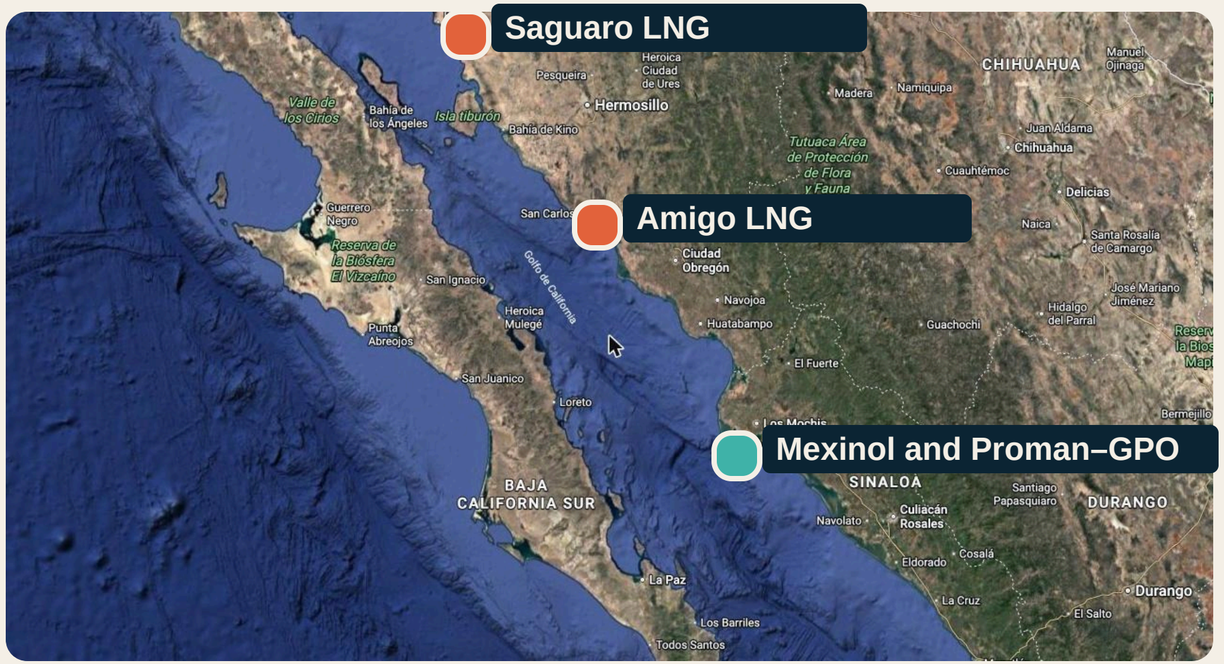
A GLOBAL CALL

Let’s Save the Sea of Cortez

The Aquarium of the World, a UNESCO World Heritage Site

Four industrial megaprojects. One sea. Emissions, ship traffic, Ohuira Bay, ammonia, whales and pipelines.

Sea of Cortez Citizens' Alliance · www.seaofcortezalliance.com · *“Keep the Aquarium of the World pristine, for generations to come”*



One sea, four megaprojects

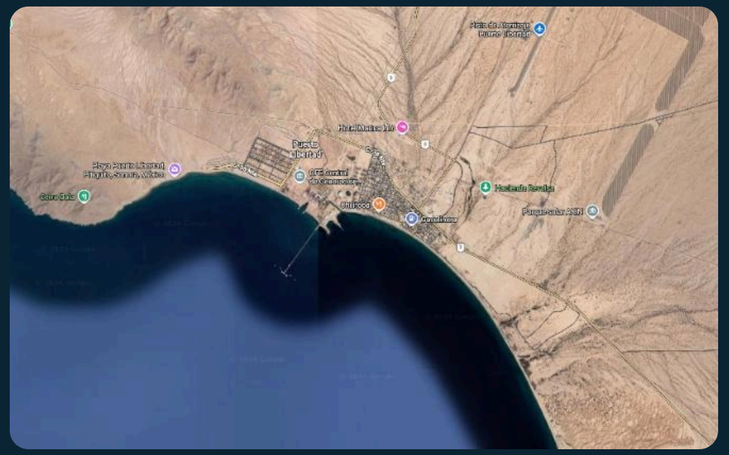
Each one is permitted and debated separately. All of them would use the same sea, US gas and the same shipping routes.

- **Amigo LNG** · Guaymas · liquefied natural gas
- **Saguaro LNG** · Puerto Libertad · liquefied natural gas
- **Pacífico Mexinol** · Topolobampo · methanol
- **Proman–GPO** · Topolobampo · ammonia

Satellite image: Google Maps (imagery ©2026 NASA; map data ©2026 Google, INEGI). Approximate locations, marked by the Alliance.

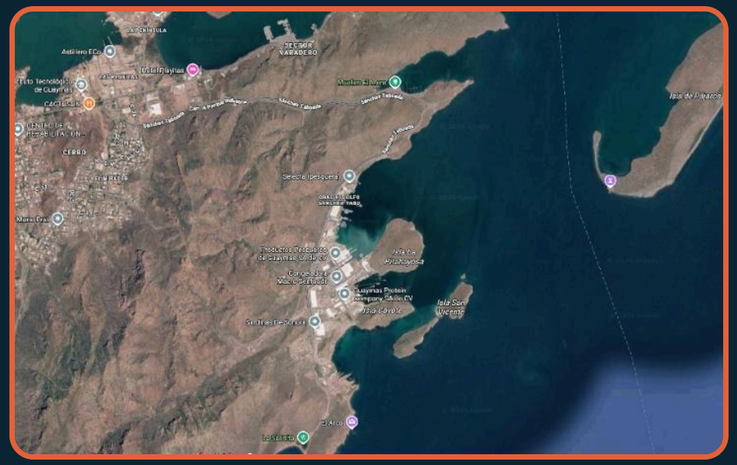
SATELLITE VIEW

Three coasts of the Sea of Cortez, three projects



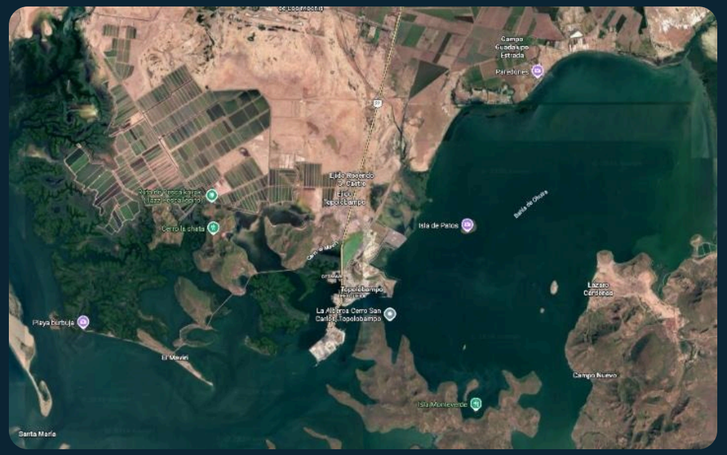
Puerto Libertad, Sonora

Saguaro LNG (Mexico Pacific): liquefied natural gas export terminal.



Guaymas, Sonora

Amigo LNG (Epcilon): Sánchez Taboada industrial park, among fish-processing plants and islands.



Topolobampo, Sinaloa

Mexinol (methanol) and the Proman-GPO ammonia plant, next to Ohuira Bay.

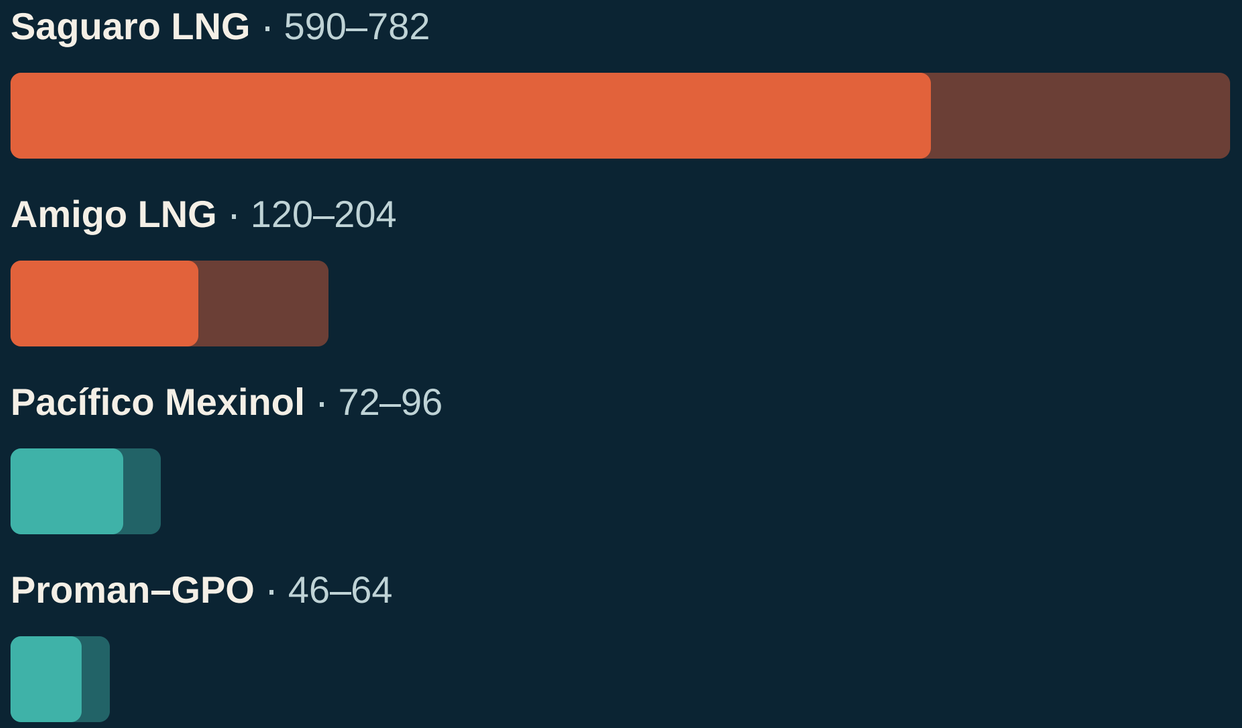
Satellite images: Google Maps (imagery ©2026; map data ©2026 Google, INEGI). Captured by the Alliance, Nov. 2026. Approximate locations.

Ship traffic: all four together

828–1,146

ship transits per year inside the gulf*

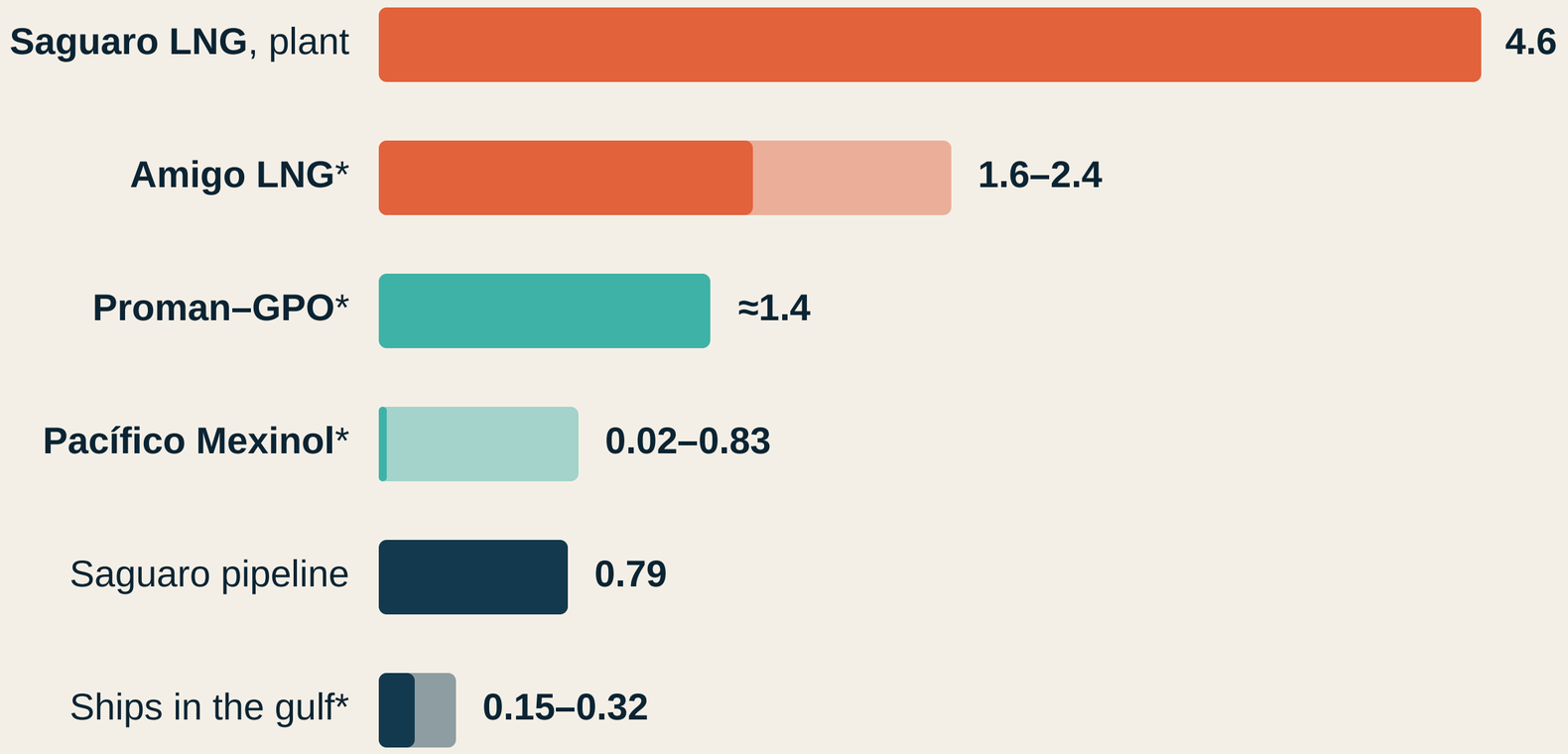
A ship coming in or going out **every 8 to 11 hours**, all year round; 276–382 transits during whale season.



* Alliance estimate (solid: official figures; light: maximum capacity). Sources: ASEA via Causa Natura and Expansión (2026); Iniciativa Climática de México (2024); Mexinol MIA-R (2021); GPO MIA (2013).

Direct emissions in Mexico

Million tonnes of CO_2 equivalent per year, plants and ships inside the gulf



8.5–10.3

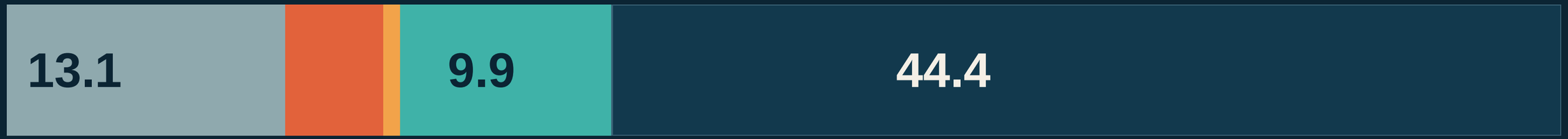
Mt CO_2e/year in total*

≈1.5–2% of Mexico's net emissions

* Alliance estimate. Sources: Saguaro life-cycle study (Iniciativa Climática de México); Mexinol MIA-R 2021; IEAGHG 2023; IMO and ICCT factors.

Saguaro alone: 69–73 Mt CO_2e per year

Full life cycle, from the Texas wellhead to combustion in Asia (15 Mtpa). Million tonnes per year.



US extraction
13.1 Mt · methane leaks

Plant in Sonora
4.6 Mt · gas turbines

Pipeline in Mexico
0.8 Mt

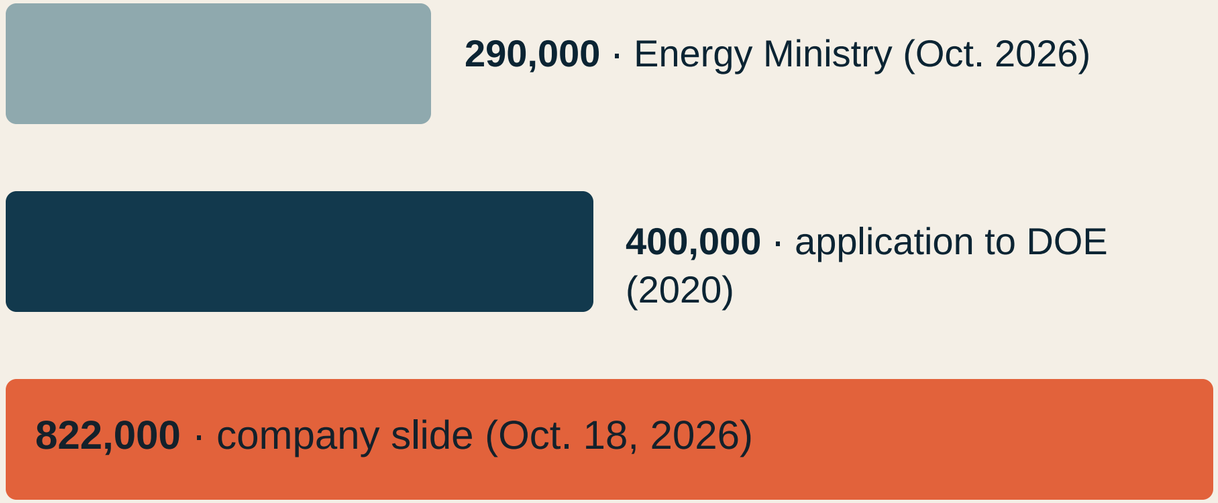
Ships to Asia
9.9 Mt (4.1–4.7 with modern engines)

Combustion in Asia
44.4 Mt

Source: Iniciativa Climática de México, life-cycle analysis of Saguaro Energía (2024). On Mexican territory: ≈5.4 Mt/year, about 1% of Mexico's net emissions.

Amigo LNG: a project twice as large

LNG storage, cubic meters



290,000 · Energy Ministry (Oct. 2026)

400,000 · application to DOE (2020)

822,000 · company slide (Oct. 18, 2026)

Reported in the press (Jun. 2026)	**5.1 Mtpa**
Authorized by DOE (Order 4629)	**7.8 Mtpa**
With 822,000 m³*	**≈16 Mtpa**

≈210 LNG carriers per year: 3.5 times the cap of 60 authorized by ASEA.*

* Alliance estimate: capacity proportional to storage. Sources: DOE, application 20-31-LNG (2020) and Order 4629; Tribuna (Oct. 21, 2026); Meganoticias (Oct. 18, 2026), photo of the slide; El Imparcial (Jun. 8, 2026); Expansión (Oct. 8, 2026), ASEA cap.

THE PROOF CAME FROM THE COMPANY ITSELF

“822,000 m³ of LNG that the terminal design can store”



Amigo LNG slide shown to about 50 business leaders and organizations in Guaymas, Oct. 18, 2026.



Presentation “led by the company's CEO, Dr. Muthu Chezhian” (Meganoticias).

2.8 times the 290,000 m³ given by Mexico's Energy Ministry three days later.

Photos: Meganoticias, “Socializan proyecto AMIGO LNG entre empresarios guaymenses”, M. Martínez, Oct. 18, 2026. Energy Ministry: Tribuna, Oct. 21, 2026 (presidential press conference). Public information.

GOVERNMENT OF MEXICO, OFFICIAL TRANSCRIPT · OCT. 21, 2026

What the government says is not what the company told DOE

290,000 m³

Energy Secretary: “a storage facility of up to 290 thousand cubic meters of gas”. The company showed **822,000**.

60 ships

“a maximum of 5 ships a month, that is, 60 ships a year”. The volume authorized by DOE implies **80–100**.*

“It cannot move forward”

President: “today there is an injunction (amparo) and that is why it cannot move forward”; “all the environmental impacts are being reviewed again”.

Source: Office of the President of Mexico, transcript of the October 21, 2026 press conference (gob.mx). * Alliance estimate, 395 Bcf/year ≈ 7.8 Mtpa, ships of 174,000–216,000 m³.

THE LAND · GUAYMAS, SONORA

The company tells DOE it has the land. Sonora says it does not.



Also: the decree donating the land to the Navy names the parcel “Paraje Viejo”, inside the Sánchez Taboada park (Sonora Official Bulletin, Jan. 22, 2026). The Guaymas port authority (ASIPONA) gave the company ≈36 ha of maritime space in Catalina Bay (April 2025 contract). The 2022 loan-for-use contract (comodato) was declared nonexistent and later classified as reserved.

WHAT THE COMPANY TOLD DOE (DEC. 2025)

“Land Lease and Use permit · Sonora State Government · **30 years**”
“Coastal Land Title · **Lifetime**”

WHAT SONORA SAYS (OCT. 2026)

Governor Durazo: “It is not 54 hectares, it is 114 hectares, but **it is not land we have made available to the company**”; the State donated it to the Navy.

Government of Sonora: the contract “**has no legal effect**”.

Area according to each source: 41.7 ha (Energy Ministry) · 54 ha (company, 2022) · ≈117 ha (company, 2025) · 114 ha (Governor).

Satellite image: Google Maps (imagery ©2026; map data ©2026 Google, INEGI); approximate locations, marked by the Alliance. Sources: Epcilon LNG, extension request to DOE (Dec. 12, 2025), p. 6; Dossier Político (Oct. 6, 2026); Índice Político (Oct. 15, 2026), Government of Sonora statement of Oct. 14; N+ (Oct. 5 and 16, 2026); Revista Espejo (Oct. 12, 2026), based on the Sonora Official Bulletin and La Jornada (Sep. 30, 2026). Public information.

NITROGEN OXIDES (NOX): WHAT IT MEANS

The air of Guaymas, Topolobampo and Puerto Libertad

3.5×

≈210 LNG carriers per year, 3.5 times ASEA's cap of 60: the project the CEO presented **does not fit in its own permit**.

≈2,700 t

of NOx per year **from Amigo alone in Guaymas–Empalme** (plant and ships at berth), home to **208,294 people** and **no station measures NO_2**.

2,000–18,700

tonnes of NOx per year from **the four projects and their ships** across the gulf.

Alliance estimates. Intensity of US LNG terminals (Environmental Integrity Project, 2025); IMO Tier II/III limits; WinGD X-DF; Mexinol MIA-R 2021; INEGI 2020; ProAire Sonora (Guaymas ≈8% of Sonora's NOx).

CAMPAIGN: CHANGE THE NOX RULES IN THE SEA OF CORTEZ

Today there are almost no rules. This is what we propose.

1. In the permits: NOx limits, continuous monitoring with public data, and NO_2 stations around each plant (SEMARNAT, ASEA).

2. Public NO_2 stations in Guaymas, Empalme, Puerto Libertad and Topolobampo (new ProAire Sonora; ProAire Sinaloa).

3. A strategic environmental assessment of the whole Gulf, with cumulative emissions from plants and ships.

4. 10 knots and shore power in Guaymas and Topolobampo: fewer emissions and fewer whale strikes.

5. Mexico should ratify MARPOL Annex VI and revive the Emission Control Area prepared with the US and Canada (2009–2018), which was never submitted to the IMO.

Sources: NOM-085-SEMARNAT-2011 (gas turbines excluded; interim limit 70 ppmV); NOM-156-SEMARNAT-2012; ProAire Sonora 2017–2026; Commission for Environmental Cooperation; CESNAV (2024); WWF Mexico (2025).

TOPOLOBAMPO, SINALOA · OHUIRA BAY

They want an ammonia plant in a protected bay that feeds thousands of families



The plant **would take in 2,000 m³ of water per hour** from the bay and **send back 1,400 m³ per hour**, warmer and with brine (GPO MIA, 2013).

22,500 ha
of protected wetland: Ramsar Site No. 2025 (2009)

109
fish species and four mangrove species

≈3,000
fishermen live from the bay (IPN)

Satellite image: Google Maps (imagery ©2026; map data ©2026 Google, INEGI). Sources: Ramsar site sheet 2025; GPO MIA (2013); IPN, Bulletin 075 (2019). Greenpeace notes that the MIA-R acknowledges up to +3 °C in the bay.

What is discharged, stays

The bay's water renews slowly: a pollutant released at the port spreads toward Ohuira and takes days to leave.



Day 0
release at the port

≈12 days
reaches the mouth of the bay

≈30 days
residence time

Farm drainage from **more than 200,000 ha**

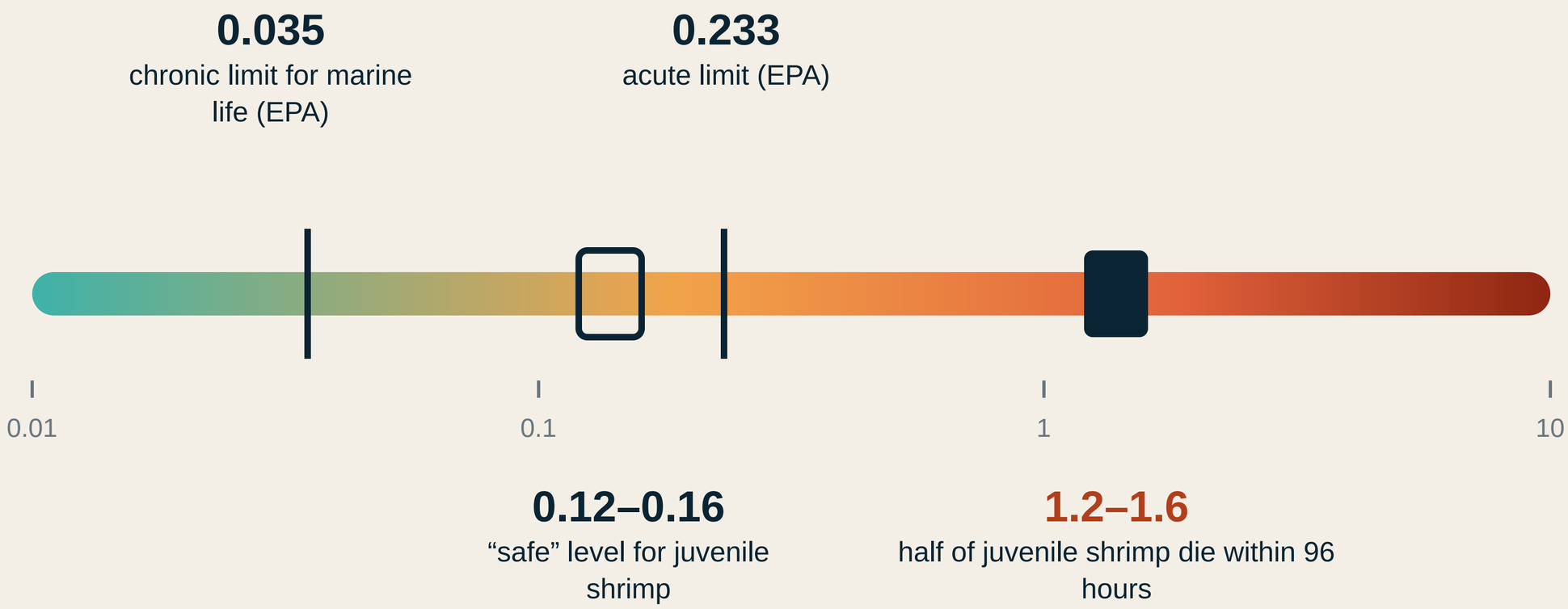
Nitrogen and phosphorus **2 to 13 times** natural levels

Zinc in oysters above the limit in the dry season

Sources: Montaño-Ley et al., Environmental Pollution (2007); Escobedo-Urías (CIIDIR-IPN); Ramsar site sheet; Tesi et al. (2007); Páez-Osuna and Osuna-Martínez (2015).

Shrimp tolerate very little ammonia

Un-ionized ammonia in water, milligrams per liter (logarithmic scale)



Sources: Lin and Chen, J. Exp. Mar. Biol. Ecol. 259 (2001), Litopenaeus vannamei; US EPA, ammonia criteria for saltwater (1989). Larvae are even more sensitive.

Thousands of families eat from the bay

90,866 t

Sinaloa aquaculture in 2022, led by shrimp: 8,083 million pesos

98 farms

active shrimp farms in Ahome, on about 14,000 ha

17

fishing cooperatives in the bay, four of them Yoreme-Mayo

> “The Bay… feeds us as human beings”.
>
> Seafood vendor in Topolobampo (testimony collected by Greenpeace Mexico, 2026)

61%

of the bay's annual shrimp production would lose its larvae to the water intake, according to IPN researchers (estimate in an interview, 2019)

Sources: CODESIN (SIAP, SADER, CONAPESCA); Luz Noticias (2024, 2025); Noroeste (2019). In September 2026, Yoreme-Mayo fishermen went to the Inter-American Commission on Human Rights.

GUAYMAS AND EMPALME · SMALL-SCALE FISHING

“We were not consulted at all”

> “…we already know they took the bay of Guaymas from us, we cannot fish in the bay of Guaymas, **now they are taking Catalina Bay from us**”.

José Ramón Ocampo, fishing sector representative (Meganoticias, Oct. 26, 2026)

20+

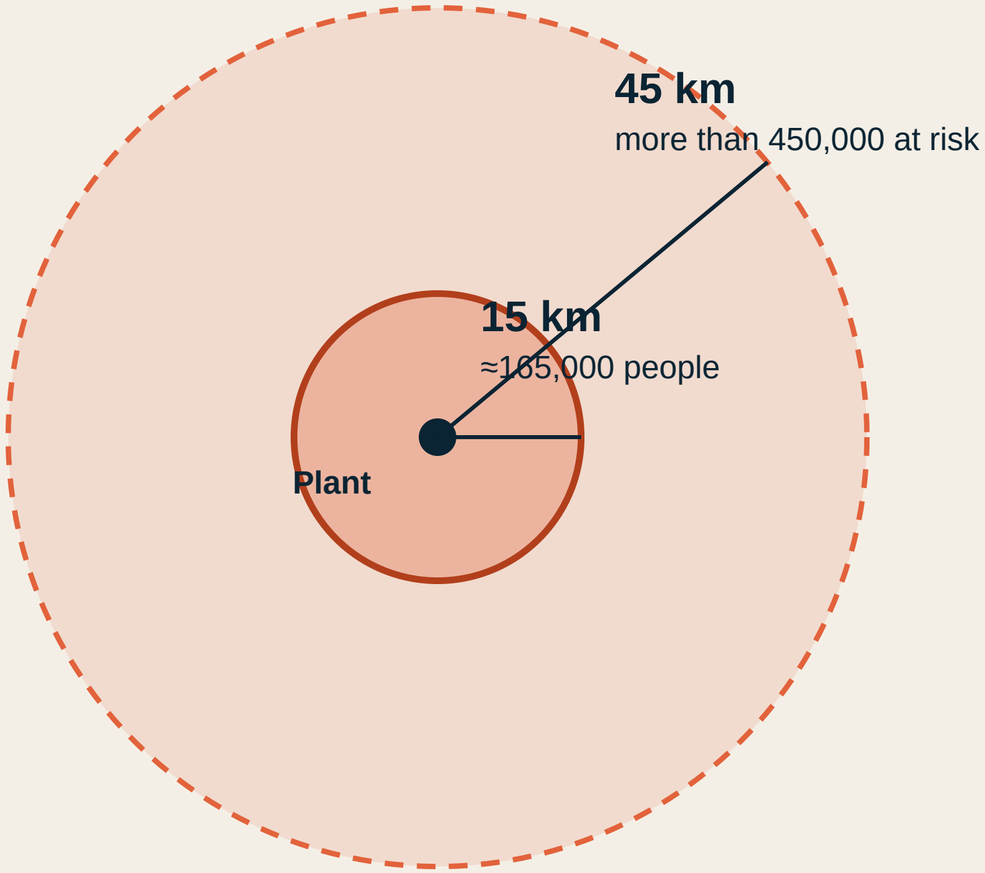
fishing cooperatives from Guaymas and Empalme protested against the project.

0

consultations with small-scale fishers, according to the fishermen, “by any of the three levels of government”.

Sources: Meganoticias (Oct. 23 and 26, 2026); Dossier Político (Oct. 26, 2026); Crítica (Oct. 26, 2026). Public information.

Ammonia next to 459,000 people



2,200 t of ammonia a day; reported storage of ≈75,000 t. In Mexico it is a highly hazardous activity from just **10 kg**.

A 5-minute leak would be lethal within a 15 km radius; a 15-minute one would reach 45 km (Greenpeace, based on the MIA). Other scenarios in the risk study give 300–760 m: **the figures do not match and the full study is not public.**

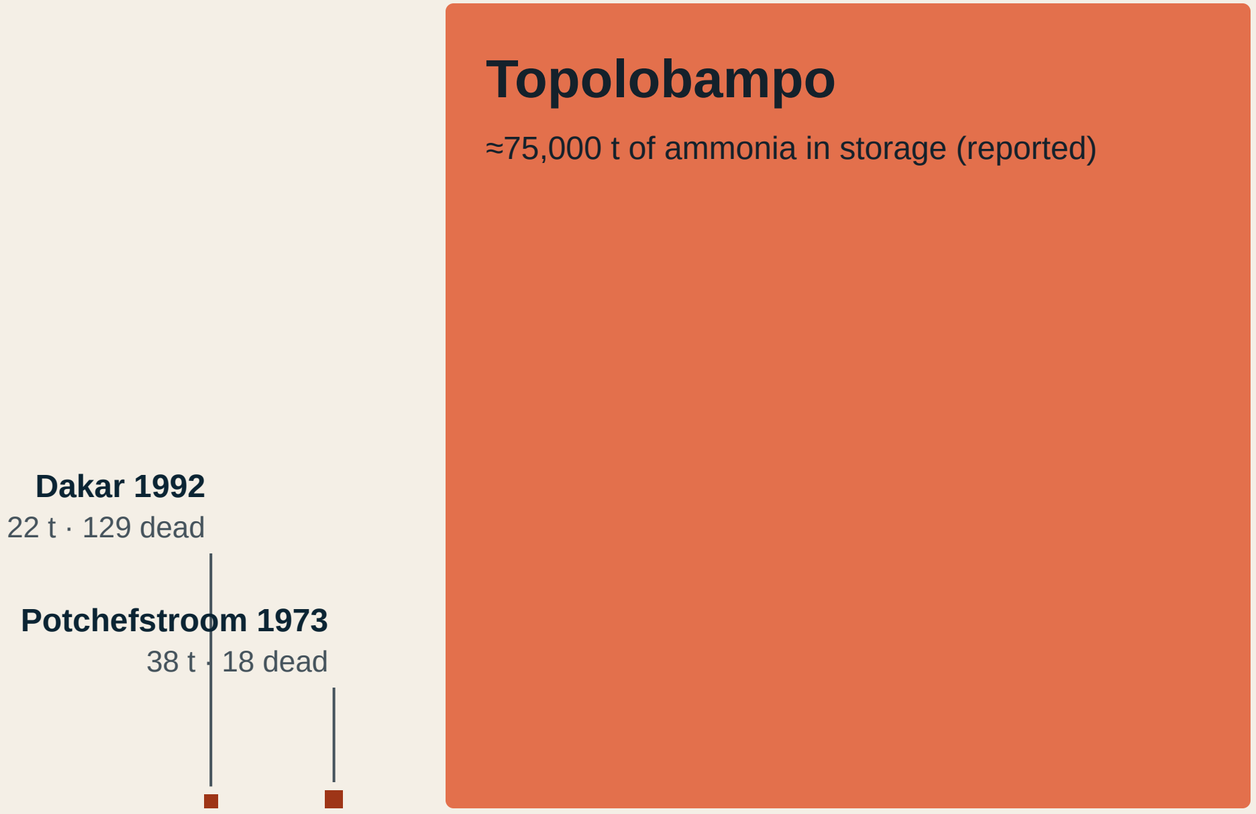
There is no regional civil protection plan today, a federal official acknowledged (August 2026).

In Dakar (1992), a leak of ≈22 t killed 129 people. The reported storage equals **more than 3,000 times** that amount.

Schematic diagram. Sources: GPO MIA (2013); Greenpeace Mexico (Sep. 2026); Grupo Animal (Jul. 2026); INEGI 2020 (Ahome); Mexico News Daily; AIChE CEP (2023); DOF 1990.

THE SCALE

What killed 129 people in Dakar, next to what would be stored in Topolobampo



×3,400

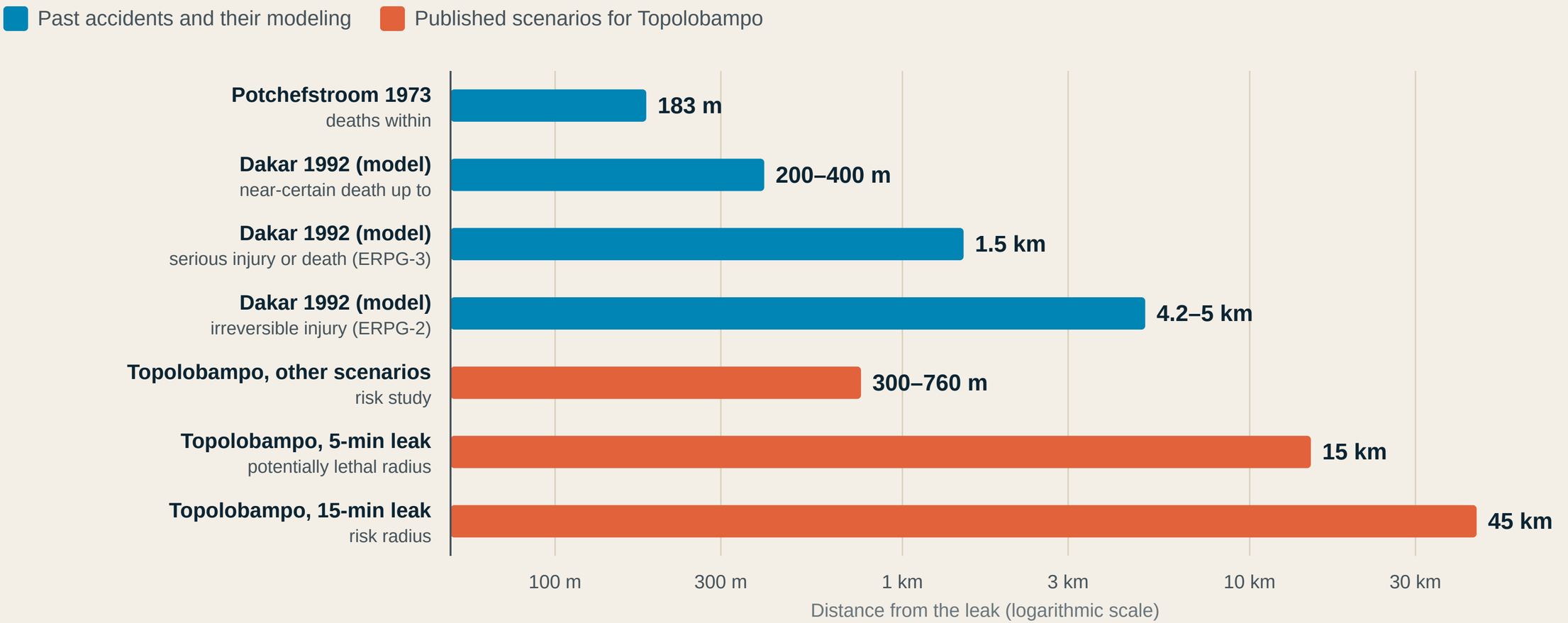
The reported storage at Topolobampo equals about **3,400 times** the ammonia that escaped in Dakar.

Each square is proportional to the tonnage: area is quantity. An accident does not release the whole inventory, but the larger the inventory, the worse the worst case.

Sources: AIChE, CEP (Jul. 2023), Dakar 22 t, 129 dead; lenniegouws.co.za and safteng.net, Potchefstroom ≈38 t, 18 dead; Topolobampo reported storage ≈75,000 t: see the slide “Ammonia next to 459,000 people”.

HOW FAR IT REACHES

An ammonia cloud can reach for miles



Sources: safteng.net (Potchefstroom: all deaths within 600 feet); AIChE, CEP (Jul. 2023), Dakar modeling with 4 m/s wind; Greenpeace Mexico and Colectivo ¡Aquí No!, based on the GPO MIA, via Infobae (Sep. 8, 2026); 300–760 m scenarios: risk study cited by Grupo Animal (Jul. 2026).

THE GREATEST DANGER TO PEOPLE

What an ammonia leak would do to people

CONCENTRATION IN THE AIR AND ITS EFFECT

5 ppm	You can smell it
50 ppm	Burning eyes, nose and throat; coughing; airways close
300 ppm	**Immediately dangerous to life or health** (NIOSH)
1,100 ppm	**Within one hour, risk of death** (AEGL-3 threshold, EPA)

In the body: chemical burns to the eyes, skin and lungs; blindness; swelling of the throat that blocks breathing; fluid in the lungs (edema). **Inhalation can be fatal.**

The cloud hugs the ground: ammonia leaves the tanks as a pressurized liquid; its cold vapor is at first heavier than air and spreads at ground level, over homes, streets and the bay.

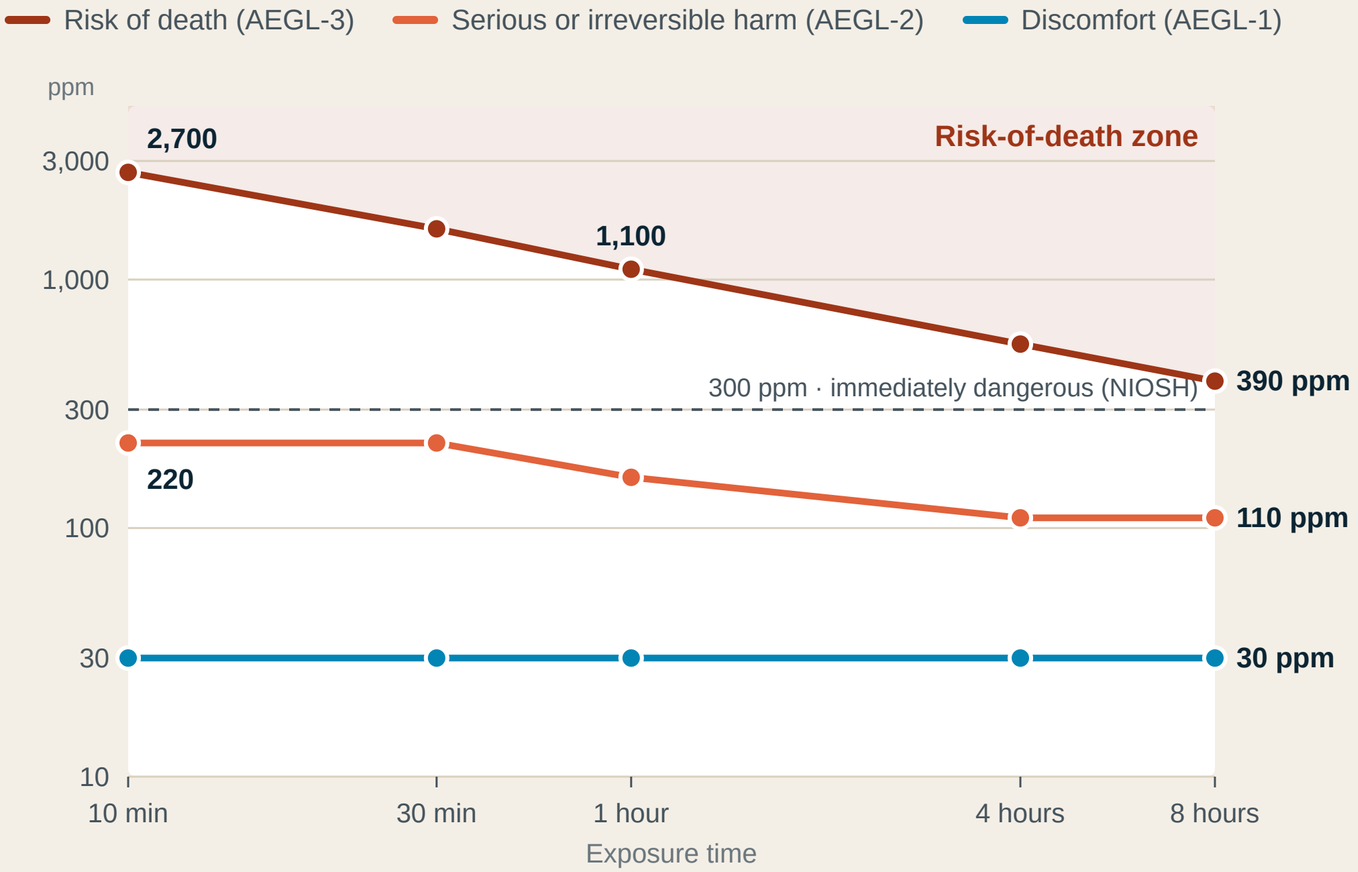
Children first: they breathe more air per pound of body weight, are closer to the ground and have narrower airways. Older adults are also at greater risk.

According to the company's own risk study, as cited by UN special rapporteurs, a 5-minute leak would turn Ohuira Bay into a **“zone of immediate danger to health or life”**.

Sources: ATSDR (CDC, US), Medical Management Guidelines for Ammonia; NIOSH, IDLH value; EPA, AEGL for ammonia; CEMDA (Nov. 24, 2025) and Buzos (Nov. 27, 2025) on the UN rapporteurs' letters; Infobae (Sep. 8, 2026). ppm = parts per million.

THE LONGER THE EXPOSURE, THE LESS AMMONIA IT TAKES

Danger grows with exposure time



390 ppm

is enough over **8 hours** to put lives at risk. For 10 minutes, the threshold is 2,700 ppm.

> A cloud that does not disperse —at night, with no wind, over the bay— exposes people for hours, and the lethal threshold drops to a fraction.

Logarithmic scale: each gridline multiplies the concentration.

Source: US EPA, Acute Exposure Guideline Levels (AEGL) for ammonia: AEGL-1 30 ppm; AEGL-2 220/220/160/110/110 ppm; AEGL-3 2,700/1,600/1,100/550/390 ppm (10 min, 30 min, 1 h, 4 h, 8 h). NIOSH, IDLH 300 ppm.

AMMONIA IN THE WATER

If ammonia reaches the bay or the Sea of Cortez

It poisons fish through their gills: loss of balance, convulsions, coma and death. Over time it damages gills, liver and kidneys, and reduces hatching and growth of the young.

Seawater makes it more toxic: at a pH near 8, more of it stays in its most harmful form (NH_3). The protective limit for the sea is 0.91 mg/L; marine fish die from about 9 mg/L.

In Ohuira shrimp larvae and the fishing of thousands of families are at stake; the ammonia would leave by ship from its dock.

OFFICIAL FISH-KILL RECORDS

Iowa, US, 2010: leak from an anhydrous ammonia tank pipe, **2,784 fish killed over 10.5 miles** of creek.
Iowa, 2026: rinsing of anhydrous ammonia tanks, **1,792 fish killed over 3.7 miles**.
Hawera, New Zealand, 2020: the water used against a leak reached the stream; **thousands of fish and eels** killed and a NZ$337,000 fine.



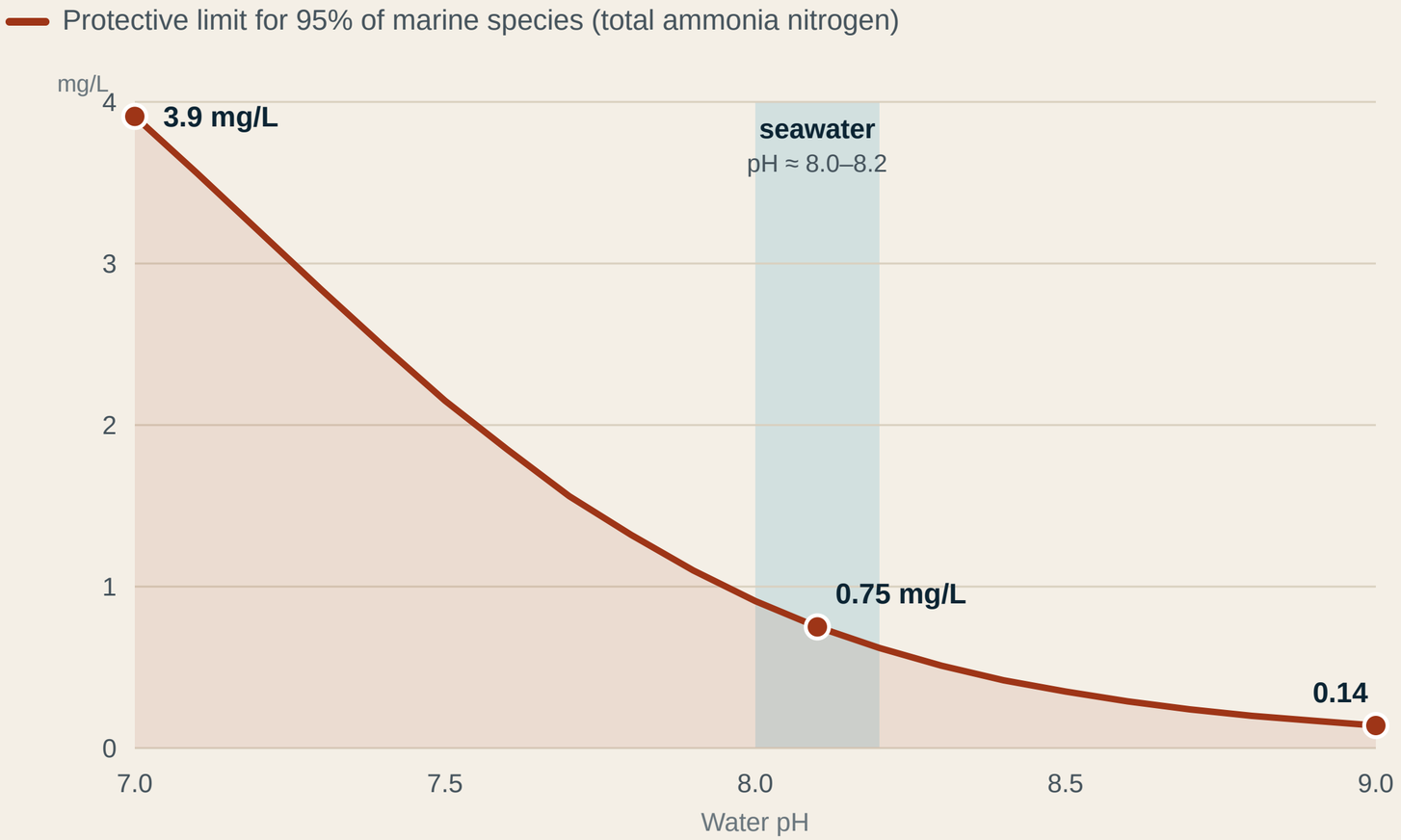
Mejillones, Chile, Nov. 2016

A hose fails while unloading ammonia from a ship to the marine terminal: the white cloud forms on contact with the sea. Shut-off valves prevented something worse. Photo: MundoMarítimo.

Sources: Australian & New Zealand Guidelines for Fresh and Marine Water Quality (waterquality.gov.au); Iowa DNR, Fish Kill Database, events 824 (Aug. 23, 2010) and 1075 (Jun. 26, 2026); RNZ (Feb. 24, 2020); NZ Herald (2021); MundoMarítimo (Nov. 24, 2016).

THE SEA IS MORE VULNERABLE

In the sea, less ammonia is enough to harm life



5 times

less ammonia harms marine life at pH 8.1 (seawater) than at pH 7: **0.75 mg/L versus 3.9 mg/L**.

At high pH, more ammonia stays in its un-ionized form (NH_3), the one that passes through gills.

Source: Australian & New Zealand Guidelines for Fresh and Marine Water Quality, “Ammonia in freshwater and marine water”, Table 8.3.7 (marine trigger values by pH; temperature not considered). Typical surface seawater pH ≈ 8.1.

DOCUMENTED ACCIDENTS

When ammonia escapes, it kills

Dakar, Senegal · 1992

An overfilled tank with ≈22 t bursts: **129 dead and 1,150 injured**.

Potchefstroom, South Africa · 1973

A pressure tank with 38 t fails: **18 dead**.

Houston, US · 1976

A tanker truck with 7,500 gallons overturns on a freeway: **6 dead and 178 injured**.

Minot, US · 2002

5 tank cars of a train rupture; the cloud covers the city: **1 dead and 333 injured**.

Oaxaca, Mexico · 2013

Machinery damages a Pemex ammonia pipeline: **at least 3 dead, ≈40 poisoned, 1,500 evacuated**.

Cosoleacaque, Veracruz · 2026

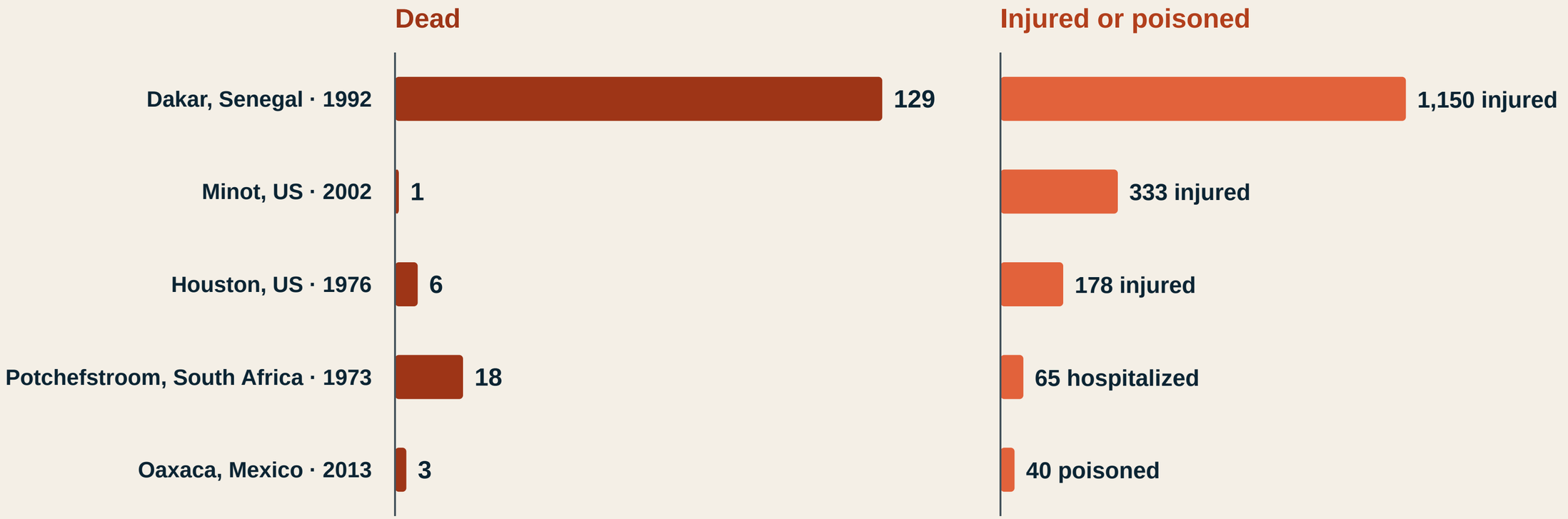
Tanker-truck leak at the Pemex complex (Jan.): **at least 4 neighborhoods evacuated** and a shelter in Minatitlán.

In Dakar, 22 t was enough. The reported storage for Topolobampo is **≈75,000 t**, next to the bay and to towns.

Sources: AIChE, CEP (Jul. 2023), Dakar; safteng.net, Potchefstroom; NTSB via Dave Ward's Houston (1976); NTSB RAR-04/01 and Wikipedia (Minot); Reuters via SEJ (Aug. 22, 2013); El Imparcial (Jan. 24, 2026). Storage: see the previous slide.

THE HUMAN COST

Every leak leaves dead and hundreds injured



In these five accidents: **157 dead** and **more than 1,700 injured, hospitalized or poisoned**.

Sources: AIChE CEP (2023), Dakar; NTSB RAR-04/01 and Wikipedia, Minot; NTSB via Dave Ward's Houston, Houston (78 hospitalized); lenniegouws.co.za, Potchefstroom (about 65 hospitalized); Reuters via SEJ (Aug. 22, 2013), Oaxaca (≈40 poisoned, 1,500 evacuated).

WHAT HAPPENED TO PEOPLE

Ammonia leaks, in pictures



Houston, 1976

The tanker fell from an overpass and the ammonia cloud trapped people passing by: 6 dead, 178 injured, 78 hospitalized. Archive image: KTRK (ABC13).



Minot, US, 2002. The cloud covered the city: 1 dead, 333 injured. Photo: KFYR-TV.



Cosoleacaque, Veracruz, Jan. 2026. Cloud over the Pemex complex; neighborhoods evacuated. Photo: X @virales_mex, via N+.



Isthmus of Tehuantepec, Oaxaca, Dec. 2022. Leak in a Pemex pipeline: about 400 people in shelters. Photo: Government of Oaxaca, via La Razón.


MILJOEN ONGELUKVRYE URE, TOE KOM TRIOMF-ONTPLOFFING

RAMPTONEEL

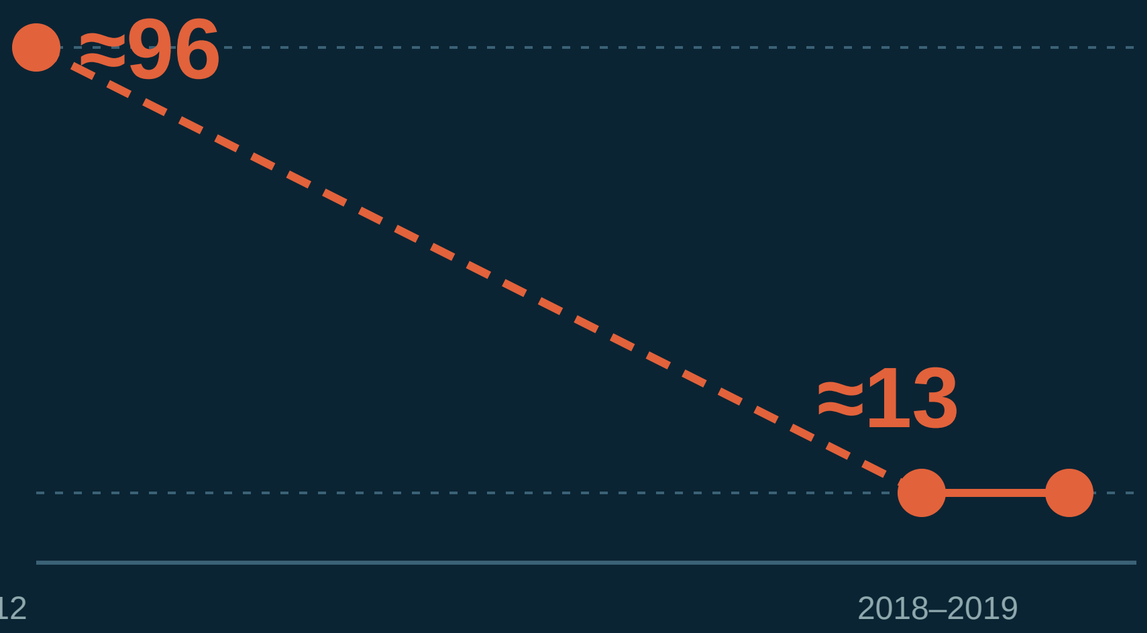
OORLEDE

Potchefstroom, South Africa, 1973. A tank fails: 18 dead, about 65 hospitalized. Front page: Potchefstroom Herald.

Sources: ABC13/KTRK (Houston); KFYR-TV, Jan. 19, 2022 (Minot); N+, Jan. 23, 2026 (Cosoleacaque); La Razón, Dec. 12, 2022, and UnoTV, Dec. 11, 2022 (Oaxaca); lenniegouws.co.za with the Potchefstroom Herald (1973). Press photos credited to their source.

Whales that cannot afford to lose a single one

Blue whales in the Loreto Bay area, estimated winter abundance



≈730

fin whales, a resident and genetically isolated population; they feed in the Canal de Ballenas and the Midriff Islands

7–10

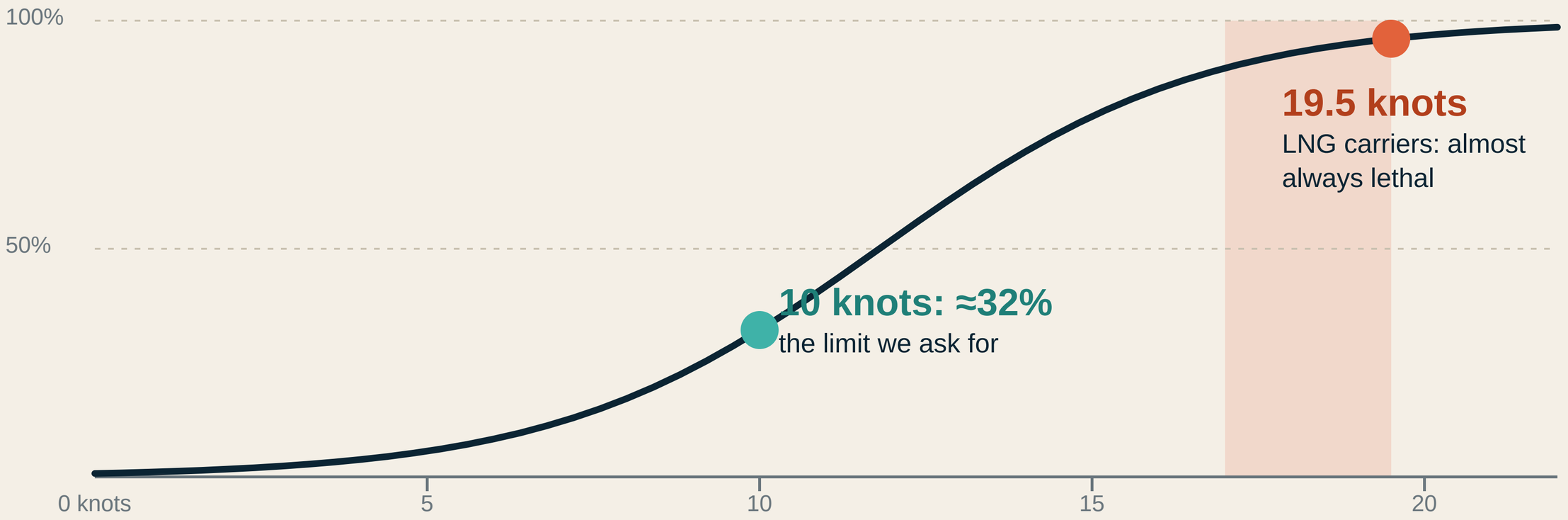
vaquitas sighted in 2025

The whole gulf is an IUCN Important Marine Mammal Area (275,846 km²).

Sources: Whittome et al., Marine Mammal Science (2024); Rivera-León et al., Scientific Reports (2019); SEMARNAT and Sea Shepherd (2025); IUCN. Dotted line: no intermediate data.

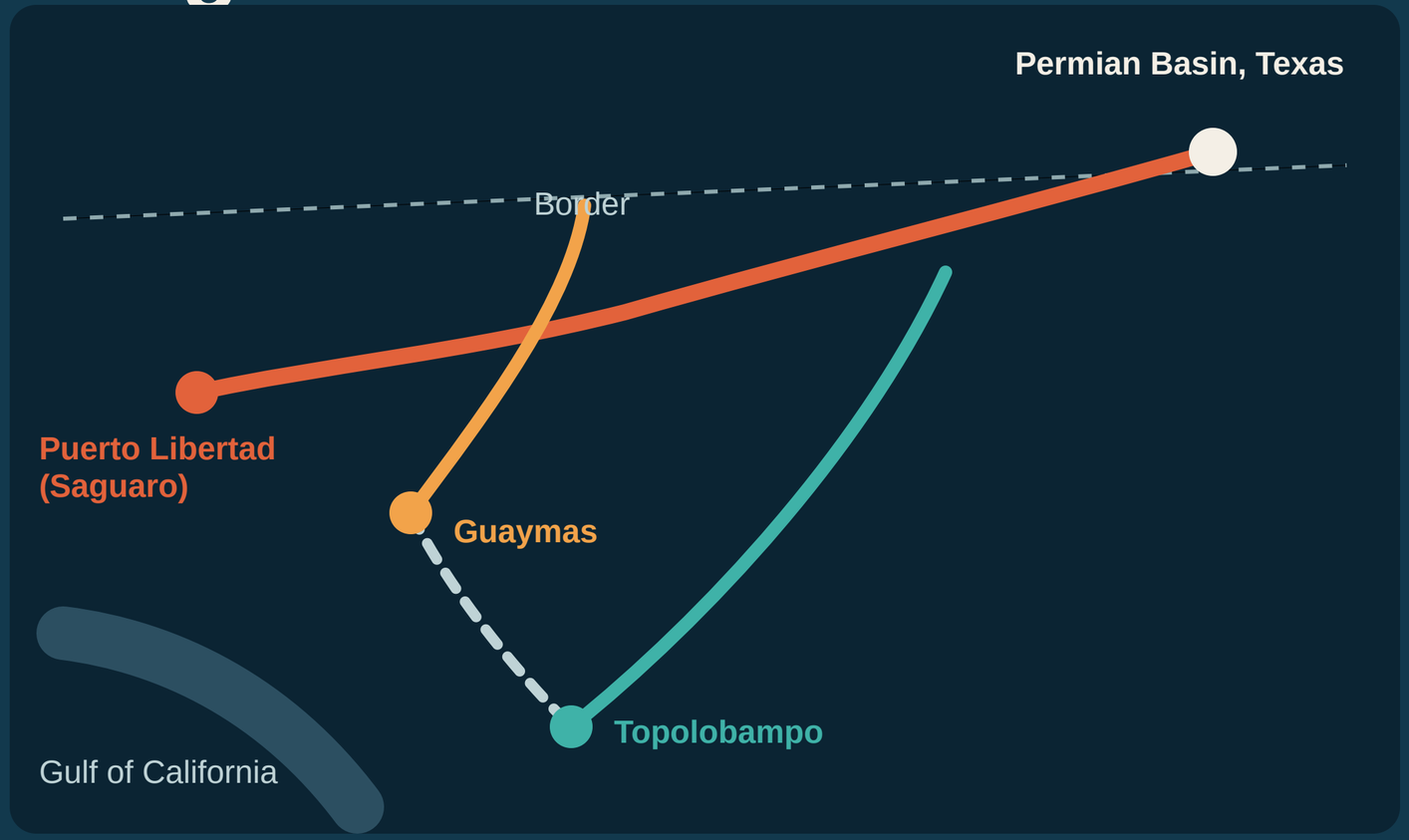
Speed decides whether the whale lives

Probability that a strike kills or seriously injures a large whale, by ship speed



Vanderlaan and Taggart model, Marine Mammal Science (2007): 21% at 8.6 knots, 79% at 15. LNG carrier speed: PRIMMA-UABCS (2025). In the gulf there is no limit at all.

The gas would come from the US, crossing Indigenous territories



Sierra Madre (800 km, 48"): route coordinates withheld; it lacks key state and municipal permits.

Sásabe–Guaymas: demand would exceed its capacity by ≈300 MMcf/d (IEEFA).

Guaymas–El Oro: halted since 2017 by the Yaqui community of Loma de Bácum; it cost CFE ≈US$235.8 million in nine months.

El Encino–Topolobampo: crosses the Sierra Tarahumara; in Témoris, a valve was shut in 2023.

74.6%

of Mexico's gas was imported in 2024, mostly from the US.

Diagram not to scale. Sources: Argus (2025); Grupo Animal (2025); IEEFA (2026); Pie de Página (2021); ZETA/Reforma (2018); El Financiero (2023); Mexico News Daily (2025).

What no one has published

- The emissions of the **Amigo LNG** plant and of the **ammonia plant**
- The **full risk study** for the ammonia plant and the 2022 authorization with all its conditions
- Contaminant tests of **shrimp, oysters, crab and fish** from Ohuira
- The **sanitary classification** of the bay's oyster and clam areas
- An official assessment of **noise and whale strikes** for the combined traffic
- Any **cumulative assessment** of the four projects together

Gaps identified while reviewing the public sources cited on the source slides (November 2026).

What we ask for

1

Publish the full risk study and the 2022 authorization

2

A **regional civil protection plan** before any operation

3

Independent monitoring of the bay's water and seafood

4

A 10-knot limit and routes that avoid whale feeding areas

5

A **strategic and cumulative environmental assessment** of all the projects

6

Honor the treaties: World Heritage, Ramsar, CITES, Escazú

Based on: UNESCO, decision 48 COM 7A.44 (2026); IUCN, Resolution 8.031 (2025); IMO, MEPC.1/Circ.906 (2023); Ebdon et al. (2020).

)BAL APPROACH

No gas (LNG), no ammonia, no methanol. All of them together.

Sign and share the global petition on Change.org from any country: “Save the Sea of Cortez”.

www.seaofcortezalliance.com · info@seaofcortezalliance.com

“Keep the Aquarium of the World pristine, for generations to come” · Sea of Cortez Citizens' Alliance

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