by the Chairperson, Local Organising Committee,
Professor (Mrs.) O. Mary Agbogidi during the 2024 National Conference of the
Ecological Society of Nigeria held at the Delta State University, Abraka, Delta State
Nigeria.**

It is indeed a great delight and excitement that I, on behalf of the Local Organising Committee (LOC) formally welcome you to this special occasion. It is a unique gathering of Researchers, Scientists and other stakeholders in the field of Ecology and Environmental Management.

I thank God for your safe arrival and preservation to meet again in 2024. I specially welcome our guests outside the Academic and respected colleagues from other universities and institutions of higher learning to ECOSON- ABRAKA, 2024.

Some of the objectives of establishing Ecological Society of Nigeria (ECOSON) include to promote public enlightenment programmes and interactions among specialists in Ecology, the study of interrelationships between organisms and their environment. Ecology cuts across a wide range of fields and disciplines. The Society started in 1973 and it has grown today.

This year's conference, first to be hosted by Delta State University, Abraka, has its Theme “Wetland Ecosystems: Hotspots for Biodiversity is apt. Delta State is blessed with wetlands and very rich in biodiversity whose valuation and proper harnessing will contribute a great deal to human welfare, improved food security and environmental security.

We appreciate the National Executive for granting our great University, Delta State University the right to host the year 2024 ECOSON Conference.

The LOC is fully prepared to ensure that participants benefit maximally from the Conference. Our Keynote Speakers have been carefully selected to speak on diverse areas of Wetlands. The Technical Sessions are specially packed and the Chief Host, the people's Vice Chancellor of Delta State University Abraka, Professor Andy Ogochuckwu Egwunyenga is ready to welcome us to the special cocktail which is just a part of his personal contributions to the Conference. We appreciate and acknowledge the support of the Host, the Dean, Faculty of Science, Professor Austin Atonuje and our Co- Host, Head of Department, Botany; Prof A. H. Erhenhi, members of staff and students of great DELSU for their contributions towards making this conference a reality.

We contacted some persons and organisations for support and collaboration and we believe they will not disappoint us.

I appreciate the cooperation and support of the LOC members, Marigold Global Ventures, PNG oil Limited, Power Gas Oil Limited e.t.c. for their kind support. Once again, I whole heartedly welcome you all to Delta State University and in particular, Abraka; a blessed land of natural beauty with River Ethiope that has the clearest and cleanest fresh water in the whole world.

I wish you a very successful and fruitful conference.

Thank you very much and God bless.

Prof. (Mrs.) O. Mary Agbogidi
Chairperson, LOC, Ecoson- Abraka, 2024.



PRESIDENTIAL ADDRESS

PRESIDENTIAL ADDRESS BY PROFESSOR R. O. AWODOYIN, *FNSPP* AT THE OPENING CEREMONY OF THE ECOSON-ABRAKA 2024 CONFERENCE OF THE ECOLOGICAL SOCIETY OF NIGERIA HELD ON MAY 6, 2024 AT THE DELTA STATE UNIVERSITY, ABRAKA, DELTA STATE, NIGERIA

Executive Governor of Delta State, His Excellency Rt. Hon. (Elder) Sheriff G. O. Oborevwori
Royal Fathers,

H. R. M., Akpomeyoma Majoroh Ojeta II,

Ovie of Oruarivie- Abraka, Abraka Kingdom and

H.R.M., (Air Vice Marshal) Lucky Ochuko ArarileAvwaeke I the Ovie of Umiagwa-Abraka
Kingdom.

Honourable Commissioner of Environment, Delta State,

Honourable Commissioner of Higher Education, Delta State,

Honourable Minister, Federal Ministry of Environment, Abuja,

Vice-Chancellor, Delta State University (DELSU), Abraka

Principal Officers, DELSU,

Chairman Board of Trustees, ECOSON.

Eminent Members, Board of Trustees, ECOSON

Vice President of ECOSON

Members of the National Executive Council

Past Presidents and Officers of ECOSON

Keynote Speakers

Dean, Faculty of Science, DELSU

Deans and Directors of other Faculties, DELSU

Director General, National Park Service, Abuja

Head, Department of Botany, DELSU

Heads of other Departments, DELSU

Members of Staff and Guests

Distinguished Members of Academia

Students

Gentlemen of the Press

Ladies and Gentlemen



Preamble

All thanks be to the Almighty God for the opportunity of life and sound health to be part of this Hybrid Conference. It can be only God who has granted the grace to hold two conferences within a space of six months. The last conference held at the Osun State University, Osogbo was to be held in May 2023 but due to some challenges it was postponed to November 2023.

The Ecological Society of Nigeria (ECOSON) was founded in 1973. The objectives of the Society are to:

- advance public education,
- publish research findings on the subject of ecology as a branch of natural science,
- hold conferences and workshops on ecology-related themes,
- publish the proceedings of such conferences and the Nigerian Journal of Ecology (NJE).

The Society also promotes and fosters active participation/interaction amongst specialists in the field of ecology and environmental management. Membership of the Society is open to all specialists and enthusiasts in the field of ecology.

The society has a working relationship with many Research Institutes, Universities and International agencies - World Rainforest Movement, United Nations, the United Nations Development Programme (UNDP), Federal Ministry of Environment (FMEnv), National Park Service, Federal Ministry of Science and Technology, Nigerian Institute for Fresh Water Fisheries Research (NIFFR), Nigerian Field, Organic and Agro Ecology Initiative (ORAIN) and Nigerian Conservation Foundation. The focal points of all the collaborations are preservation of biodiversity that is endemic in each Nigerian ecosystem to ensure sustainability and protection of environment.

The Past Resuscitation Conferences

After the poorly attended conference of 17-21 October, 2004 held at the Forestry Research Institute of Nigeria, Ibadan no other conference was held until May 2022, when the society was brought back to life at a conference held in the University of Ibadan. This was followed up by another conference held in November 2023 at the Osun State University, Osogbo. The 2023 conference consolidated the revival of ECOSON. Let me put on record and acknowledge the excellent roles played by the Vice-Chancellor, Osun State University, Osogbo, Professor Odunayo Clement Adebooye and all the Principal Officers of the University, the hosting Department of Plant Biology, the Head of Department and all staff of the Department, the Chairman of the Local Organising Committee, Dr. Mahboob Adekilekun Jimoh and the vibrant team.

ECOSON-ABRAKA 2024

On 11 August, 2023, the Vice-Chancellor, Delta State University, Abraka, Professor Andy Ogochukwu Egwunyenga was contacted to seek his approval of hosting right of 2024 Conference of the ECOSON for the Department of Botany of the University. The request



received prompt approval, which is greatly appreciated. The approval has brought us to Abraka, nicknamed University Town for the presence of the Main campus of the Delta University. Abraka is a home to two of the 24 main Urhobo Kingdoms, Umiagwa-Abraka kingdom and Oruarive-Abraka kingdom. Abraka has a beach that is famous for its natural flowing spring water that has sports recreational facilities for outdoor activities like canoeing, fishing, swimming, barbecue and picnicking.

The approval by the Vice-Chancellor has brought us together at the Main campus of Delta State University, Abraka, popularly known as DELSU. DELSU has a beautiful educational succession that pioneered as a Government Teachers' Training College during the colonial era, and has gone through stages as College of Education; a degree awarding affiliate of the University of Benin, Benin City; the Faculty of Education of the then Bendel State University with its main campus at Ekpoma and climaxed as a full-fledged and autonomous Delta State University, Abraka on 30th April, 1992. The University has since 1992 been providing high quality, well rounded, globally competitive and entrepreneurial graduates who are catalysts of development, and have been participating actively at all facets of life and contributing to sustainable political and socio-economic development at all levels. We salute the foresight of the owner of the University from Olorogun Felix Ibru (the Visitor at the inception) to the current Visitor and Governor of the State, Right Hon. Elder Sheriff G. O. Oboevwori.

While welcoming all participants to Abraka and DELSU, let me appreciate our Chief Host, the Vice-Chancellor, Professor Andy Ogochukwu Egwunyenga, a Professor of Parasitology, a consummate researcher with interests in Public Health Parasitology, Applied Entomology and Environmental Science, well published and well cited with 875 google citations and 17 h-index; a versatile administrator and bridge builder. We are happy being hosted by this great star whose outstanding achievements as the second Substantive Rector of Delta State Polytechnic, Ogwashi-Uku (2007–2011) earned him an appointment as the 7th substantive Vice Chancellor of Delta State University, Abraka. I am greatly appreciative of our other hosts, The Dean, Faculty of Science, Professor Austin Atonuje and the Head, Department of Botany, Prof. A. H. Erhenhifor their cooperation and the enabling environment they have provided for the Local Organising Committee (LOC). The Chairperson, LOC, Professor Oghenerioborue Mary Agbogidi and all other members of LOC have done great job to make this conference possible within six months.

The theme for the 2024 Conference, **“Wetland Ecosystems: Hotspots for Biodiversity”** and the nine sub-themes are carefully chosen to provide niche for all researchers and policy makers on the management of coastal and inland wetlands with focus for biodiversity management that aims at national development. Wetlands are important ecosystems that provide essential ecological, economic, and social benefits. Wetlands are considered as hotspots for biodiversity because they support a wide range of plant and animal life. They act as a habitat, breeding ground, and migration stopover for various species of birds, mammals, reptiles and amphibians. Wetlands also provide nursery areas for fish and shellfish, which are commercially important for fishing. Additionally, many rare and endangered species depend on wetlands for their survival. These wetlands provide critical ecosystem services, including water purification, carbon storage, and habitat for numerous species.



The 1971 Ramsar Convention defined wetlands as areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary with water that is static or flowing, fresh, brackish or salt, including areas of marine waters, the depth of which at low tide does not exceed six meters”. The convention classified wetlands into three main categories of habitats, which are: (i) marine/coastal wetland, (ii) Inland wetlands (fresh water) and (iii) Man-made wetlands (canals, aquaculture ponds, water storage areas, etc.).

In Nigeria, there are various types of wetlands, including coastal mangrove forests, freshwater marshes, floodplains, and lakes. Eleven wetlands have been gazetted as Ramsar sites in Nigeria. Niger Delta, though one of the most important wetlands in Nigeria, the largest in Africa and the third largest in the world, and high biodiversity richness is not among those gazetted as Ramsar site because of the destruction of the environment as a result of oil and gas exploration and exploitation, pollution, urbanization etc that have made the wetland to lose its supports for vulnerable, endangered or critically endangered species or threatened ecological communities.

In response, the Nigerian government has established several policies and regulations to protect wetlands, including the Nigerian Biodiversity Action Plan of 2002 and the National Wetland Policy of 2016. These policies aim to promote the conservation and sustainable use of wetlands in the country. Also, including the Nigerian Conservation Foundation (NCF) and the Nigerian Wetlands Conservation and Management Initiative (NWCM) have been making concerted efforts to protect wetlands in Nigeria,

Despite these efforts, wetland conservation in Nigeria remains a challenge due to a lack of enforcement of regulations and limited public awareness of the importance of wetlands. More needs to be done to protect these valuable ecosystems and ensure their long-term sustainability.

Wetlands, serving as paddies for rice production, as sources of fishes, in water purification, as natural sponges to prevent coastal flooding, as carbon sinks, and as part of water, carbon and nutrients cycles, are relevant in the achievement of six of the 17 United Nations Sustainable Development Goals (SDGs). These are; Zero hunger (SDG 2), Clean water and sanitation (SDG 6); sustainable cities and communities (SDG 11); Taking action to combat climate change and its impacts (SDG 13); Conserve and sustainably use the oceans, seas, and marine resources for sustainable development (SDG 14); and Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss (SDG 15).

Our keynote speakers have been given free hands to choose their topic to address the theme of the conference, papers will be presented during the plenary sessions and a communiqué will be issued at the end of the conference to address the wetland ecosystem for biodiversity conservation. Let me appreciate our keynote speakers for accepting to address us at this conference. They are;

- Professor Nenibarini Zabbey – Project Coordinator, Hydrocarbon Pollution Remediation Project (HYPREP), Federal Ministry of Environment, Abuja.
- Professor Elijah Ohimain - Former Vice President (International Chapter), Society for



Wetland Scientists, Department of Microbiology, Niger Delta University, Wilberforce Island, Bayelsa State.

- Prince Irikefe V. Dafe, Expert Member, UN Harmony with Nature Programme Representing Africa and Co-Director, Integrated Institute of Environment and Development, Federal University of Petroleum Resources, Effurun, Delta State and
- Professor B. O. Ejechi to chair this great occasion.

Your acceptance means so much to the consolidation of ECOSON.

Nigerian Journal of Ecology - NJE

I am happy to note that Volume 19 Issue 2 are presently in print and are accessible online using the link <https://nigeriajournalofecology.org/>. Also, all past issues of NJE and book of proceedings of 2022 and 2023 conferences can be accessed using the above link. The editorial board continues to receive manuscripts for the next volume. I am again informing that the journal has been indexed on the Researchgate, which will increase the visibility and h-index rating of all contributing authors. I enjoin all of us to publish our quality manuscripts in the journal to promote it and enhance our research visibility.

Secretariat, Registration of the Society and Administration

With this ECOSON-ABRAKA 2024 conference further consolidating the rebirth of ECOSON, the location and equipping of National Secretariat at the Forestry Research Institute of Nigeria (FRIN), Ibadan, and the registration with the Corporate Affairs Commission (CAC) can now be vigorously pursued.

The affairs of the society is run by the National Executive Council (NEC) in conjunction with the Board of Trustees (BOT) and Board of Fellows. The NEC sees to the daily running of the society, the BOT serves as guidance to the society and the Board of Fellows serves in advisory role to the society. Efforts are top gear to ensure that all the above function without interference.

Appreciation

The members of LOC have done a great job and learnt how to manage with limited fund. Our sponsors in the past [Chevron Nigeria Limited, AFruitful Environment Limited, University of Ibadan and Forestry Research Institute of Nigeria, Osun State University, National Park Service, Abuja and Nigerian National Petroleum Corporation (NNPC)] are appreciated.

The supports for the 2024 Conference enjoyed from the Delta State University, Abraka, National Park Service, Abuja, Nigerian National Petroleum Corporation (NNPC), Federal Ministry of Environment, Abuja, Marigold Global Ventures, PNG Gas Limited, Ebedei, Commissioner for Higher Education, Delta State, etc.

Ecology calls for the understanding of the environment for use in a sustainable form to meet human needs for now and in future. Specifically, wetland conservation is crucial for protecting biodiversity, as it helps to maintain the ecological balance of the ecosystem.



ECOLOGICAL SOCIETY OF NIGERIA (ECOSON)
DELTA STATE UNIVERSITY (DELSU),
ABRAKA, NIGERIA



Therefore, the national economic planning should give attention to ecology and wetlands ecosystem management. Caution should be exercised to ensure that the resources are explored with consideration to protect the biodiversity, environment and mitigate climate change.

Once again Ladies and gentlemen, it is my pleasure to welcome you to this Consolidation Conference of the Ecological Society of Nigeria, to Delta State University and to Abraka. I am enjoining you to interact and identify areas of research collaboration across ecosystems. There are many places of interest and excitement within Abraka. I want to encourage you to visit as time may permit.

Thank you and God bless.

Professor R. O. Awodoyin, FNSPP

Monday May 6, 2024.

frawodoyin@gmail.com

PROFILE OF PROF. NENIBARHINI ZABBEY

Prof. Nenibarhini Zabbey is the Project Coordinator of the Hydrocarbon Pollution Remediation Project (HYPREP). He is a professor of biomonitoring and restoration ecology. Prof. Zabbey was lecturing in the Department of Fisheries at the University of Port Harcourt and had served the university in different capacities. He was the head of the Department of Fisheries from May 2018 to May 2020. Prof. Zabbey has rendered a wide range of community services, which include environmental consultancy and working with civil society nationally and internationally to conserve and restore biodiversity. His numerous studies of streams, creeks, rivers, wetlands, and estuaries in the Niger Delta water web provide useful information on the region's aquatic ecology and insights for managing the ecosystems sustainably. Prof. Zabbey obtained a BSc in Zoology, an MSc, and a PhD in Hydrobiology and Fisheries Biology from the University of Port Harcourt. He has other professional certificates, including a Certificate in Creation and Restoration of Wetland (Florida Gulf Coast University, USA), River Restoration (Florida Gulf Coast University, USA), Ecology and Taxonomy of Tropical Polychaetes (Smithsonian Institute for Tropical Research, Panama), a Philosophy of Biological Systematics (Los Angeles Museum of Natural History, Los Angeles, USA), a Certificate in Waste Management (University of Central Lancashire, UK), and a Certificate in Radiochemistry and Nuclear Applications related to Marine Pollution Studies (Egyptian Atomic Energy Authority, Cairo, Egypt).



One of his most outstanding research contributions was the pioneering studies of population biology of the endemic West African lucinid, *Keletistes rhizomes* (Oliver gastropod, and the opistho branch gastropod, *Haminoea orbignyana* (Ferrussac, 1822) in mangroves and on unvegetated tidal flats in the Niger Delta. *Horbignyana* was formerly known from the Gulf of Biscay in Europe southwards to Cape Verde. Prof. Zabbey's study confirmed the presence of the species in Nigeria. It provided the first ecological data for the species in Africa and established a baseline for comparison with the European population. Graham Oliver discovered *K. rhizoecus* in the Niger Delta in 1986. The lucine bivalve is endemic in the Niger Delta. Zabbey's published works constitute the pioneer data on the population biology and energetics of the species. The results are a landmark contribution to molluscan science.

Prof. Zabbey has won several academic and social awards and research grants. He is the recipient of the ASLO 2022 Ruth Patrick Award "for research and engagement with a critical impact on the recovery of the Niger Delta ecosystem from oil spills and environmental justice for affected communities." Thus, he became the first African to win the Ruth Patrick Award since it was instituted over 23 years ago.

He is a fellow of the Fisheries Society of Nigeria (FISON), a fellow of the West Africa Society of Toxicology (WASOT), and a fellow of the Association of Philosophy



Professionals of Nigeria (APPON). He is also a member of several professional societies, including the British Ecological Society, the Society for Ecological Restoration (SER), the International Association for Impact Assessment (IAIA), the Nigerian Environmental Society (NES), and the Freshwater Biology Association of Nigeria

Until he was appointed the Project Coordinator of HYPREP, he had Coordinated the Centre for Environment, Human Rights and Development (CEHRD) and over forty development projects in the Niger Delta. Prof. Zabbey was UNEP's Senior National Expert on Mangrove Ecosystems and served on the management committee, the shoreline cleanup assessment technique team (SCAT), and technical working groups of the Bodo cleanup and restoration project facilitated by the Bodo Mediation Initiative (BMI). He is a devoted Catholic and happily married to Mrs. Fashion Giobari Zabbey, with whom they have four sons



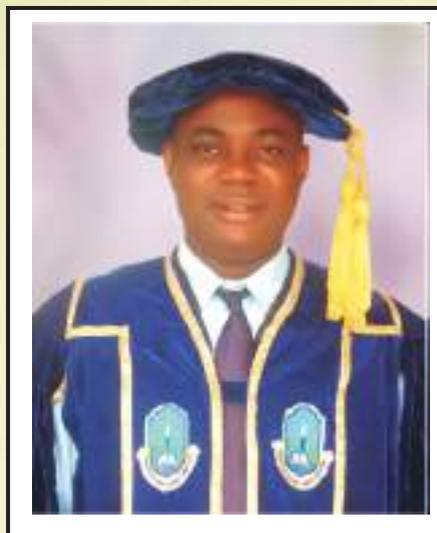
ECOLOGICAL SOCIETY OF NIGERIA (ECOSON)
DELTA STATE UNIVERSITY (DELSU),
ABRAKA, NIGERIA



Abstract

OF KEYNOTE ADDRESS

BRIEF CITATION OF PROFESSOR ELIJAH IGE OHIMAIN



Prof Elijah Ige Ohimain was born 13 June 1970 in former Bendel State now Edo State. He started his Primary Education at Izevbigie Primary School, Benin City in 1976 and continued in Ajama Primary School, Okpe in 1977, where he completed his primary school education in 1982. He immediately proceeded to Anglican Grammar School, Igarra, where he completed his WAEC with eight Credits in 1987. He was admitted for advanced level in School of Basic Studies, Rumuola Port Harcourt, where he completed the Interim Joint Matriculation Examination (IJMB) and proceeded to the University of Benin in 1988 from where He obtained B.Sc. degree second class upper in Microbiology in 1992, MSc in Environmental and Public Health Microbiology in 1995 and Ph.D. in Environmental Microbiology in 2001. He obtained Certificate in computer Operations and programming from the University of Port-Harcourt in 1994. Prof Ohimain completed a post-graduate diploma in Sustainable Development at Staffordshire University, UK in 2011.

Prof Ohimain did his post-doctoral placements in the Laboratory of Soil Science and Geology, Wageningen University and Research, The Netherlands in 2002 and was visiting Scholar at the **Department of Natural Resources and Environmental Design, School of Agriculture and Environmental Sciences**, North Carolina Agricultural and Technical State University, USA in 2009/2010. Prof. Ohimain worked in the petroleum and environmental sectors (National Fertilizer Company of Nigeria, Mail-In Oilfield Services Ltd, Environmental Resources Managers Ltd, Rohi Biotechnologies Ltd and Shell Petroleum Development Company Ltd) before joining the Niger Delta University in 2006 as Lecturer 1. He was promoted to Senior Lecturer in 2009, Reader in 2012 and Professor and in 2015. He was subsequently elected and appointed, dean Faculty of Science on 28 February 2017. He had previously held other positions in NDU including Head of Department (2010 – 2014), Assistant Director Consultancy in the Directorate of Consultancy, Entrepreneurship, Research and Development (DOCERAD) from 17 April 2012 – Date, Assistant Director Entrepreneurship, Research and Development DOCERAD (01 September 2008 – 9 November 2009). He was a member of some university committees including flood control and University Research Committee. In 2013, He was the HOD that midwived the full 5 years accreditation of the Biological Science Programme and as Dean, Faculty of Science midwived the full five years accreditation all the existing seven programmes in the faculty and a new microbiology programme.

Prof Ohimain has both industrial and academic experience; hence he is frequently invited to conferences both locally and internationally. In 2004, at the World Dredging Conference in Hamburg Germany, he was awarded the best young presenter prize. Prof Ohimain is a member of many professional bodies including Nigerian Field Society, Society of Industrial Microbiology, American Society for Microbiology, International Society for Mangrove Ecosystems, Society of Wetland Scientists, Nigerian Environmental Society, Nigerian Society for Plant Protection, International Association for Impact Assessment and Renewable and Alternative Energy Society of Nigeria. He was the past president of the International Chapter of the Society of Wetland Scientists.

Professor Ohimain is prolific and has authored or co-authored over 250 publications. Professor Ohimain is an editorial board member for over 10 journals and reviewer for over 100 journal titles. He was consistently ranked first in NDU and 64th in the country in the AD Scientific Ranking for the past five years. Prof Ohimain is an environmental and energy consultant. He is the Pastor-In-Charge of RCCG Household of FaithZone, Rivers Province 13. He is a Special Marshal with the FRSC. He is married to Betty Ohimain and are blessed with two kids, Elijah and Betty Jr.



Abstract

OF KEYNOTE ADDRESS

NATURAL AND ANTHROPOGENIC FACTORS THREATENING THE SURVIVAL OF NIGERIAN MANGROVE ECOSYSTEMS: THE NEED FOR POLICY INTERVENTION.

By

Professor Elijah Ige Ohimain

Department of Microbiology, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria. eohimain@yahoo.com

Abstract

Mangroves are unique wetlands occurring in the intertidal zones of tropical and subtropical coastlines. Nigeria, which has a coastal length of 853 km from Badagry to Calabar, is occupied by mangrove forest serrated by several rivers and estuaries opening into the Atlantic Ocean. These coastal wetlands in addition to being a biodiversity hotspot, performs several ecosystem services, which have sustained the coastal communities for centuries especially in the provision of fisheries, timber and fuel wood, storage and purification of water. Mangrove ecosystem also protect the coastline from coastal erosion and sea surges owing to climate change. Exploitation of natural resources in the coastal areas particularly oil and gas and other anthropogenic factors including urbanization, solid waste disposal, fish and shrimp farming, crop farming, wood lumbering and other coastal developments especially roads, have put pressure on Nigerian mangroves. Besides, the invasive nipa palm (*Nypafruticans*), which Nigeria imported from Asia and introduced in the Cross River Estuary in the early 1900s have become established and fast displacing native mangrove species. Except there is a policy intervention that will permit no-net-loss of wetlands, the sustainability of Nigerian mangrove could be uncertain especially in the midst of planned coastal infrastructural developments.

Key words

Biodiversity hotspots, coastal wetlands, ecosystem services, environmental pollution, invasive species, mangrove restoration, mitigation banking, wetlands sustainability

BRIEF CITATION OF IRIKFE V. DAFE

Irikfe V. Dafe is an environment and development specialist. He is an expert member of United Nation's Harmony with Nature Programme, and a fellow of the Chartered Institute of Public Diplomacy and Management (FCIPD). He is currently the Executive Director of the Foundation for Conservation of Nigerian Rivers and the Founder -President of the River Ethiope Trust Foundation. Dafe is also the Africa Lead, Earth Law Center USA, Executive Director/CEO Africa Center for Watershed Protection. Dafe is the initiator & Co-Director of the Integrated Institute of Environment and Development (IIED) at the Federal University of Petroleum Resources Effurun, Nigeria and also the initiator/Co-Director of the Institute of Biodiversity, Climate Change and Watershed (IBCW) at Niger Delta University, Wilberforce Island Bayelsa State, Nigeria. He is currently working to establish Nigerian Rivers Institute (NRI) and Earth Law Center USA at the University of Abuja, Nigeria. Dafe also established the River Ethiope Basin Institute (REBI) at the Delta State University Abraka and was instrumental to UNESCO's selection of River Ethiope water shed as an Ecohydrology demonstration centre in West Africa and instituted World Rivers Day celebration in Nigeria which has now be made an annual National celebration by Federal Government of Nigeria. For three decades, Dafe has worked to protect the River Ethiope and the rights of communities who rely upon the river for food, water, and their livelihoods. He is currently collaborating with Earth Law Center USA and other organizations to establish legal rights for the River Ethiope in order to permanently protect the river and the rights of community members under which it will be the first natural entity in Africa to possess legal status as human. Dafe is a lead organizer of the first National Dialogue on Rights of Nature in Nigeria and member, Steering Committee, Global Alliance for Rights of Nature Africa.



Additionally, Dafe is a regular speaker and panelist on environmental issues in conferences, print and electronic media in Nigeria and abroad with his recent presentations being at Institute of Latin American Studies at Hankuk University of Foreign Studies, American University of Washington College of Law's series symposium and University of Cape Town, South Africa. He is an author and co-author of many publications including *Beyond Oil: Reimagining development in the Niger Delta of Nigeria*; *Rivers are Key to Restoring world Biodiversity*; *Lead Researcher Ecological Law Case Study-River Ethiope Degradation*; *Understanding Rivers Contamination*, *Understanding Rights of Nature*; and is currently working on two new books entitled, "Living in Harmony with Nature" and "Redefining Development in Africa."

Dafe holds first degree in Biochemistry, a post-graduated diploma in Environmental Science and MSc in Environmental Policy and Regulation. He has also several professional certifications in environment and development within the past three decades. He is married to Sandra Dafe and are happily blessed with three children, Donald Dafe Medical Student, Danniella Dafe Law student and Daphine Dafe pre- final year secondary school student.



Abstract

OF KEYNOTE ADDRESS

Rivers and Wetlands: Cornerstones of Global Biodiversity Restoration and Hotspots for Biodiversity

Dafe, I.

Abstract:

Rivers and wetlands are indispensable components of Earth's ecosystems, serving as vital habitats for a myriad of species and playing crucial roles in sustaining biodiversity. This abstract explores the significance of rivers and wetlands in the restoration of global biodiversity. Firstly, rivers serve as natural corridors, facilitating the movement and dispersal of species across landscapes, thereby promoting genetic diversity and preventing isolation of populations. Additionally, they provide essential habitats for a diverse array of aquatic and terrestrial organisms, ranging from fish and amphibians to birds and mammals. The intricate network of rivers sustains complex food webs and fosters interactions among species, contributing to ecosystem resilience and stability. Similarly, wetlands, including marshes, swamps, and bogs, harbor a remarkable diversity of flora and fauna, many of which are specialized to these unique environments. Wetlands act as natural filters, purifying water and mitigating floods, while also sequestering carbon and mitigating climate change impacts. Furthermore, they serve as critical breeding and feeding grounds for numerous migratory bird species, making them integral to global bird conservation efforts. However, both rivers and wetlands face myriad threats, including habitat degradation, pollution, overexploitation of resources, and climate change-induced alterations in hydrological patterns. Consequently, concerted conservation and restoration efforts are imperative to safeguard these ecosystems and the biodiversity they support. In conclusion, recognizing the pivotal role of rivers and wetlands in biodiversity conservation is paramount for ensuring the resilience of global ecosystems. By prioritizing their protection and restoration, we can not only safeguard countless species but also secure essential ecosystem services vital for human well-being. Collaboration among governments, communities, and conservation organizations is essential to achieve this goal and secure a sustainable future for both biodiversity and humanity.

Keywords: Rivers, wetlands, cornerstones, hotspots, biodiversity restoration.



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6. Director, Marigold Global Ventures, Limited
7. Director, PNG Gas Limited, Ebedei
8. Chairman, ASUU, Delta State University, Abraka.

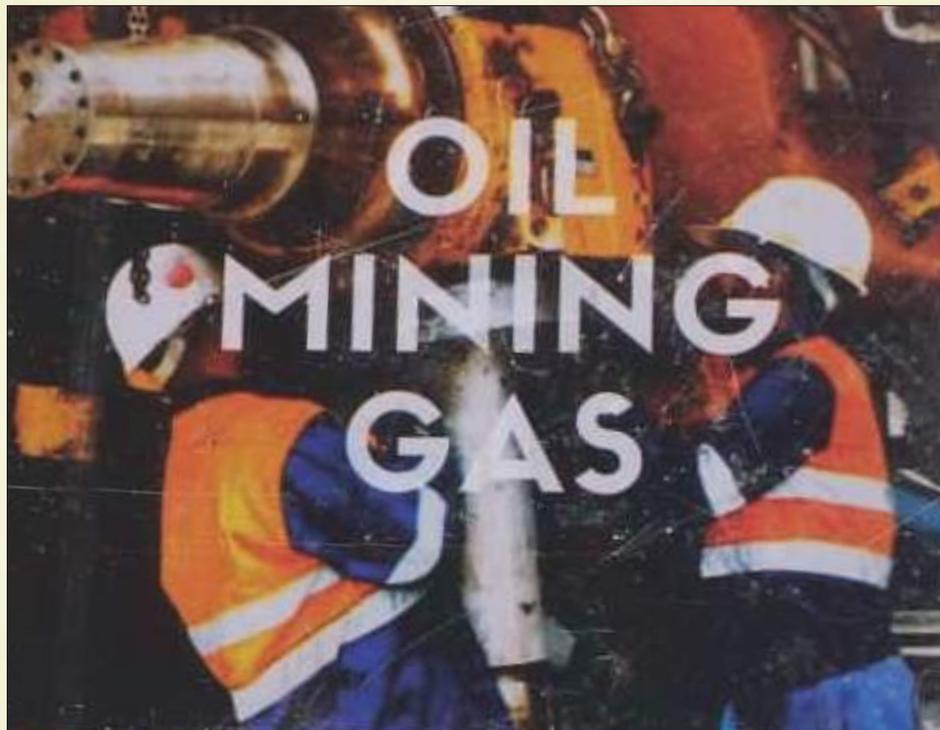


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Kudos to Chairperson and LOC members for this wonderful feat.

