



Protecting Lake Victoria

A Call for Community-Led World Heritage Assessment



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About Strategic Response on Environmental Conservation (STREC)

Strategic Response on Environmental Conservation (STREC) is a youth-led community-based not-for-profit organization dedicated to promoting the sustainable management of the environment and natural resources in Uganda. STREC started in 2018 as a university environmental group to protect Bugoma Central Forest Reserve from conversion to a sugarcane plantation.

In 2020, STREC registered with the National Non-Governmental Organization (NGO) Bureau as a not-for-profit organization. STREC monitors government actions, conducts research, provides educational materials, develops science-based strategies, organizes affected communities, rallies other civil society organizations and international organizations to common causes, and engages government officials at all levels to ensure that natural resources are utilized in a way that leads to equitable development, environmental conservation and respect for human rights.

Our Vision: A society that promotes equitable utilization and sustainable governance of natural resources for socio-economic development.

Our Mission: To promote the sustainable management of the natural resources in Uganda and the Great Lakes Region.



Executive Summary

Lake Victoria is one of the world's most important freshwater systems. Located along the borders of Uganda, Kenya, and Tanzania, with a wider basin extending into Rwanda and Burundi, it is Africa's largest lake by surface area, the world's largest tropical lake, and the main reservoir of the Nile River system.¹ Its protection matters far beyond its shoreline, including for regional water security, pollution control, transboundary freshwater governance, and communities living upstream and downstream.

Lake Victoria has exceptional ecological, cultural, scientific, and livelihood importance. Its cichlid fish are one of the fastest and most extensive adaptive radiations ever documented in vertebrates, making the lake globally important for understanding evolution, biodiversity loss, and freshwater ecosystem change.² The lake also sustains one of the world's largest freshwater fisheries, supporting fishing, processing, trade, food security, and household income for millions of people.³ For women traders, fishing communities, youth leaders, island residents, wetland communities, and cultural knowledge holders, the lake is a source of identity, survival, memory, spiritual meaning, and future opportunity.

This report proposes deeper consideration of Lake Victoria as a potential United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage site as one possible pathway to strengthen protection of the watershed's ecosystem integrity, community livelihoods, cultural heritage, and transboundary water management. Whether through World Heritage nomination or other mechanisms, a transparent, community-led assessment can help expand debate around development pathways that do not rely by default on fossil fuel and extractive industries.

Uganda, Kenya, and Tanzania have already recognized the area's cultural value by placing coordinated entries for geometric rock art on UNESCO's Tentative Lists for World Heritage.⁴ These entries identify 73 rock art sites and provide an important starting point for assessing the relationship between the rock art and the wider Lake Victoria landscape, including its islands, shorelines, wetlands, fishing communities, spiritual traditions, and ecological systems.

Lake Victoria now faces severe and interacting threats, including pollution, eutrophication, invasive species, overfishing, illegal fishing, wetland destruction, deforestation, sedimentation, climate change, and weak governance.⁵ The East African Crude Oil Pipeline (EACOP) adds further risk. Although it does not cross Lake Victoria directly, it passes through the Lake Victoria Basin and crosses watercourses and wetlands connected to the lake and wider Nile system.⁶ The World Wildlife Fund (WWF) has estimated that approximately 460 kilometers of the pipeline would be located within the Lake Victoria watershed, where river contamination could affect the lake itself.⁷

Protecting Lake Victoria requires exploring development alternatives that are not based on fossil fuel expansion and extractive sectors. A World Heritage assessment is one possible pathway for doing this, but it is not the only one. **Any development plan for the Lake Victoria region should be community-led, rights-based, and rooted in sustainable livelihoods, including fisheries recovery, wetland restoration, clean water systems, cultural heritage protection, renewable energy, and communities' own vision for development.**

Summary Recommendations

For the governments of Kenya, Uganda, and Tanzania:

- Launch a transparent, community-led assessment to determine whether Lake Victoria should be considered for possible eventual UNESCO World Heritage nomination, building on the coordinated Tentative List entries for geometric rock art in the Lake Victoria Region.⁸
- Establish a joint Uganda-Kenya-Tanzania assessment taskforce involving relevant public authorities, Indigenous Peoples where affected, local communities, fishing communities, women traders, youth leaders, cultural knowledge holders, scientists, civil society, and independent experts.
- Ensure the process is rights-based, with free, prior, and informed consent (FPIC) where Indigenous Peoples are affected, consent-based consultation as a best practice for local communities, and safeguards against displacement, exclusionary conservation, restrictions imposed without consent, and tourism models that burden resident communities.⁹
- Ground the assessment in evidence, consultation, and mapping, not a predetermined nomination model, including whether protection should cover the whole lake, selected islands, shorelines, rock art sites, wetlands, tributaries, or specific cultural landscapes.
- Assess how any possible World Heritage pathway would protect livelihoods, customary governance systems, traditional fishing practices, women's roles in fish processing and trade, community conservation, and local management of wetlands, islands, landing sites, and fish breeding areas.
- Apply a precautionary approach to oil, gas, and related infrastructure in the Lake Victoria Basin, including EACOP, and pause extractive activities affecting the basin while a community-led assessment is undertaken.¹⁰

For UNESCO, the International Union for Conservation of Nature (IUCN), the International Council on Monuments and Sites (ICOMOS), and relevant international partners:

- Provide technical and financial support for community-led cultural mapping, ecological and hydrological analysis, livelihood studies, scientific review, rock art documentation, and assessment of integrity, authenticity, protection, and management requirements.¹¹
- Support independent research on how the existing Tentative List entries for geometric rock art relate to the wider lake, watershed, wetlands, fishing communities, spiritual traditions, and living cultural landscape.¹²

- Mobilize support for an alternative investment agenda focused on fisheries recovery, wetland restoration, pollution control, clean water systems, cultural heritage documentation, community-led tourism, renewable energy, research, and sustainable livelihoods, instead of fossil fuel or extractive development models.

For the East African Community (EAC) and regional institutions:

- Strengthen transboundary freshwater governance for Lake Victoria and the African Great Lakes, including through coordinated action by the EAC, Lake Victoria Basin Commission, Lake Victoria Fisheries Organization, Nile Basin stakeholders, national authorities, donors, and civil society.¹³
- Support regional standards on environmental and strategic impact assessment, spill preparedness, public disclosure, community consultation, cumulative impact assessment, fisheries governance, wetland protection, climate adaptation, and long-term protection of Lake Victoria.
- Engage Nile Basin stakeholders so any World Heritage assessment considers Lake Victoria's role in the Nile River system, downstream water security, wetland protection, and transboundary freshwater governance.¹⁴
- Explore dedicated financing for Lake Victoria and African Great Lakes protection, including sustainable livelihoods, ecosystem restoration, cultural heritage documentation, fisheries recovery, community-led tourism, and future World Heritage management needs.

Exploring pathways for protecting Lake Victoria as a World Heritage site

Any World Heritage pathway for Lake Victoria should begin with a robust assessment based on community findings and engagement, not preconceived assumptions. The purpose of such a process would be to determine whether a nomination is appropriate, what values and boundaries should be considered, and what safeguards are needed so that protection strengthens, rather than undermines, the rights, livelihoods, customary governance systems, and cultural relationships of the communities who live with and depend on the lake.

The process should include, but not necessarily be limited to, scientific assessment, cultural mapping, ecological and hydrological analysis, livelihood studies, and expert review. Where Indigenous Peoples are affected, the process should be grounded in FPIC as a unique right of Indigenous Peoples. For local communities that do not identify as Indigenous, consent-based consultation should still be used as a best practice, including early, informed, meaningful, and ongoing participation in decisions about values, boundaries, safeguards, management, and any possible nomination pathway.

Existing UNESCO-related studies provide a foundation for further assessment of Lake Victoria's ecological and cultural value. For instance, the Lake Victoria Basin Ecosystem Transboundary Biosphere Reserve Project, implemented by the National Commissions for UNESCO in Uganda, Tanzania, Rwanda, Burundi, and Kenya, explored pathways for international recognition of the basin's ecological and cultural significance. The project report describes work carried out in the 2018–2019 biennium, followed by topographic mapping and zonation work in

2020–2021 to support a possible nomination of the Lake Victoria Basin Ecosystem as a transboundary biosphere reserve.¹⁵

The geometric rock art of the Lake Victoria Region is also already on UNESCO's Tentative List for World Heritage through coordinated entries by Uganda, Kenya, and Tanzania.¹⁶ These entries provide a starting point for assessing the relationship between rock art sites, the lake's islands and shorelines, living cultural traditions, and the wider Lake Victoria landscape. In January and February 2024, Uganda, Kenya, and Tanzania added coordinated Tentative List entries to UNESCO for "Geometric rock art in Lake Victoria Region of Kenya, Tanzania, and Uganda."¹⁷

The entries identify the site as transnational and note the participation of the other State Parties. Together, they identify 73 rock art sites around the Lake Victoria Region as part of a potential transboundary World Heritage property, including 24 sites in Uganda, three in Kenya, and 46 in Tanzania. The entries propose the site under cultural criteria iii and vi, describing the rock art as testimony to a cultural tradition that began more than four millennia ago and as connected to living spiritual practices, including fertility and rainmaking rituals.

The art is predominantly geometric in style and includes red finger-painted shapes, concentric circles, lines, dots, and zoomorphic designs. Available dating studies from sites in Uganda indicate that some paintings were made between 1,000 and 5,000 years ago. The State Party Tentative List entries published by the World Heritage Centre link the red geometric motifs with fertility, spiritual potency, and ritual

practice among earlier hunter-gatherer communities in the region. They also note that some sites continue to hold spiritual significance for local communities today.¹⁸

These sites should not be understood as isolated archaeological remains. The Tentative List entries describe similarities in motifs across present-day borders, suggesting that the Lake Victoria region functioned as a connected cultural landscape long before the creation of modern national boundaries.¹⁹ The rock art therefore points to a wider heritage landscape shaped by the lake itself, including its islands, shorelines, wetlands, fishing communities, spiritual traditions, and ecological systems. Any process to assess Lake Victoria for World Heritage protection should consider how the rock art relates to the lake and to the living communities and traditions that continue to give the wider landscape cultural meaning.

Further mapping should identify other World Heritage properties, Tentative List sites, and UNESCO-related areas in or connected to the Lake Victoria Basin, and assess whether threats to the lake, wetlands, tributaries, and wider watershed could affect those sites or the values for which they are recognized. This should include sites located in or directly connected to the Lake Victoria region, such as Thimlich Ohinga Archaeological Site in Kenya. The World Heritage Committee's 2018 inscription decision describes Thimlich Ohinga as located in the Lake Victoria region and as providing exceptional testimony to settlement traditions in the Lake Victoria Basin.²⁰ This mapping would help clarify how protection of Lake Victoria could reinforce existing heritage protections and whether activities affecting the basin could also put recognized cultural, ecological, or watershed values at risk.

The World Heritage Tentative List entries provide a concrete foundation for a broader World Heritage assessment, demonstrating

government recognition of Lake Victoria's unique cultural heritage. It also raises a larger question of whether the rock art can be adequately understood or protected without the lake, islands, shorelines, wetlands, fishing communities, spiritual traditions, and ecological systems that give the wider landscape cultural meaning.

A community-led assessment process could build on UNESCO-related biosphere reserve work, in addition to the existing Ugandan, Kenyan, and Tanzanian Tentative List entries for the rock art.

Key areas for further assessment include:

- **Ecological and evolutionary processes.** Lake Victoria's cichlids are one of the fastest and most extensive adaptive radiations documented in vertebrates, with at least 500 endemic species understood to have evolved in the lake within roughly the past 15,000 years. This makes the lake globally significant for assessing speciation, rapid evolutionary change, biodiversity loss, and human impacts on freshwater ecosystems.²¹
- **Rock art and cultural landscape.** The Lake Victoria Region contains significant prehistoric geometric rock art across Uganda, Kenya, and Tanzania. The existing Tentative List entries under criteria iii and vi provide a starting point for assessing the relationship between the rock art, earlier hunter-gatherer communities, continuing spiritual associations, and the wider lake, island, shoreline, and wetland landscape.²²
- **Living lake cultures and customary use.** Lake Victoria continues to sustain fishing communities, customary practices, ecological knowledge, oral traditions,

spiritual beliefs, and social systems linked to the lake. Further assessment should examine whether these living traditions, settlement patterns, and customary lake-use systems demonstrate an outstanding example of human interaction with a freshwater environment.²³

- **Hydrological and transboundary significance.** Lake Victoria's role as the main reservoir of the Nile River system is central to assessing boundaries, integrity, protection, and management.

While hydrology may not provide a standalone World Heritage criterion, it is essential to understanding the lake as a transboundary freshwater system connected to tributaries, wetlands, catchments, fisheries, communities, and downstream users.²⁴

A World Heritage assessment is just one possible pathway for exploring stronger protection and sustainable development alternatives for the region. Findings from community-based consultation may also identify other mechanisms for protecting the region and its people.



Lake Victoria, Bismarck rock – Mwanza, Tanzania

Potential World Heritage Criteria for Lake Victoria

To be inscribed on the World Heritage List, a site must demonstrate Outstanding Universal Value (OUV), meaning cultural and/or natural significance so exceptional that it transcends national boundaries and is of common importance for present and future generations of humanity. A site must meet at least one World Heritage criterion and also satisfy requirements on integrity, authenticity where relevant, and protection and management. Because Lake Victoria’s values include both cultural and natural attributes, the assessment should also consider whether a mixed World Heritage nomination may be appropriate. Site boundaries should be determined through community-led mapping, scientific assessment, livelihood analysis, cultural heritage review, and consultation with the relevant authorities.

The table below identifies the World Heritage criteria most relevant to Lake Victoria and explains how the lake’s ecological, cultural, and living heritage values should be further assessed.

Criterion	Values of potential World Heritage property	Lake Victoria ecosystem & culture
OUV ix	Outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of freshwater ecosystems and communities of plants and animals	Lake Victoria’s haplochromine cichlids represent one of the fastest and most extensive adaptive radiations documented in vertebrates. More than 500 endemic species are understood to have evolved in a very short evolutionary period, with recent research indicating that hybridization and cycles of separation and recombination helped create conditions for rapid diversification. This makes the lake globally important for understanding speciation, adaptive radiation, biodiversity loss, and freshwater ecosystem change.

Potential World Heritage Criteria for Lake Victoria

Cultural Considerations

Criterion	Values of potential World Heritage property	Lake Victoria ecosystem & culture
OUV iii	Exceptional testimony to a cultural tradition or civilization that is living or has disappeared Living fishing cultures and customary knowledge systems	The coordinated Tentative List entries for “Geometric rock art in Lake Victoria Region of Kenya, Tanzania, and Uganda” identify the rock art as potential testimony to a cultural tradition connected to earlier hunter-gatherer communities in the region. The entries also note continuing spiritual associations with some sites. This provides a potential basis for assessing the relationship between rock art, Lake Victoria’s islands and shorelines, and the wider living cultural landscape. Fishing communities around Lake Victoria, including Luo, Baganda, Suba, and other communities, maintain fishing practices, ecological knowledge, oral traditions, rituals, and customary governance systems connected to the lake. These traditions likely support a broader cultural landscape argument.
OUV v	Outstanding example of traditional human settlement, land use, or water use representative of a culture or human interaction with the environment, especially where vulnerable to irreversible change	Existing information on Lake Victoria’s fishing settlements, landing sites, islands, wetlands, customary fishing grounds, and community-managed landscapes provide evidence of long-standing human interaction with a freshwater environment. To support criterion v, further assessment would need to document how these settlement and water-use systems are representative, vulnerable to irreversible change, and connected to the lake’s ecological and cultural systems.
OUV vi	Direct or tangible association with living traditions, beliefs, or artistic works of outstanding universal significance	The Tentative List entries propose the geometric rock art under criterion vi, linking the sites to living spiritual practices, including fertility and rainmaking traditions. Lake Victoria also holds spiritual and cultural significance for Indigenous Peoples where affected, local communities, and fishing communities. Further assessment should determine whether these associations are direct, tangible, and of outstanding universal significance, and how they relate to the wider lake landscape.

Potential World Heritage Criteria for Lake Victoria

Additional Considerations

Criterion	Values of potential World Heritage property	Lake Victoria ecosystem & culture
Protection & Management	A nomination must show that legal, institutional, management, monitoring, and enforcement systems can sustain potential Outstanding Universal Value, including integrity and/or authenticity, over time.	Lake Victoria is a transboundary freshwater and cultural landscape shared by Uganda, Kenya, and Tanzania, with a wider basin extending into Rwanda and Burundi. Existing regional frameworks, including the Lake Victoria Basin Commission and Lake Victoria Fisheries Organization, should be assessed to determine whether they provide sufficient legal protection, coordinated management, enforcement, community participation, livelihood safeguards, and response to threats such as pollution, overfishing, wetland loss, climate change, and oil and gas infrastructure. An assessment should consider whether cultural values and living traditions can be documented credibly, what legal and institutional protections would apply, and what management system could ensure long-term protection, community participation, monitoring, enforcement, and safeguards for livelihoods and customary practices. It should also assess how formal protection could enhance and sustain ecosystem integrity and cultural heritage, rather than restrict the communities whose lives and knowledge are central to the lake's value. These issues are central to World Heritage protection and management requirements.

Fossil fuel extraction and cultural heritage risks

EACOP raises concerns for the preservation of Lake Victoria's cultural heritage.

EACOP project materials separately document physically displaced project-affected persons in Nkomelo village, Muleba District.²⁵ The Tanzanian State Party's Tentative List entry for the transboundary geometric rock art proposal, published by the World Heritage Centre, identifies Muleba as one of the Tanzanian component areas, with 24 rock art sites recorded there.²⁶ However, the Tanzanian environmental and social impact assessment (ESIA) Executive Summary does not appear to identify the specific Muleba rock art sites included in the Tentative List entry. Yet the ESIA does state that archaeological sites in the project area of influence include "pottery, stone tools, rock-art sites and iron working sites," and that additional cultural heritage features may be identified through pre-construction surveys, consultations with local communities, and construction.²⁷

Based on currently available information, it is unclear if EACOP directly affects any of the specific Muleba rock art sites listed in the Tentative List entry. However, it does show the need for further independent assessment of whether pipeline development, resettlement, access roads, worker camps, land acquisition, or other associated infrastructure could affect cultural heritage values in the wider Lake Victoria landscape.

A comprehensive assessment process for possible eventual nomination should therefore examine whether pipeline construction, associated infrastructure, land acquisition, and spill risks could affect the rock art sites, their surrounding landscapes, and the communities that maintain cultural relationships with them. It should also consider how the rock art sites relate

to a broader cultural landscape that includes Lake Victoria itself, its islands, fishing communities, wetlands, shorelines, and associated ecological systems. While this assessment is undertaken, all fossil fuel activities in the area, including the construction of EACOP, should be paused.

Transboundary assessment and possible nomination

Lake Victoria is inherently a transboundary resource. The lake is shared by Uganda, Kenya, and Tanzania, while its wider basin also extends into Rwanda and Burundi.²⁸ Its cultural heritage is shared by many ethnic communities whose histories, livelihoods, and cultural practices are connected to the lake's shores and islands. Its rock art appears in all three riparian countries, as reflected in the coordinated World Heritage Tentative List entries submitted by Uganda, Kenya, and Tanzania.²⁹ Its fisheries are also transboundary, with management requiring cooperation among Uganda, Kenya, and Tanzania through the Lake Victoria Fisheries Organization.³⁰

Because Lake Victoria is the main reservoir of the Nile River system, its hydrological and transboundary value should inform any assessment of boundaries, protection, management, and regional cooperation.³¹ Any assessment process should therefore engage Nile Basin stakeholders concerned with water security, wetlands, downstream livelihoods, pollution risks, fisheries, and transboundary freshwater governance.

A community-led assessment of a possible transboundary World Heritage nomination involving Uganda, Kenya, and Tanzania as co-submitting States Parties would reflect this reality. Regional institutions such as the Lake Victoria Basin Commission and the Lake Victoria Fisheries Organization already provide important

platforms for cooperation.³² A World Heritage assessment process could complement these frameworks by supporting coordinated management, shared research, community consultation, conflict prevention, and joint protection of the lake, its wetlands, islands, shorelines, cultural sites, fisheries, and connected ecosystems.

The 2015 decision of the World Heritage Committee, Decision 39 COM 8B.9, referred Uganda's nomination for "Nyeru and other hunter gatherer geometric rock art sites in Eastern Uganda" back to the State Party and called for further investigation of geometric rock art sites in the region.³³ The subsequent Tentative List entries submitted by Uganda, Kenya, and Tanzania state that a revised comparative analysis submitted in 2017 led to the conclusion that a transboundary serial nomination by Uganda, Kenya, and Tanzania should be considered.³⁴ This provides a clear foundation for a broader transboundary approach to protecting the Lake Victoria region's rock art and associated cultural landscape.

Lake Victoria's cultural and natural values are closely connected. Its biodiversity, fisheries, wetlands, islands, spiritual traditions, oral histories, rock art, and customary lake-use systems should therefore be assessed together. A mixed cultural-natural pathway may be appropriate, but that decision should be made through community consultation, FPIC where Indigenous Peoples are affected, and consent-based consultation as a best practice for local communities.

Precedents and comparative analysis

Several existing World Heritage sites provide precedents for Lake Victoria's nomination:

- **Lake Turkana National Parks in Kenya:** Inscribed for its natural value, including its importance as a stopover for migratory birds, its unique lacustrine ecosystems, and fossil deposits.³⁵
- **Budj Bim Cultural Landscape in Australia:** Inscribed in 2019 as the first Australian World Heritage site listed solely for Aboriginal cultural values. Budj Bim provides a useful precedent for recognizing Indigenous cultural landscapes shaped by long relationships between people, water, ecology, and resource management.³⁶
- **Maloti-Drakensberg Park in South Africa:** A transboundary site inscribed for both its natural value and its rock art. It contains the largest and most concentrated group of rock paintings in Africa south of the Sahara, making it a useful precedent for combining biodiversity protection with rock art and cultural landscape values.³⁷
- **Matobo Hills in Zimbabwe:** Inscribed for its rock art, archaeology, and cultural landscape, providing a regional comparison for the Lake Victoria rock art and its relationship to a wider living landscape.³⁸

Lake Victoria would be distinctive among these precedents because of its combination of tropical lake ecology, evolutionary significance, transboundary rock art, and living Indigenous, local, and fishing cultures.

What a community-led World Heritage process could support

A community-led World Heritage assessment process, and eventual inscription if appropriate, could strengthen protection, rights safeguards,

research, monitoring, and support for Lake Victoria and surrounding communities, while complementing existing national, regional, and international obligations. Under the World Heritage Convention, States Parties recognize their duty to identify, protect, conserve, present, and transmit cultural and natural heritage on their territory to future generations.³⁹

Community testimony from Uganda, Kenya, and Tanzania shows why the process must begin with the people who live with and depend on Lake Victoria. Residents from Musambwa Island, Sango Bay, Kasensero, Saanane Island, and Dunga describe the lake as a source of culture, spiritual identity, fish, income, wetlands, wildlife, education, and future opportunity. Their experiences show that Lake Victoria is not only a natural resource or potential heritage site. It is a living landscape whose protection depends on community knowledge, customary practice, women's livelihoods, youth leadership, and safeguards against development that damages the lake or excludes the people who care for it.⁴⁰

A community-led process could also create a stronger platform for scientific research, cultural mapping, ecological and hydrological monitoring, and knowledge sharing across the Lake Victoria Basin. This could help clarify the lake's potential Outstanding Universal Value, identify appropriate boundaries, document threats, and support coordinated management by Uganda, Kenya, and Tanzania. Any tourism, livelihood, or conservation strategy should be developed with community leadership, safeguards for customary livelihoods, and respect for Indigenous, local, and fishing communities' knowledge.

Community participation should be built into every stage of the assessment. Where Indigenous Peoples are affected, the process should be grounded in FPIC. For local communities that do not identify as Indigenous, consent-based consultation should still be used as a best practice, including early, informed, meaningful, and ongoing participation in decisions about values, boundaries, safeguards, management, and any possible nomination pathway.⁴¹

Oral traditions and endangered heritage

The oral traditions of Lake Victoria communities are under severe threat. Source materials hosted by UNESCO, including Safeguarding Endangered Oral Traditions in East Africa, document threats to oral traditions among East African communities connected to Lake Victoria, including loss of language, ecological knowledge, and cultural practices transmitted across generations. This evidence supports the need to assess Lake Victoria not only as an ecological system, but also as a living cultural landscape.

The loss of these oral traditions represents more than the disappearance of stories and songs. These traditions encode ecological knowledge, information about fish species, seasonal patterns, medicinal plants and sustainable practices that have accumulated over generations. When the traditions disappear, the knowledge disappears with them.

A World Heritage assessment, and possible eventual nomination if appropriate, could provide a framework for documenting, protecting, and transmitting this oral heritage. UNESCO's Intangible Cultural Heritage program, combined with World Heritage protection for the associated cultural landscape, would create the institutional support needed to sustain these living traditions.

Lake Victoria's geography, hydrology, and regional significance

Physical geography

Lake Victoria extends across approximately 68,800 square kilometers, making it the largest lake in Africa by surface area, the world's largest tropical lake, and the second-largest freshwater lake in the world after Lake Superior in North America.⁴² The lake spans roughly 400 kilometers from east to west and 240 kilometers from north to south, with a maximum depth of approximately 84 meters and an average depth of 40 meters.⁴³

The lake is shared by Uganda (43% of the surface area), Tanzania (51%), and Kenya (6%).⁴⁴ The lake's catchment area extends across these three nations and includes portions of Burundi and Rwanda, covering approximately 184,000

square kilometers.⁴⁵ The lake receives water from numerous rivers, with the Kagera River being the largest tributary. Its only major outlet is the Victoria Nile, which flows northward toward Lake Albert and ultimately feeds into the Nile River system.⁴⁶

The lake was formed on a shallow depression between the eastern and western rift valleys. Unlike Lakes Tanganyika and Malawi, which are true rift lakes formed by tectonic activity, Lake Victoria is a relatively young lake in geological terms, estimated to be between 400,000 and 500,000 years old. This geological history, combined with the lake's isolation, contributed to what is considered one of the most extraordinary evolutionary events in natural history, the rapid adaptive radiation of haplochromine cichlid fish.⁴⁷



Hydrological importance

Lake Victoria serves as the main reservoir for the Nile River system and is therefore significant beyond the three countries that share its waters. The Victoria Nile flows from Jinja on the lake's northern shore toward Lake Kyoga and Lake Albert, contributing to the White Nile and linking Lake Victoria to downstream water systems in South Sudan, Sudan, and Egypt.⁴⁸ This makes Lake Victoria not only a regional resource, but a continental freshwater system whose health affects water availability, agriculture, fisheries, wetlands, and livelihoods far beyond its immediate shoreline.



Aerial view of wetlands to the south west of Lake Victoria, Uganda

The lake's water balance is delicate. Precipitation over the lake surface accounts for approximately 80% of its inflow, while the remaining 20% comes from rivers.⁴⁹ Outflow through the Victoria Nile accounts for only about 10% of water loss, the vast majority is lost through

evaporation. This means that changes in rainfall patterns are likely under climate change scenarios and can have rapid and significant effects on lake levels.

Demographic significance and community dependence

The Lake Victoria Basin is one of the most densely populated regions in Africa, with an average population density of approximately 250 people per square kilometer and a total basin population of about 40 million.⁵⁰ The cities of Kampala (Uganda), Mwanza (Tanzania), and Kisumu (Kenya) are the largest urban centers on the lake's shores, but the basin also contains hundreds of smaller towns and thousands of fishing villages.

The population is growing rapidly. With continued rural to urban migration, the basin's population could exceed 50 million by 2040.⁵¹ This growth increases demand for the lake's resources for water, fish, agricultural land, and energy, while also underscoring the need for stronger governance, waste management, clean water infrastructure, pollution control, and investment in sustainable livelihoods.⁵² The risks facing the lake should therefore be understood not simply as a result of population growth, but as the outcome of governance gaps, infrastructure pressures, underinvestment, and development choices affecting communities who depend on the lake.⁵³

Ecological and scientific significance of Lake Victoria

Global biodiversity significance

The African Great Lakes collectively harbor one of the richest freshwater fish faunas on Earth. They contain over 10% of all freshwater fish species in the world, with high levels of endemism. This extraordinary endemism makes the region globally significant for understanding and researching freshwater biodiversity and evolutionary science.

Photo: Vibrant orange and blue cichlid fish swimming in clear blue water.



Lake Victoria, despite being geologically young, once supported one of the most remarkable cichlid adaptive radiations ever documented. At least 500 endemic cichlid species evolved in the lake within roughly the past 15,000 years, making Lake Victoria a globally important reference point for studying speciation, rapid evolutionary change, biodiversity loss, and the effects of human intervention on freshwater ecosystems.⁵⁴

The evolutionary conditions required to generate this high species diversity on such rapid timescales remain an important question for scientists. Recent genomic research suggests that the rapid diversification of Lake Victoria's cichlids was shaped by ancient hybridization between divergent cichlid lineages, while newer work indicates that repeated cycles of separation and reconnection helped create the conditions for rapid speciation.⁵⁵ These findings indicate that protection should not focus only on individual species. It should also conserve surviving related cichlid lineages, their genetic diversity, and the habitats that allow adaptation and diversification to continue.

The cichlid extinction crisis

Lake Victoria has suffered one of the most dramatic freshwater biodiversity losses in modern history. Historically, the lake hosted a great diversity of fishes, including more than 600 endemic cichlid species.⁵⁶ Beginning in the 1950s, the introduction of Nile perch contributed to a cascading ecological collapse, alongside other pressures including eutrophication and fishing pressure.⁵⁷ By the 1990s, experts estimated that more than 200 endemic cichlid species had been driven to extinction.⁵⁸

The Nile perch introduction was compounded by eutrophication, the enrichment of lake waters with nutrients from agricultural runoff and untreated sewage. Increased nutrient loads

caused algal blooms that reduced water clarity, disrupting the visual cues that cichlids used for mate recognition and species maintenance.⁵⁹ The combination of predation and environmental degradation proved catastrophic for a species flock that had evolved in relatively stable, clear-water conditions.

What is eutrophication?

Eutrophication occurs when excess nutrients, especially nitrogen and phosphorus, enter a lake from agricultural runoff, sewage, industrial discharge, or urban waste. These nutrients fuel algal and cyanobacterial blooms, reduce water clarity, and deplete oxygen. In Lake Victoria, eutrophication has worsened pressure on native fish by degrading habitat and disrupting the clear-water conditions many cichlids rely on for feeding, breeding, and mate recognition.

This extinction event serves as a stark warning. It demonstrates how quickly human interventions can destroy millions of years of evolutionary history and heritage. It also underscores the fragility of the remaining biodiversity in Lake Victoria and the urgency of protecting the lake's surviving ecological and evolutionary value.

Current biodiversity and endemic species

Despite these losses, Lake Victoria remains biologically significant. The lake still supports endemic fauna, including surviving haplochromine cichlid species that have shown resilience and adaptive capacity.⁶⁰

A 2026 study of fishers' knowledge in Muhuru Bay and Migingo Island, based on participatory research conducted over 12 months in 2023–2024, shows that traditional ecological knowledge can help identify ecological changes that conventional monitoring may miss.⁶¹ For

instance, community elders reported the return of haplochromine cichlids using detailed physical markers. As one elder Suba fisher from Muhuru Bay explained, “These are the same fish we lost decades ago—their markings, colors, mustache-like fins—haven’t changed.”

The lake is also home to numerous other fish species, including tilapias, catfishes, and the introduced Nile perch and Nile tilapia, which now dominate the commercial fishery.⁶² Beyond fish, the lake supports a diverse array of wildlife. Hippopotamus, Nile crocodiles, African clawless otters, and numerous waterbird species inhabit the lake and its wetlands.⁶³ The papyrus swamps that fringe much of the lake's shoreline provide critical habitat for birds, including several threatened species, and serve as important breeding grounds for fish.⁶⁴

The lake's islands, including the Ssesse Islands in Uganda, Ukerewe in Tanzania, and Mfangano in Kenya, harbor unique ecological communities and, in some cases, endemic subspecies.⁶⁵ These islands also hold significant cultural and archaeological value, as detailed in subsequent sections.

Community testimony from Musambwa Island also shows the relationship between cultural practice, informal community protection, and biodiversity recovery. Katumba, a resident of Musambwa Island, described how community respect for the island's wildlife, breeding areas, and cultural rules has helped protect habitat and reduce disturbance to birds. He explained that “when communities protect nature, nature responds,” noting that bird populations have

recovered and that migratory birds now use the island as a safe breeding and resting place. At the same time, he warned that some species remain under threat, including the grey-headed gull, whose eggs are still secretly collected and eaten, and the long-tailed cormorant, locally known as Entajuga. His testimony shows why protection of Lake Victoria's islands should build on community knowledge, cultural rules, local education, and practical safeguards for breeding sites and threatened species.⁶⁶

Ecosystem functions

Lake Victoria provides a wide range of ecosystem functions that are essential to human well-being in the region. It is one of Africa's most important inland fisheries and provides water for drinking, cooking, washing, agriculture, and local livelihoods.⁶⁷ The lake's wetlands, papyrus swamps, rivers, tributaries, islands, shorelines, and catchment forests help filter pollutants, reduce flood risk, stabilize shorelines, support fish breeding, and sustain wildlife habitats.⁶⁸ Lake Victoria also serves as the primary reservoir for the Nile River, supporting downstream agriculture and water supply across northeastern Africa.⁶⁹ These ecological functions are inseparable from the lake's cultural and spiritual value. For fishing communities around the lake, Lake Victoria is a source of food, water, memory, livelihood, identity, ecological knowledge, and living cultural tradition. As a result, the protection of Lake Victoria and its ecosystem functions would have positive impacts not only on communities in East Africa, but also downstream in North Africa.

Cultural importance of Indigenous, local, and living heritage

Local names and spiritual significance

Long before European explorers arrived, Lake Victoria held profound spiritual and cultural significance for the Indigenous Peoples, local communities, and fishing communities of the region.⁷⁰ The Baganda of Uganda call the lake Nalubaale, meaning “Mother of the Gods.” This name reflects the lake's central role in Baganda cosmology. It is seen not merely as a body of water but as a living, sacred entity from which life and spiritual power emanate.

To the Luo people of Kenya and Uganda, the lake is Nam Lolwe, which means the “Endless Lake” or “wide, expansive water.”⁷¹ The Luo are one of the largest ethnic groups in the basin, constituting approximately 64% of fishers in some areas.⁷² Their relationship with the lake is encoded in oral traditions, proverbs, songs, and rituals that govern fishing practices, marriage, and community life.

The Suba people, an indigenous Bantu-speaking community living on the islands and shores of Lake Victoria in Kenya,⁷³ have a culture deeply intertwined with the lake. Traditionally fishermen, the Suba developed sophisticated knowledge of fish behavior, seasonal patterns, and weather cycles. Their traditional fishing methods, including the construction of intricate traps and the use of specific plant-based baits, represent generations of accumulated ecological knowledge.⁷⁴

These names and beliefs are not merely historical curiosities. They continue to shape

how communities interpret and respond to changes in the lake today. In recent research with fishers in Muhuru Bay and Mizingo Island, some elders connected ecological decline to the weakening of rituals and reciprocal relationships with the lake and ancestors. As one Suba elder from Muhuru Bay explained, “We stopped honoring the ancestors; they are angry and now the lake starves us.”⁷⁵ Sacred sites, taboos against overfishing, rituals associated with lake spirits, and other forms of traditional ecological knowledge remain part of living cultural practice in many communities.⁷⁶

The lake as a cultural landscape

The concept of a cultural landscape, defined by UNESCO as the “combined works of nature and of man,” is particularly applicable to Lake Victoria.⁷⁷ The lake and its surrounding lands have been shaped by human activity over thousands of years. Fishing communities have modified shorelines, created landing sites, planted trees, and managed wetlands. At the same time, the lake has shaped human culture, determining settlement patterns, diet, social organization, and spiritual beliefs.

Community testimony from Musambwa Island, also known as Ghost Island, illustrates how these cultural landscapes are still being protected through living traditions. Robert Walugembe, a 93-year-old resident who has lived on Musambwa since the early 1960s, describes the island as both a home and sacred spiritual place.

“Over the years, I have witnessed how our island has remained protected because of the cultural beliefs and traditions that our ancestors passed

on to us,” he explained. “These customs have guided how we live with nature and have ensured that the island’s wildlife, forests, and sacred places are respected.” For Walugembe, Musambwa is “part of who I am,” and the island’s protection depends on preserving “our spirits, our culture, and the natural heritage that has sustained us for generations.”⁷⁸

This mutual shaping is the basis of a cultural landscape. The Budj Bim Cultural Landscape in Australia, inscribed as a World Heritage site in 2019, provides a useful precedent for recognizing Indigenous cultural landscapes shaped by long relationships between people, water, ecology, and resource management.⁷⁹ The recognition of Budj Bim, the first Australian site inscribed purely for Aboriginal cultural heritage, shows that UNESCO can recognize the Outstanding Universal Value of living cultural landscapes grounded in Indigenous knowledge and long-term stewardship.⁸⁰

Traditional fishing communities and practices

The fishing economy of Lake Victoria is not merely an economic activity but also a cultural system. Fishing communities around the lake have developed distinctive social organizations, technologies, and knowledge systems that have been passed down through generations.

Traditional fishing methods around Lake Victoria were remarkably diverse and well-adapted to local conditions. Communities used dugout canoes crafted from indigenous trees, fiber nets made from local plants, and traps designed to catch specific species without damaging the ecosystem.⁸¹ The Luo developed specialized techniques for catching different fish at different times of year, guided by detailed knowledge of fish migration, breeding cycles, and water conditions.



Fisherman throws a net in Lake Victoria

The social organization of fishing communities was equally sophisticated. Access to fishing grounds was often governed by local customary laws administered by clan elders.⁸² Rituals accompanied the launching of boats, the setting of nets and the first catch of the season. These practices reinforced sustainable fishing framed within local religious and social frameworks.

The introduction of industrial fishing, monofilament nets, outboard motors, mobile seine nets, and offshore trolling, however, has disrupted many of these traditional systems. As one youth fisher from Mgingo Island explained, “Traditional nets waited for fish; now nets chase them.”⁸³

This shift reflects a move away from practices shaped by local knowledge, restraint, and seasonal rhythms toward more intensive forms of fishing driven by scarcity, commercial pressure, and rising costs. However, elements of traditional knowledge and practice persist, particularly in remote areas and among older fishers.⁸⁴

Documenting and supporting these traditions are not merely an act of cultural preservation. It is also a strategy for sustainable resource management, as traditional practices often embody ecologically sound principles developed over centuries of observation and adaptation.



Economic importance of fisheries, livelihoods, and regional prosperity

The world's largest freshwater fishery

Lake Victoria supports the world's largest freshwater fishery, producing about 1 million tons of fish annually. The Lake Victoria Fisheries Organization reports that this harvest generates more than US\$840 million at the beach and more than US\$300 million in exports. The fishery was fundamentally transformed by the introduction and expansion of Nile perch, an invasive species, which became the basis of a major commercial and export-oriented industry around the lake.

Nile perch has averaged approximately 250,000 tons of catch per year over the last two decades and remains a major source of revenue for Kenya, Uganda, and Tanzania.⁸⁵ A Lake Victoria Fisheries Organization value chain analysis reports that Lake Victoria's fisheries generate about US\$400 million in exports, with Nile perch providing a major share of the lake's foreign exchange earnings.⁸⁶ However, the Nile perch fishery faces serious pressure from overfishing, declining catch per unit effort, illegal fishing gear, and high levels of non-compliance with fishing regulations, all of which threaten the long-term sustainability of the stock.⁸⁷

Employment and livelihoods

Lake Victoria's fishery employs around 200,000 people directly in fishing and supports the livelihoods of up to four million people through related activities.⁸⁸ These activities include fish processing, trading, boat-building, net-making, equipment supply, transport, industrial processing, fisheries research, extension services, and administration. For Uganda specifically, one study estimates 250,000 artisanal fishers nationally, including 136,000 on Lake Victoria, while nearly one million people nationally, including around 700,000 around Lake Victoria, benefit from fishery-related activities.⁸⁹



Lake Victoria fishermen go to work

Women play a significant but often underrecognized role in Lake Victoria's fishery. Studies on gender participation in the sector find that women are especially active in fish processing, marketing, and the artisanal fish trade.⁹⁰ Research on Lake Victoria's fish economy also finds that women commonly work as retail traders in local and regional markets and as fish processors, including through drying.⁹¹ Recent research from Muhuru Bay and Migingo Island also shows that women's roles are expanding into harvesting, processing, and trade as communities respond to economic pressure, male migration, and loss linked to human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS).⁹² As one woman from Muhuru Bay explained, "We now dominate purse seine harvesting because men are gone; we stepped in to keep families alive."⁹³

Community testimony from landing sites around Lake Victoria reinforces this point. Florence, a fish trader from Kasensero landing site in Uganda, described the lake as "the backbone of my life and the source of income for many women like me." She explained that women buy, process, and sell fish to support their families, pay school fees, and meet basic needs. "Lake Victoria is not just water to us," she said. "It is our workplace, our market, and our survival." Her testimony shows why protecting the lake is also about protecting women's livelihoods, household income, and economic independence.⁹⁴

Fishing communities describe the lake as central to identity and intergenerational survival. Ochieng Emma, a fisherman from Dunga landing site in Kisumu County, Kenya, explained that Lake Victoria "has provided everything for my family and our community," and that Dunga is not only

a landing site, but "a place where our culture, traditions, and livelihoods are closely connected to the lake and its surrounding wetlands." His testimony links declining fish stocks, pollution, habitat destruction, and unsustainable development to the future of young people who depend on fishing.⁹⁵

The fishery is central to household food security. Small fish such as dagaa or omena are dried, traded, and consumed locally,⁹⁶ providing income and affordable protein. In Muhuru Bay and Migingo Island, researchers found that declines in Nile perch and tilapia have contributed to greater reliance on omena, a small sardine that was once stigmatized but is now widely relied on as a local staple. As one Luo fisher from Muhuru Bay put it, "Omena belonged to poor households, a fisher loathed vegetables ... the two feed us now."⁹⁷ The quote captures how ecological change is reshaping not only income, but also diets, dignity, and everyday survival.

Contribution to national economies

Lake Victoria fisheries have made a substantial contribution to the national economies of Uganda, Kenya, and Tanzania. A 2008 World Bank project document estimated that Lake Victoria fisheries contributed 2% of Kenya's gross domestic product (GDP), 2.8% of Tanzania's GDP, and 3% of Uganda's GDP, though more recent country-specific estimates may differ.⁹⁸ These figures, while significant, likely underestimate the true economic contribution, as they do not fully capture the informal sector, the value of fish for subsistence consumption, or the multiplier effects of fishery-related economic activity.



Two fishers hold net in boat near Lake Victoria bank in Jinja, Uganda

In Kenya, Lake Victoria remains the country's most important inland fishery, although its exact share of national fish production varies by source and year. Kenya's 2022 Fisheries Statistical Bulletin states that inland capture fisheries contributed 67% of Kenya's total fish production in 2022, with Lake Victoria as the principal source, accounting for 86,394 metric tons.⁹⁹ A peer-reviewed study of the Kenyan Lake Victoria fishery found that official statistics may undervalue the fishery and estimated 151,002 metric tons of catch and total annual fishing revenue of approximately US\$297 million.¹⁰⁰

Community-led tourism, research, and alternative livelihoods

Lake Victoria has significant but largely undeveloped potential for community-led nature-based tourism, cultural heritage tourism, research, and local livelihood diversification. The lake's islands, including the Ssesse Islands in Uganda and Ukerewe in Tanzania, offer opportunities for birdwatching, cultural experiences, and lake-based tourism if these activities are developed with community leadership and safeguards for local livelihoods.¹⁰¹ The rock art sites around the lake could also support cultural heritage documentation, education, research, and carefully managed heritage tourism if they are properly protected and developed with community leadership and

the participation of Indigenous Peoples and local communities.

Community experience from Saanane Island in Tanzania shows how conservation, education, and carefully managed tourism can reinforce each other. Joseph, a resident who lives and works around Saanane Island, described improved conservation of wildlife, especially birds and small animals, and said the island has become an important place for tourism, education, and environmental awareness. He noted that more people, including young people and visitors, are learning about the importance of protecting nature and keeping the lake clean. His testimony illustrates how responsible tourism and environmental education can support conservation when they are linked to protection of the lake and its surrounding communities.¹⁰²

This potential should be understood as part of a broader alternative to extractive development, not simply as a tourism opportunity. Financing harmful sectors such as fossil fuels, industrial mining, large hydropower, and industrial agriculture can limit or preclude more sustainable development options, including tourism and community-based conservation.¹⁰³

A government-supported assessment of the Murchison Falls and Budongo landscape estimated that the ecosystems had an economic value of over US\$60 billion excluding oil reserves; the estimate included values linked to tourism, research, education, watershed protection, carbon storage, soil erosion control, and non-timber products.¹⁰⁴ Long-term ecological, cultural, and livelihood values should be assessed before sensitive landscapes are committed to fossil fuel expansion.

This points to a broader alternative investment narrative for Lake Victoria. Instead of treating fossil fuel infrastructure as the default development path, governments, donors,

development finance institutions, and private investors could support investments that protect the lake and strengthen long-term livelihoods, based on and guided by the communities who live there. Examples include fisheries recovery, wetland restoration, pollution control, clean water systems, cultural heritage documentation, community-led tourism, renewable energy, research, and sustainable livelihoods linked to the lake's ecological and cultural value.

For Lake Victoria, the same principle applies. Protecting the lake, wetlands, islands, cultural sites, fisheries, and water systems can help create space for development choices that sustain, rather than undermine, the communities and ecosystems that depend on the lake. A community-led World Heritage assessment process could help identify which alternatives are viable, who should benefit from them, and what safeguards are needed to ensure that conservation, tourism, restoration, and investment do not restrict customary livelihoods or exclude local communities.

The cost of degradation

The economic cost of Lake Victoria's degradation is substantial and growing. Eutrophication has reduced water quality, increased treatment costs for urban water supplies, and damaged

fisheries.¹⁰⁵ Water hyacinth (*Eichhornia crassipes*), an invasive aquatic weed, has choked waterways, blocked irrigation and drainage canals, disrupted fishing and navigation, and created habitat for disease-carrying mosquitoes. While estimates vary, the United Nations Environment Programme (UNEP) has estimated the economic impacts of water hyacinth at US\$20–50 million annually across seven African countries, and as much as US\$100 million annually across Africa as a whole.¹⁰⁶

The loss of biodiversity also carries economic and scientific costs. Haplochromine cichlids were once a major part of Lake Victoria's fish biomass and represented a significant potential fishery resource. Early surveys estimated that they made up 83% of demersal fish biomass, with a potential annual yield of 200,000 metric tons.¹⁰⁷ Their rapid adaptive radiation also makes Lake Victoria's cichlids globally significant for evolutionary research.¹⁰⁸ The decline of native tilapia species, including *Oreochromis esculentus* and *O. variabilis*, reduced the diversity of the fishery and contributed to the loss of genetic diversity and ecological functions.¹⁰⁹ The fishery is now much narrower and is dominated by introduced Nile perch and Nile tilapia, alongside the native small pelagic fish *Rastrineobola argentea*, known locally as dagaa, omena, or mukene.¹¹⁰

Current threats to the wider Lake Victoria landscape

The threats facing Lake Victoria cannot be understood separately from the wider landscape that sustains it. Pollution, invasive species, declining fish stocks, wetland loss, deforestation, climate change, and fossil fuel infrastructure all interact across the basin. Damage does not need to occur in the lake to affect the lake. Harm to tributaries, wetlands, catchments, shorelines, or fish breeding areas can move through the system, weakening water quality, fisheries, biodiversity, cultural heritage, food security, and the livelihoods of communities who depend on the lake.

These threats do not mean Lake Victoria has lost its value. They show why action is urgent while there is still time to restore ecological functions, protect cultural heritage, support communities, and prevent further deterioration of the basin.



Pollution, invasive species, and fishing pressure

Lake Victoria's ecological integrity has been weakened by pollution, eutrophication, invasive species, overfishing, and illegal fishing, but these pressures are also reasons for stronger protection and restoration, not reasons to abandon the lake. A World Heritage assessment should examine how improved wastewater treatment, pollution control, wetland restoration, invasive species management, fisheries recovery, and coordinated enforcement could help restore the lake's ecological functions and protect the values that remain globally significant.

Water quality has declined over recent decades as excess nutrients from agricultural runoff, untreated or poorly treated sewage, industrial discharge, urban waste, and atmospheric deposition enter the lake. These nutrients fuel algal and cyanobacterial blooms, reduce water clarity, and deplete oxygen, degrading habitat for fish and other aquatic life.¹¹¹ A 2025 study commissioned by the Lake Victoria Basin Commission found serious and rising pollution, with hotspots around Kampala, Kisumu, Entebbe, and Mwanza. Officials from Uganda, Kenya, and Tanzania warned that increasing pollution is endangering aquatic life and putting at risk the livelihoods of millions of people who depend on the lake.¹¹²

Invasive species have also fundamentally altered the lake. Nile perch was introduced in the 1950s and expanded rapidly from the late 1970s and early 1980s, contributing to the severe decline and disappearance of many native haplochromine cichlids, alongside fishing pressure, eutrophication, and other environmental change.¹¹³ Nile tilapia was also introduced to support the fishery, but has affected native tilapia species, including through hybridization with *Oreochromis variabilis*.¹¹⁴

Water hyacinth, whose spread has been linked in part to nutrient enrichment, blocks waterways, disrupts fishing and navigation, reduces access to clean water, and worsens oxygen depletion and disease risks.¹¹⁵

Fishing pressure compounds these ecological stresses. A Lake Victoria fisheries assessment reports that fishing is conducted with about 76,929 fishing canoes operated by 219,919 fishers, and identifies increased fishing pressure and illegalities linked to weak enforcement as major management challenges.¹¹⁶ Illegal and destructive practices, including undersized mesh nets, beach seines, monofilament nets, fishing in restricted areas, and the capture and trade of immature fish, continue to threaten the sustainability of the fishery.¹¹⁷ Research on illegal, unreported, and unregulated fishing also shows that non-compliance is shaped by poverty, limited livelihood alternatives, market demand, weak enforcement, and governance challenges, meaning that enforcement must be paired with livelihood support and fair access to sustainable alternatives.¹¹⁸

These pressures have reduced Lake Victoria's ecological integrity, but they have not erased its ecological, cultural, scientific, or livelihood value. Stronger protection could help address these problems by supporting recovery of fish breeding areas, restoration of wetlands and shorelines, reduction of nutrient pollution, control of invasive species, enforcement against destructive gear, and investment in alternative livelihoods for fishing communities. A World Heritage assessment would not solve these challenges by itself, but it could provide a stronger platform for coordinated regional action by Uganda, Kenya, and Tanzania, including through the Lake Victoria Fisheries Organization and Lake Victoria Basin Commission, and help align conservation, fisheries management, community livelihoods, and long-term restoration of the lake.

Climate change

Climate change poses a fundamental threat to Lake Victoria and the wider basin. Rising temperatures increase evaporation rates and alter the thermal structure of the lake.¹¹⁹ Changes in rainfall patterns, including both increases and decreases in different parts of the basin, affect lake levels, river flows, and the timing of seasonal events. Fishers are already describing these changes in practical terms. As one Suba fisher from Muhuru Bay explained, “The water burns like tea, and fish hide where we can’t find them.”¹²⁰

Climate models project increased variability in rainfall across East Africa, with more frequent and severe droughts and floods. Droughts reduce lake levels and concentrate pollutants, while floods increase sediment and nutrient loading. The combined effect is to amplify existing stresses on the lake ecosystem.

Rising temperatures also affect fish directly. Many of the endemic cichlid species are adapted to relatively narrow temperature ranges. Warming waters could force them to migrate to deeper or cooler areas, potentially beyond their physiological tolerance limits.¹²¹

Deforestation, sedimentation, and wetland loss

Deforestation in the Lake Victoria catchment is accelerating soil erosion and increasing sedimentation in the lake. The catchment has lost significant forest cover over the past century, replaced by agriculture, settlements, and charcoal production.¹²² Sedimentation reduces water depth, smothers fish breeding habitats, and carries nutrients and pollutants into the lake.

Wetland destruction is a related concern. Papyrus swamps that once fringed much of the lake have been drained for agriculture, reducing the lake's natural filtration capacity and exposing shorelines to erosion.¹²³ Protecting and restoring catchment forests and wetlands is essential for reducing sediment and nutrient loading.

Community testimony from the Sango Bay-Musambwa Island-Kagera Wetland System in southwestern Uganda reinforces the importance of protecting wetlands connected to Lake Victoria. This Ramsar-listed wetland system is part of Uganda's Lake Victoria region, and the broader Sango Bay-Minziro wetland landscape lies west of Lake Victoria along the Uganda-Tanzania border.¹²⁴ Musisi Henry, a youth leader from Kyotera District, described these wetlands as essential because they filter water flowing through the basin, provide fish breeding grounds, reduce flooding, store carbon, and support farming, fishing, and other livelihoods. He warned that if these wetlands are degraded, local communities will lose livelihoods, biodiversity will decline, and Lake Victoria will become more vulnerable.

Oil infrastructure and the risk to Lake Victoria

EACOP

EACOP is an under-construction 1,443-kilometer heated crude oil export pipeline that would transport oil from the Tilenga and Kingfisher fields in the Lake Albert area of western Uganda to the Chongoleani Peninsula near the port of Tanga on Tanzania's Indian Ocean coast.¹²⁵ When completed, the pipeline is expected to be the world's longest electrically heat-traced crude oil pipeline.¹²⁶ The project shareholders are TotalEnergies, which holds 62%, the Uganda National Oil Company and the Tanzania Petroleum Development Corporation, which each hold 15%, and China National Offshore Oil Corporation (CNOOC), which holds 8%.¹²⁷

The pipeline passes through areas of significant ecological and social sensitivity in Uganda and Tanzania. In Uganda, it traverses agricultural lands, forests, wetlands, and river systems, including permanent and seasonal watercourses and wetlands belonging to the Lake Albert, Victoria Nile, and Lake Victoria basins.

Earth Insight's 2025 spatial analysis reports that at least 39% of the EACOP pipeline and 22% of the Tilenga feeder pipeline have been cleared or constructed, and that the EACOP Project cuts through 44 protected areas and seven Key Biodiversity Areas, threatening critical habitats, endangered species, watershed functions, and ecosystem services that support local communities.¹²⁸ The same analysis highlights particular concern around Murchison Falls

National Park, where roads and well pads linked to oil development have already been established, and around the Victoria Nile crossing, where pipeline works could pose risks to freshwater biodiversity, riparian ecosystems, fisheries, livelihoods, and water security.

The Lake Victoria Basin serves as a vital ecological and cultural keystone connecting five East African countries, which have collaborated on efforts to promote nomination of the Lake Victoria Basin Ecosystem as a transboundary biosphere reserve.¹²⁹

Local communities have reported diminished livelihoods, physical and economic displacement, delayed or disputed compensation, food insecurity, and uncertainty linked to land acquisition for the pipeline.¹³⁰ More recent research with EACOP-affected people in Uganda also found concerns that livelihood restoration measures may fail to restore income, yields, and household food security, particularly where affected people reported inadequate compensation and difficulty replacing land lost to the project.¹³¹

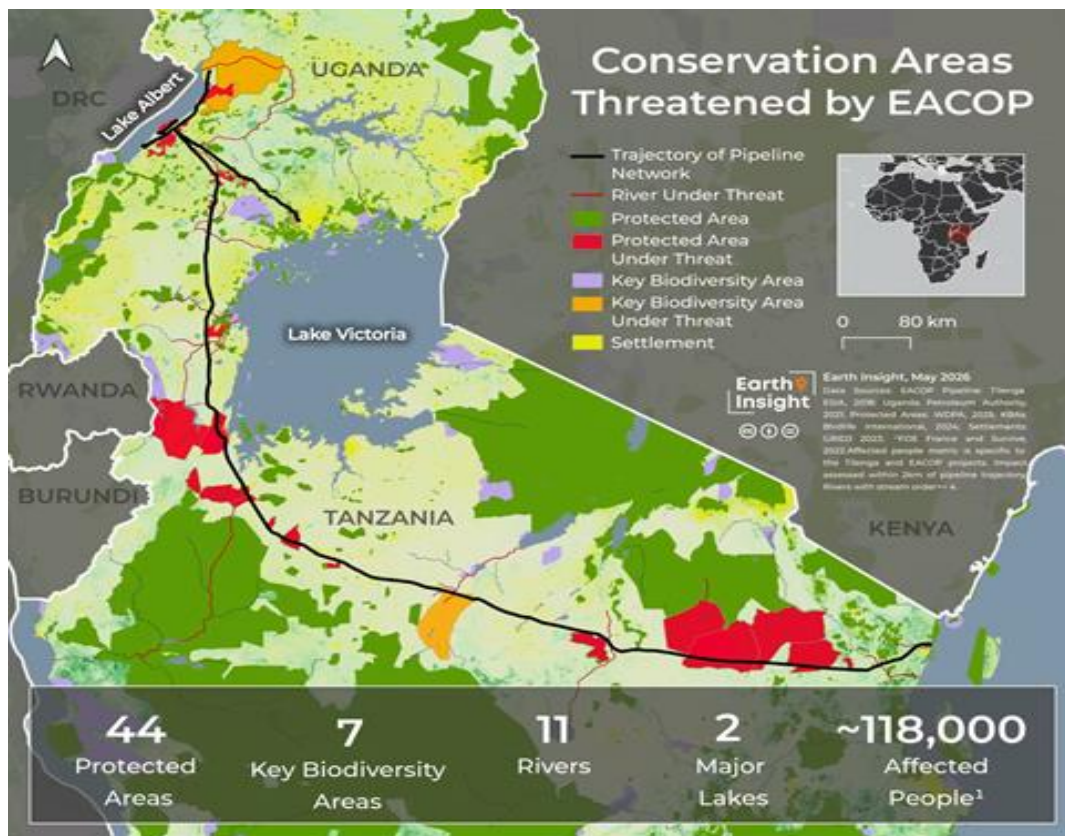
These local and regional consequences are compounded by EACOP's global climate implications. The Climate Accountability Institute has estimated that the project's full value-chain emissions could reach 379 million tons of carbon dioxide equivalent (CO₂e) over 25 years, with emissions of more than 34 million tons of CO₂e annually at peak production.¹³²

Proximity to Lake Victoria

While the pipeline's route does not cross Lake Victoria directly, it passes through the Lake Victoria Basin and crosses watercourses and wetlands within basins connected to Lake Victoria and the wider Nile system. WWF estimated that approximately 460 kilometers of the 1,443-kilometer pipeline would be located within the Lake Victoria watershed, meaning that nearly one-third of the pipeline route would pass through the basin. This makes spill prevention, emergency preparedness, watercourse protection, and independent monitoring especially important because contamination of

rivers or wetlands in the watershed could affect the lake itself.¹³³

The project's Uganda ESIA summary states that the route crosses permanent and ephemeral watercourses and wetlands belonging to the Lake Albert, Victoria Nile, and Lake Victoria basins.¹³⁴ The Tanzania ESIA summary also states that the route crosses watercourses and wetlands belonging to the Lake Victoria basin, among other basins.¹³⁵ Any oil spill, leak, or rupture in the Lake Victoria watershed could carry crude oil into rivers or tributaries and from there into the lake itself, depending on the location and quantity released.¹³⁶



Source: Earth Insight, "Conservation Areas Threatened by EACOP," map provided to STREC, May 2026. Underlying analysis available at: <https://earth-insight.org/insight/eacop-map-story-2025/>.

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The Kagera River, which flows into Lake Victoria, is particularly vulnerable. WWF identifies the Kagera as the largest river flowing into Lake Victoria and states that the pipeline crosses it.¹³⁷ A spill affecting the Kagera River or connected wetlands could therefore contaminate one of Lake Victoria's major inflow systems, threatening water, fisheries, biodiversity, and livelihoods.

The Victoria Nile is also relevant, but it should be described as Lake Victoria's outlet rather than as a pathway into the lake. The Victoria Nile flows from Lake Victoria through Lake Kyoga and then to Lake Albert, so a spill near the Victoria Nile could contaminate the lake's downstream outlet system rather than flowing back into Lake Victoria.¹³⁸

The pipeline's route also crosses areas with seismic and geotechnical risk. WWF identifies the Lake Victoria watershed section as an active seismic area and states that this increases the risk of leakage or spillage in the watershed.¹³⁹ The Uganda ESIA summary states that although the route does not traverse the East African Rift system, the pipeline right of way crosses six major faults, while also noting that landslides and sinkholes had not been identified across the Ugandan area of influence.¹⁴⁰ The Tanzania ESIA summary identifies sections with steep ridges or moderate hills that increase erosion risk, with drought and flooding that may exacerbate weathering and soil loss.¹⁴¹ These factors heighten concern about rupture, leakage, or spill risks, although landslide risk should be presented as location-specific rather than route-wide.

These concerns are shared by communities living near sensitive wetlands along the pipeline route. Musisi Henry, a youth leader from Kyotera District, warned that EACOP passes through sensitive wetlands in the district and that oil spills, habitat destruction, and disturbance during construction and operation could damage

these fragile ecosystems and ultimately affect the health of Lake Victoria.¹⁴²

The consequences of an oil spill

The consequences of an oil spill in or near Lake Victoria could be catastrophic and potentially irreversible. Crude oil is toxic to freshwater organisms, including fish, aquatic birds, microorganisms, vegetation, and other species, and its effects can move up the food chain.¹⁴³ A spill could kill fish, damage breeding habitats, contaminate fisheries, and disrupt fishing activity.¹⁴⁴ The effects could extend beyond the immediate spill area, as oil may be carried by currents, rivers, streams, wetlands, and shoreline flows, depending on where the spill occurs and how quickly it is contained.

For the more than 40 million people who depend on Lake Victoria, an oil spill could be a humanitarian disaster.¹⁴⁵ Contaminated water would no longer be safe for drinking, cooking, washing, or household use. Fish could become unsafe to eat, destroying livelihoods and eliminating a critical source of dietary protein. The economic costs in lost fisheries, increased water treatment, health impacts, and cleanup could be severe.

Climate Rights International's 2023 briefing warned that the Lake Victoria basin, which it states supports the livelihoods of more than 30 million people, would be at high risk of pollution and degradation from oil spillage and other infrastructure-related impacts.¹⁴⁶ Other campaign and technical sources state that more than 40 million people depend on Lake Victoria for water, food production, and livelihoods, and that approximately 460 kilometers of the pipeline would be constructed within the Lake Victoria basin.¹⁴⁷ Earth Insight's 2025 mapping analysis identified specific high-risk areas where pipeline construction and operation threaten

water resources, habitats, protected areas, and communities.¹⁴⁸

Inadequate safeguards

Environmental organizations, human rights groups, and affected communities have raised serious concerns about whether EACOP's environmental and social safeguards are adequate to protect the Lake Victoria Basin. The project's environmental and social impact assessments have been criticized as incomplete and insufficiently protective of communities, water systems, biodiversity, and connected ecosystems.¹⁴⁹

Spill preparedness is a central concern. WWF warned that approximately 460 kilometers of the pipeline, nearly one-third of the full route, would be located within the Lake Victoria basin, where contamination of rivers could affect the lake itself. WWF recommended a complete oil spill contingency plan, regular spill-risk assessments, response drills, personnel training, and spill-response equipment at high-risk locations.¹⁵⁰ Separately, a 2022 independent assessment by Inclusive Development International reviewed EACOP against the Equator Principles and International Finance Corporation (IFC) Performance Standards and found that the ESIA did not contain a robust oil spill emergency response plan, including measures to support communities whose drinking water could be contaminated.¹⁵¹ EACOP's own public materials state that contingency plans for oil spill recovery and emergency pipeline repair will be developed before oil enters the pipeline.¹⁵²

These gaps make independent review, public disclosure, and government enforcement especially important. Ugandan civil society groups have repeatedly raised concerns about EACOP's environmental, social, and human rights risks.

Comments from the Africa Institute for Energy Governance (AFIEGO) on the EACOP ESIA warned that the assessment did not adequately identify possible transboundary impacts, including the risk that an oil spill could affect Lake Victoria, which is shared by Uganda, Kenya, and Tanzania.¹⁵³ AFIEGO has also published research on project-affected people in Uganda documenting concerns about inadequate compensation, livelihood loss, and whether affected households are worse off after land acquisition.¹⁵⁴

Reports and legal actions involving Ugandan groups, including the National Association of Professional Environmentalists (NAPE)/Friends of the Earth Uganda, have also raised concerns about displacement, land acquisition, environmental harm, and the adequacy of TotalEnergies' human rights and environmental due diligence for the Tilenga and EACOP projects.¹⁵⁵

These concerns are not limited to the pipeline corridor alone. They should be assessed together with the associated Tilenga and Kingfisher oil fields, access roads, land acquisition, worker camps, waste management, water use, and other infrastructure that could compound pressure on wetlands, rivers, habitats, and communities connected to the Lake Victoria Basin.

A community-led World Heritage assessment should not be used to manage the impacts of a predetermined fossil fuel project. Rather, it should examine whether oil extraction, pipeline construction, associated infrastructure, land acquisition, and spill risks are compatible with protecting Lake Victoria's wetlands, tributaries, cultural sites, fisheries, communities, and potential Outstanding Universal Value.

For Lake Victoria, this assessment should support independent spill-risk review,

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emergency preparedness, community notification procedures, cultural mapping, ecological and hydrological monitoring, and

public scrutiny of risks affecting the lake and its wider basin.



Oil exploration facility inside Murchison Falls National Park, Uganda

Conclusion

Lake Victoria is far more than a body of water. It is Africa's largest lake by surface area, the world's largest tropical lake, a shared freshwater system for Uganda, Kenya, and Tanzania, and a wider basin connected to Rwanda, Burundi, and the Nile River system. Its health affects water, fisheries, wetlands, biodiversity, cultural heritage, food security, and livelihoods across East Africa and beyond.

The lake's ecological and cultural importance is exceptional. Its cichlids represent one of the fastest and most extensive adaptive radiations documented in vertebrates, while its fisheries remain central to employment, trade, food security, and household income for millions of people. Lake Victoria is also a living cultural landscape, connecting islands, shorelines, wetlands, fishing communities, spiritual traditions, oral histories, customary practices, and geometric rock art sites already reflected in coordinated World Heritage Tentative List entries.

The threats facing Lake Victoria are serious and interconnected. Pollution, invasive species, overfishing, wetland destruction, climate change, weak governance, and fossil fuel infrastructure are already placing pressure on the lake and the communities that depend on it. EACOP adds further risk because it passes through parts of the Lake Victoria Basin and crosses watercourses and wetlands connected to the lake and wider Nile system.

Lake Victoria should therefore be assessed through a transparent, community-led process for possible eventual UNESCO World Heritage nomination. That process should determine whether nomination is appropriate, what values and boundaries should be considered, how protection and management requirements could be met, and what safeguards are needed. Protecting Lake Victoria should also support a different development pathway, one rooted in fisheries recovery, wetland restoration, pollution control, cultural heritage protection, renewable energy, community-led tourism, and sustainable livelihoods.

Detailed Recommendations

Any process to assess Lake Victoria for possible eventual UNESCO World Heritage nomination should be community-led and rights-based from the outset. It should include FPIC where Indigenous Peoples are affected and consent-based consultation as a best practice for local communities. Consultations should center on community-led cultural and ecological mapping, livelihood protections, and recognition of customary governance and fishing practices. They should also include safeguards against displacement, exclusionary conservation, restrictions on customary fishing, cultural, or spiritual practices imposed without consent, and tourism development that benefits outsiders while burdening local communities.¹⁵⁶

The assessment should begin with evidence, consultation, and mapping, not with a predetermined nomination model. It should examine whether Lake Victoria's potential Outstanding Universal Value could be demonstrated, whether a possible nomination should cover the whole lake, selected islands, shorelines, rock art sites, wetlands, connected tributaries, or specific cultural landscapes, and how requirements on integrity, authenticity, protection, and management could be met.¹⁵⁷ Above all, protecting Lake Victoria should prioritize Indigenous Peoples and local communities' own vision for local development, where all rightsholders and stakeholders can equally benefit from stronger protections for Lake Victoria.

For the governments of Kenya, Uganda, and Tanzania

- Initiate a transparent, community-led assessment process for possible eventual UNESCO World Heritage nomination of Lake Victoria, building on the coordinated Tentative List entries for the geometric rock art of the Lake Victoria Region.¹⁵⁸
- Establish a joint assessment taskforce that includes culture, environment, water, fisheries, tourism, lands, and foreign affairs authorities, alongside Indigenous Peoples where affected, local communities, fishing communities, women traders, youth leaders, cultural knowledge holders, scientists, and civil society organizations.
- Ensure that the assessment includes community-led cultural and ecological mapping, including documentation of rock art sites, oral traditions, sacred sites, customary fishing practices, wetlands, islands, shorelines, fish breeding areas, and livelihood systems connected to Lake Victoria.
- Assess how any possible World Heritage pathway would protect livelihoods, customary governance systems, women's roles in fish processing and trade, traditional fishing practices, community conservation, and local management of wetlands, islands, and landing sites, while supporting an alternative investment agenda focused on fisheries recovery, wetland restoration, pollution control, clean water systems, cultural heritage documentation, community-led tourism, renewable energy, research, and sustainable livelihoods.¹⁵⁹

- Apply a precautionary approach to oil, gas, and related infrastructure in the Lake Victoria Basin, including review of spill risks, cumulative impacts, emergency preparedness, land acquisition, livelihood restoration, and impacts on watercourses, wetlands, fisheries, cultural sites, and communities, while strengthening the Lake Victoria Fisheries Organization and national fisheries authorities to address overfishing, illegal fishing, invasive species, pollution, and declining fish stocks.¹⁶⁰
- Pause extractive activities affecting the Lake Victoria Basin, such as fossil fuel and EACOP development, while a community-led assessment is undertaken and completed.

For UNESCO, IUCN, ICOMOS, and relevant international partners

Because Lake Victoria may raise both cultural and natural values, any assessment should consider the respective roles of ICOMOS in cultural heritage evaluation and IUCN in natural heritage evaluation, alongside the World Heritage Centre, relevant State Parties, communities, and independent experts.

- Provide technical and financial support for a community-led World Heritage assessment process, including cultural mapping, ecological and hydrological analysis, livelihood studies, scientific review, rock art documentation, and assessment of integrity, authenticity, protection, and management requirements.¹⁶¹
- Support independent research on how the existing geometric rock art Tentative List entries relate to the wider Lake Victoria cultural and ecological landscape, including whether they should remain a focused rock art nomination, inform a wider cultural landscape approach, or support a separate or expanded nomination pathway.¹⁶²
- Convene a regional dialogue on protection of the African Great Lakes, bringing together riparian governments, UNESCO National Commissions, the EAC, Lake Victoria Basin institutions, scientists, Indigenous Peoples where affected, local communities, fishing communities, women traders, youth leaders, and civil society organizations.
- Support alternative energy and development pathways that do not depend on fossil fuel expansion in sensitive freshwater ecosystems, including renewable energy, sustainable livelihoods, fisheries recovery, wetland restoration, pollution control, cultural heritage protection, and community-led tourism.
- Ensure that all technical support includes safeguards against displacement, exclusionary conservation, restrictions on customary livelihoods imposed without consent, and tourism models that benefit outside actors while burdening resident communities, while also supporting independent review of EACOP-related risks to the Lake Victoria Basin, including spill preparedness, emergency response planning, watercourse and wetland crossings, community notification procedures, cumulative impacts, and potential effects on cultural and ecological heritage.¹⁶³

- Encourage and support the Ugandan and Tanzanian governments to pause extractive activities affecting the Lake Victoria Basin, such as fossil fuel and EACOP development, while a community-led assessment is undertaken and completed.

For the EAC

- Support a regional framework for protecting transboundary freshwater ecosystems in East Africa, with specific attention to oil and gas development, pollution control, wetland protection, fisheries governance, climate adaptation, community rights, and cumulative impacts on the Lake Victoria Basin and other African Great Lakes.
- Work with the Lake Victoria Basin Commission, Lake Victoria Fisheries Organization, UNESCO National Commissions, and national authorities to support coordinated assessment of Lake Victoria's ecological, cultural, hydrological, and livelihood values.¹⁶⁴
- Support engagement between Lake Victoria institutions and relevant Nile Basin stakeholders so that any World Heritage assessment considers the lake's broader hydrological significance, including its role in the Nile River system, downstream water security, wetland protection, and transboundary freshwater governance.¹⁶⁵
- Explore the creation of a Lake Victoria or African Great Lakes Conservation Fund, financed by riparian governments, regional institutions, donors, and international partners, to support sustainable livelihoods, ecosystem restoration, cultural heritage documentation, fisheries recovery, community-led tourism, and future World Heritage management needs.
- Promote harmonized regional standards for environmental impact assessment, strategic environmental assessment, spill preparedness, public disclosure, community consultation, and cumulative impact assessment, while ensuring that regional conservation and heritage initiatives are developed with the participation of Indigenous Peoples where affected, local communities, fishing communities, women traders, youth leaders, and civil society organizations, and strengthen rather than displace customary governance, livelihoods, and cultural relationships with the lake.
- Encourage and support the Ugandan and Tanzanian governments to pause extractive activities affecting the Lake Victoria Basin, such as fossil fuel and EACOP development, while a community-led assessment is undertaken and completed.

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