

# Ninety Days

*of the Lesser Flamingo at Lake Natron*  
*one chick, one season, one lake*

A Lesser Flamingo chick hatches on a cone of mud in the middle of a caustic lake. Ninety days later it either flies, or it does not. This is what those ninety days ask of Lake Natron – and what the proposed soda ash mine would take from them.

# Lake Natron — the lake at the centre of this story

Lake Natron lies on the floor of the Gregory Rift in northern Tanzania, about 100 km north-west of Arusha, beneath the active volcano Ol Doinyo Lengai. It is a shallow, intensely alkaline soda lake fed by mineral-rich springs and the Ewaso Ng'iro river, and it is hostile to almost all life. That hostility is exactly what makes it valuable: it keeps predators away from the islands where flamingos nest.

Listed as a Ramsar Site of International Importance in 2001, Lake Natron is East Africa's only regular breeding ground for the Lesser Flamingo, and around three-quarters of the world's population depends on it. More than 300 bird species inhabit the lake, wetland and the surrounding grasslands, while over 65,000 people rely on the catchment for water, cultural practices and, increasingly, income from ecotourism — income that is also business for the private companies invested in tourism here, and revenue for the Government of Tanzania at national, district and village level.

The lake and the land around it are a **Game Controlled Area**, protected and managed by the **Tanzania Wildlife Management Authority (TAWA)**, whose work at the site has kept its wildlife, its habitats and its tourism value intact.

## About the issue

**Issue 01 set out the case for Lake Natron.** This issue follows a single Lesser Flamingo chick through one breeding season — roughly ninety days from hatching to first flight — and then runs those same ninety days a second time, with the proposed soda ash mine in operation (**Table 1**). Our objective is to show, stage by stage, why proposed soda ash mining at Lake Natron cannot sit alongside the breeding cycle it would occupy, and why the Engaruka Basin is the right place for Tanzania's soda ash.

KNOWING OUR IBAS · ISSUE 02 · PUBLISHED JULY 2026

75%

of the world's Lesser Flamingos depend on this lake

2.5M

birds gathering in a good breeding year

300+

bird species across lake, wetland and grassland

2001

listed as a Ramsar wetland of global value



**FIGURE 1** The Magadini shore beneath Ol Doinyo Lengai — when the lake is right, the flamingos return in their millions · © AKSHITA RABDIYA

## They do not breed every year

Each year, thousands of Lesser Flamingos gather at Lake Natron, where they begin one of nature's most spectacular courtship rituals. Standing in vast pink flocks, they stretch tall, puff out their brilliant carotenoid-rich plumage, and march in perfect synchrony, rapidly twisting their necks in a display known as head-flagging to attract mates.

The flamingos wait for the lake to become exactly right. Water levels must expose the trona islands, surrounding them with a caustic moat that protects nests from predators, while blooms of *Spirulina* provide abundant food in the shallow waters. Only when these conditions align do the birds build their iconic mud-cone nests.

*But courtship alone is not enough.*



FIGURE 2 A Lesser Flamingo chick on its nest mound, south-west Lake Natron · © PAUL MCKENZIE

Even then, breeding is never guaranteed. If the lake fails to provide the precise conditions, the flamingos simply abandon the attempt and leave without laying a single egg. At Lake Natron, the lake — not the birds — determines whether a new generation will begin.

**1.5–2.5M**

birds gather in the seasons when the lake is exactly right

When those conditions do not arrive, the flamingos simply do not breed. Nothing about a season here is guaranteed — and that is the first thing to understand about the lake the proposed soda ash mine would be built beside.

## Built from the lake itself

The nest is a cone of trona and mud, scraped up by the birds from the lake bed and raised a few centimetres above the water. One egg. Tens of thousands of cones, packed close together (**Figure 2**, previous page).

The mound is not decoration. It is the entire survival strategy: high enough to stay dry, standing on an island no predator will wade to, because the water in between would burn them.

*The nest mounds are made of trona.  
Trona is what the proposed soda ash mine wants.*



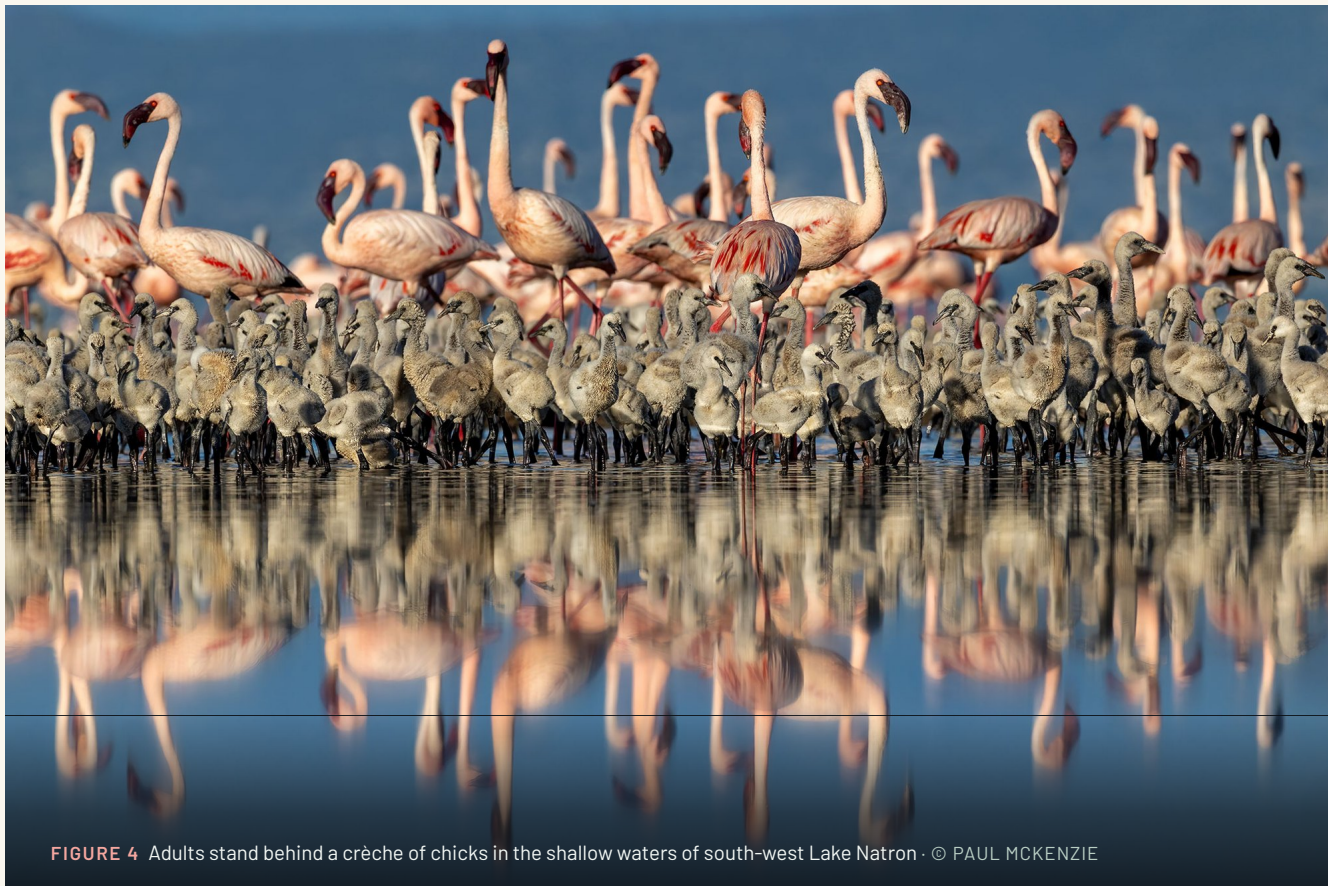
**FIGURE 3** An adult Lesser Flamingo tends to its chick on a nest · © PAUL MCKENZIE

**Day 0 to 5 — hatching.** The chick hatches grey with a straight bill; it cannot filter-feed yet. For the first days it is fed crop milk produced by both parents, and it barely leaves the mound (**Figure 3**). Its bill will curve over the coming weeks. Its colour will take years.

# A city of chicks, run by a handful of adults

Within a week or two the chicks leave the mounds and merge into crèches — vast grey masses of young birds, tens of thousands strong, shepherded by only a few dozen adults (**Figure 4**).

It looks like chaos. It is the opposite. A crèche is safer than any single nest: a predator cannot pick out one chick from a shifting grey tide. The colony survives by becoming one animal.



**FIGURE 4** Adults stand behind a crèche of chicks in the shallow waters of south-west Lake Natron · © PAUL MCKENZIE

## One bird, in a million, by voice

Parents feed only their own chick. They land at the edge of the crèche and call, and out of a million near-identical birds, one answers (**Figure 5**). There is no adoption in a flamingo colony — a chick that loses its parents loses everything.



**FIGURE 5** An adult tends its chick in a crèche · © PAUL MCKENZIE

# Three things the lake must supply at once

## Spirulina

The blue-green alga that stains Natron pinkish red is the food. As the chick's bill curves, it learns to filter — and the entire species is built around this one crop.

## Fresh water

The open lake is undrinkable, even for flamingos. Chicks drink from freshwater springs and seeps at the lake margins; adults use them to clean their feathers while nesting. Above all, the springs of the eastern shore, including those at Wosiwosi village.

## Distance

The walks between food and drinking water are long, and the chicks make them on foot, in heat, in enormous numbers.

## Where the fresh water comes from — and why the proposed soda ash mine is not "far away"

The springs along the **eastern shore of Lake Natron, including those at Wosiwosi village**, are among the most important sources of fresh water in the whole system. Chicks walk to them to drink; adults rely on them too, both to drink and to clean the caustic water from their feathers while nesting. They are not a separate feature of the landscape sitting next to the colony — they are part of the breeding ecology of the Lesser Flamingo, as much as the nest mounds themselves.

The proponent of the proposed soda ash mine argues that the project would sit far away from the flamingos' breeding areas. **That is not correct.** Breeding ecology is not confined to the nest mounds. It includes the freshwater springs the chicks drink from, the shallow lagoons they feed in, and the shoreline they walk across between the two. The proposed soda ash mine would sit inside that zone — and would draw on the very springs, groundwater and river inflow the zone depends on.

More than 98% of the soda ash is destined for export, leaving the country through Magadi Soda in Kenya. Against that, the assessment sets no ecological flow requirements for the lagoons, springs and river deltas it would draw from, and offers no cost-benefit comparison with the conservation and tourism investment TAWA and private operators have already made here. A tender for the Engaruka Basin was announced in December 2024. **The alternative exists; the case for taking the risk here has not been made.**



FIGURE 6 Adults standing and sitting on their nest mounds beneath the Rift wall · © AKSHITA RABDIYA

# Not every chick makes it. Not every season works.

This is the honest part of the story.

Rain raises the lake and the nests flood — a whole season lost in a night (**Figure 7**). A falling lake dissolves the moat, and predators walk out to the islands. Heat, chance and disturbance separate chicks from parents, and a separated chick does not survive long (**Figure 8**).

Nature already runs this colony to the very edge of what is survivable. The birds absorb it, because in a good year there are millions of them, and a few good years carry the species through.



**FIGURE 7** Eggs litter the southern shore of Lake Natron after heavy rains raised the water and flooded the nests · © PAUL MCKENZIE



**FIGURE 8** A chick separated from its parents — it will not survive more than a day or two · © PAUL MCKENZIE

## There is no spare capacity here

Every failure mode is already in play, every season, without any help from us. Which makes the question this brochure asks a simple one:

Why would we add proposed soda ash mining to the list of things that can end a season?

# The same ninety days, with the proposed soda ash mine

The proposed soda ash mine would extract **1,000,000 tonnes of trona a year** – around 660,000 tonnes of soda ash, some 98% of it for export through Magadi Soda in Kenya – running 24 hours a day for approximately 150 years. It would dredge roughly 10 km<sup>2</sup> of lake bed in rotating cells and build 150 hectares of plant and roads. It would pump lake water and draw fresh water from the Ewaso Ng'iro River, springs and groundwater at around 192 m<sup>3</sup> per hour.

*Now run the story again.*

TABLE 1 ONE BREEDING SEASON, WITH AND WITHOUT THE PROPOSED SODA ASH MINE

| DAY | THE CHICK                                 | THE PROPOSED SODA ASH MINE                                                                                                                                                                                                                                     | ECOTOURISM                                                                                                           |
|-----|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| –30 | The birds arrive and assess the lake      | Abstraction and a proposed dam alter inflow and lake level. The conditions that trigger breeding may simply not arrive.                                                                                                                                        | Operators book a season around a spectacle that may not occur. Bookings follow certainty.                            |
| –28 | The mound is built from trona             | Trona is the ore. Dredging runs in rotating cells across ~10 km <sup>2</sup> : the material the nests are made of is the material being removed.                                                                                                               | The visual centre of Natron tourism becomes an active industrial dredging field.                                     |
| 0   | Hatching; crop milk on the mound          | Continuous 24-hour operation – machinery, lighting, pipework, workforce traffic – across the breeding shoreline.                                                                                                                                               | "Wilderness" is no longer an accurate word in any brochure, including ours.                                          |
| 6   | The crèche forms                          | Changed water level either floods the mounds or dissolves the caustic moat. Without the moat, predators walk out.                                                                                                                                              | The crèche is the photograph people travel for. No crèche, no photograph.                                            |
| 21  | Parent finds chick by voice               | Disturbance and displacement break up colony structure. There is no adoption, so separation is fatal.                                                                                                                                                          | Guiding, camps, transport and craft income are seasonal and colony-dependent.                                        |
| 46  | Filter-feeding on <i>Spirulina</i> begins | Brine discharge and shifted salinity collapse <i>Spirulina</i> blooms and lagoon biofilms – the entire food web.                                                                                                                                               | The pinkish red of the lake – the thing that is photographed, painted and sold – is the algae.                       |
| 60  | The walk to the eastern-shore springs     | Abstraction from the Ewaso Ng'iro, springs and groundwater degrades the freshwater springs and lagoons chicks and adults depend on, including those at Wosiwosi – inside this zone. The endemic alkaline tilapia and the cichlids of the lagoons go with them. | The eastern shore is where visitors are taken to see the birds. A degraded shoreline is a poorer thing to show them. |
| 90  | First flight                              | No flight.                                                                                                                                                                                                                                                     | No season.                                                                                                           |

A failed season is normal at Lake Natron.  
A permanently failed site is not.

The proposed soda ash mine is designed to run for about 150 years. The flamingos would not be waiting for a good year – they would be waiting for a lake that no longer comes back.

# Five questions the ESIA leaves open

Condensed from Nature Tanzania's Consolidated Technical Objection to the NEMC Public Hearing, 3 June 2026 — prepared with more than 20 specialists in soda-lake ecology, hydrology, hydrogeology, limnology, flamingo breeding ecology and aquatic biodiversity.

## 01

### How much water can leave a closed basin?

Natron has no outlet. No ecological flow limits are set, and climate change is not accounted for. Cut the inflow and the lake fails — and so, eventually, does the plant.

## 02

### What happens to the brine?

Brine, sewage and clarifier waste have nowhere safe to go inside a closed soda lake. Nutrient loading and poor sanitation carry real disease risk for waterbirds, including botulism.

## 03

### Why is Magadi offered as proof?

The assessment claims mining and flamingos coexist "as at Magadi, Kenya." Flamingos have attempted to breed at Magadi once in more than 70 years — and failed. Magadi is geologically different, and birds being present is not evidence of no harm.

## 04

### What do flamingos actually eat — and where do they drink?

The assessment misidentifies the flamingos' food source, implies the lake holds no fish, and treats the breeding area as separate from the eastern-shore springs the chicks and adults depend on. A document that misstates the basics cannot be relied on for the consequences.

## 05

### Where is the basin-scale science?

For a Category-A Ramsar site, the assessment rests on assumption rather than quantified evidence. The precautionary principle applies.

### A transboundary duty

The Ewaso Ng'iro catchment and the flamingos themselves connect Natron to Kenya's Bogoria, Nakuru and Magadi — Ramsar and World Heritage lakes. Consultation with Kenyan authorities is a requirement of the East African Transboundary Ecosystem Bill, and it has not taken place.

## Our position

We fully support Tanzania's ambition to develop its soda ash resources, and we warmly encourage that development at the **Engaruka Basin**, where the Government has already invested and where extraction can proceed without placing a Ramsar wetland — and the livelihoods that depend on it — at risk.

Nature Tanzania respectfully asks that the proposed soda ash mining at Lake Natron does not proceed on the basis of the current assessment, and that decision-makers first require a basin-scale Strategic Environmental Assessment, a Ramsar Advisory Mission and independent expert studies.



FIGURE 9 A crèche in the shallows, Mount Shompole on the Kenyan border beyond · © PAUL MCKENZIE

## Ninety days is also a livelihood

More than 65,000 people live in this catchment, most of them Maasai pastoralists, depending on the lake for grazing, water and culture — and increasingly for an income from visitors who come for the flamingos, the waterfalls and the climb up Ol Doinyo Lengai (**Figure 10**).

That income is renewable. It arrives every year the colony does, and it flows to families, guides and camps, to the private companies invested in tourism here, and to the Government of Tanzania at national, district and village level.

Nature Tanzania trains young people from these villages as bird and cultural guides, and monitors the lake's biodiversity alongside them.

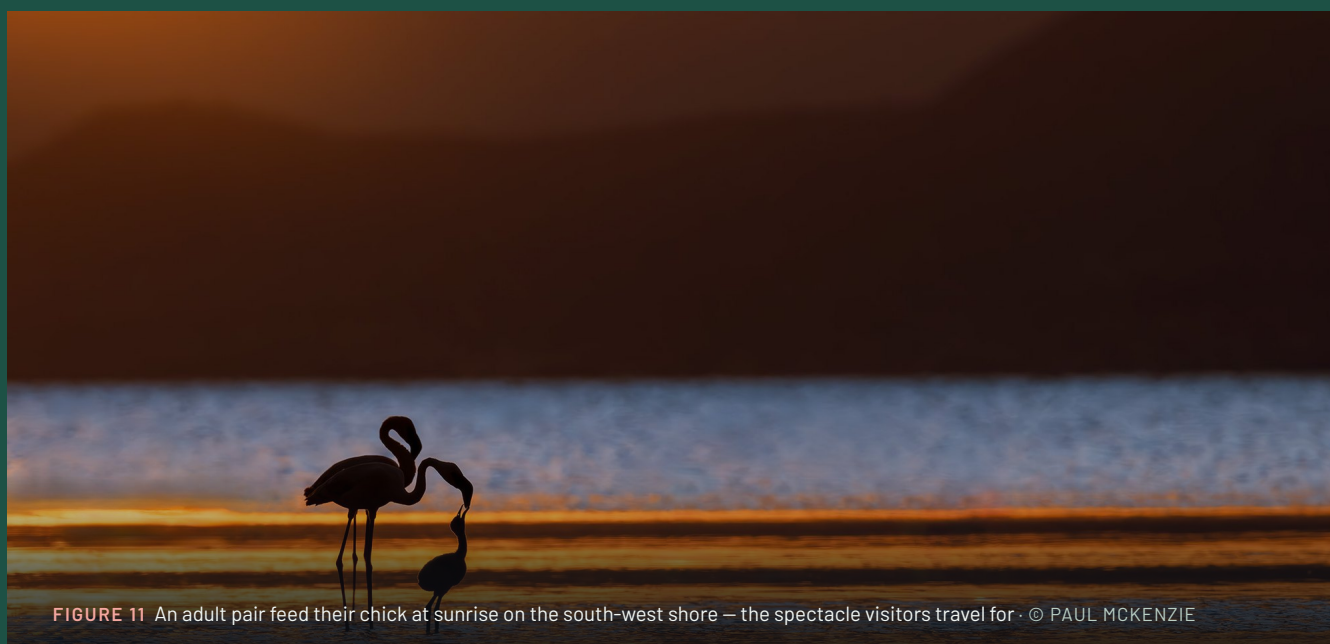
In 2008, after an outcry led by BirdLife and more than 50 organisations, Tanzania chose this path over mining — a choice independent studies found to be sustainable and, over the long term, **more profitable** than soda ash extraction. That finding has not been overturned.



**FIGURE 10** Visitors watching the flamingos on the shore of Lake Natron — the renewable income a living lake provides · © AKSHITA RABDIYA

*"Lake Natron is our mother — if she is destroyed, we lose everything."*

JOSHUA MURIATOI · COMMUNITY MEMBER, LAKE NATRON



**FIGURE 11** An adult pair feed their chick at sunrise on the south-west shore — the spectacle visitors travel for · © PAUL MCKENZIE

# The record, and where it broke

|             |                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2006        | Tata Chemicals, with Tanzania's National Development Corporation, proposes a soda ash plant at Lake Natron. A global campaign begins.                                                                                                                                                                                                                                                                        |
| 2008        | The plan is dropped. Tanzania commits to ecotourism at Natron; independent study finds it more sustainable and more profitable than mining.                                                                                                                                                                                                                                                                  |
| 2011        | The proposal returns. Conservationists warn that even a pipeline-fed plant would disrupt the breeding colony.                                                                                                                                                                                                                                                                                                |
| Early 2025  | Ngaresero Valley Company Ltd proposes extracting up to 1,000,000 tonnes of trona a year.                                                                                                                                                                                                                                                                                                                     |
| July 2025   | "Our Lake, Our Life." The communities of nine villages initiate the campaign themselves and convene 17 meetings, pairing community resolve with scientific evidence. Nature Tanzania is invited to take part.                                                                                                                                                                                                |
| August 2025 | The Deputy Minister for Minerals, Eng. Stephen Kiruswa, rules out soda ash mining at Lake Natron.                                                                                                                                                                                                                                                                                                            |
| 3 June 2026 | Despite that ruling, the proponent appears to press on. At a public hearing convened by the National Environment Management Council in Arusha, Natron's communities reject the proposed soda ash mine with one voice: they were never consulted by the investor, they will not accept a project that risks conflict on their land, and they ask that soda ash development be directed to the Engaruka Basin. |

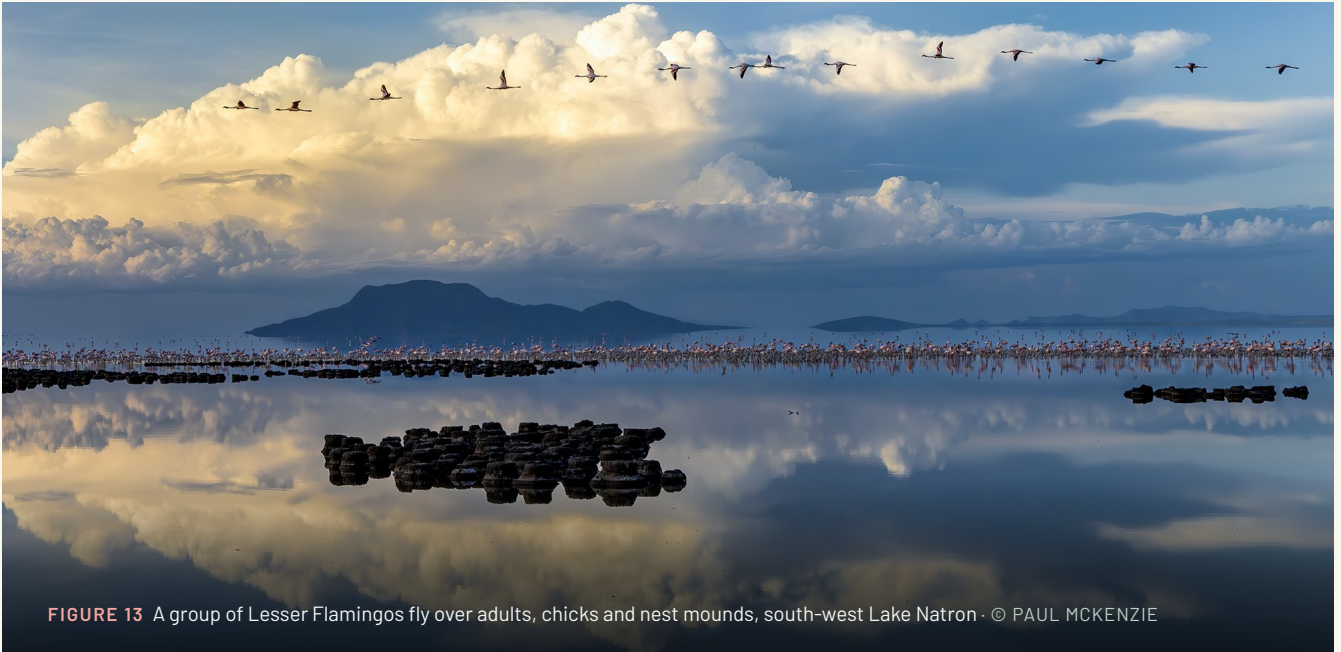


**FIGURE 12** Nests and adults beneath the active volcano Ol Doinyo Lengai, southern Lake Natron, as a single adult flies by · © PAUL MCKENZIE

# The Lesser Flamingo finally flies

Ninety days after hatching on a cone of mud in a caustic lake, the chick lifts off the water for the first time (**Figure 13**). Its bill has curved. Its colour is beginning to come. It joins a flock that will carry three-quarters of its species into another decade.

It will need this lake again. So will every generation after it. There is no second Natron.



**FIGURE 13** A group of Lesser Flamingos fly over adults, chicks and nest mounds, south-west Lake Natron · © PAUL MCKENZIE

## Supporting the Government of Tanzania: Mining soda ash in the Engaruka Basin.

Nature Tanzania joins the public and communities of Lake Natron in commending the Government of Tanzania for its visionary leadership, including preparing the Engaruka Basin for all soda ash mining. We commend equally the **Tanzania Wildlife Management Authority (TAWA)**, whose management of the Lake Natron Game Controlled Area has protected both the site and the tourism economy built on it.

We therefore respectfully urge the Government of Tanzania to halt the proposed soda ash mining at Lake Natron and to direct soda ash development to the prepared and government-backed Engaruka Basin instead.

We support the Government's continued investment in ecotourism at the lake — a vision flourishing under the leadership of H.E. President Samia Suluhu Hassan, including through her acclaimed Royal Tour campaign.

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# One voice, again — the threat is not over

The August 2025 ruling should have settled it. Instead, the proponent of the proposed soda ash mine appears to have pressed ahead. On **3 June 2026**, at a public hearing convened by the National Environment Management Council (NEMC) in Arusha, the communities of Lake Natron spoke with one voice: they reject the proposed soda ash mine, they were never consulted by the investor, and they will not accept a project that risks conflict on their land.

Their message is not "no development" — it is "**right place.**" Tanzania already has a prepared alternative: the **Engaruka Basin**, where the Government, through the National Development Corporation (NDC), has invested heavily to host soda ash mining away from Natron's fragile ecosystem, and where NDC has announced a tender. The vision for soda ash at Engaruka is therefore already positive at government level, and all parties commend this visionary leadership.

That echoes the country's 2008 choice to build ecotourism at the Lake Natron Ramsar Site — a path science has shown to be sustainable and, over time, more profitable than mining the lake.

## Mine the soda at Engaruka — spare Lake Natron

Directing soda ash development to the Engaruka Basin protects Lake Natron's flamingos, its Ramsar status and its ecotourism economy, and lets Tanzania develop its minerals. It is the outcome the communities are asking for.



**FIGURE 14** A crèche of chicks stands in front of the adults at first light · © PAUL MCKENZIE

Evidence in this issue is distilled from Nature Tanzania's Consolidated Technical Objection to the NEMC Public Hearing, 3 June 2026 (Emmanuel Mgimwa, Executive Director and IUCN-SSC Flamingo Specialist Group Coordinator for the Eastern and Southern Africa region), informed by specialists in soda-lake ecology, hydrology, hydrogeology, limnology, flamingo breeding ecology and aquatic biodiversity.

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