

UNRAVELING THE CRIMINAL PROCESSES BEHIND THE ILLICIT TOTOABA TRADE THROUGH CRIME SCRIPT ANALYSIS

NOVEMBER 2024

Earth League International (ELI); the City University of New York – John Jay College of Criminal Justice; and the State University of New York – Farmingdale, are excited to collaborate on the launch of the *"Trafficking Diaries"* research series.

The series will use one of the most robust crime science analytical techniques, crime script analysis, to develop insights into poaching and trafficking, while emphasizing the importance and significance of crime convergence within the illegal wildlife value chain.

THE TRAFFICKING DIARIES



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Introduction

In the early twentieth century, the Totoaba fishery was the most important fishery in the Gulf of California. At its peak, in 1942, over two thousand tons of fish maw were exported to China and the Chinese communities in California. Realizing the danger the fish faced, in 1975, the Mexican government banned the fishing of the species (Martínez & Martínez, 2018). Nonetheless, this critically endangered fish remains heavily overfished today, with organized criminal networks across the country playing a pivotal role in trafficking the species (Alvarado Martinez, 2014). The swim bladder is a highly prized commodity in China, as it is believed that the bladder can be used to treat a variety of medical conditions, including infertility, circulatory issues, kidney problems, and arthritis (Yagoub, 2016). Because of this, a single bladder can fetch for significantly high prices, and one gram of totoaba fish bladder can be more expensive than one gram of cocaine (Martínez & Alonso, 2021). Totoaba swim bladders are also referred to as “money maw” (Amepou et al, 2024), as individuals buy the bladder when prices drop in hopes that fish maw prices will rise once again and can be sold for profit.

The poaching of totoaba for its swim bladder has had devastating consequences not only for the species itself and the marine life in the Sea of Cortez, but also for the vaquita porpoise, the world's most endangered marine mammal. The illegal fishing methods used to catch totoaba, particularly gillnets, also ensnare and kill vaquitas as bycatch. With only a few individuals remaining, the vaquita is on the brink of extinction. The survival of this species is directly linked to the elimination of totoaba poaching and trafficking.



Pictured: Totoaba maws (right) are highly valued on the Chinese black market.

Using the crime script analytical technique, and the meticulously-recorded first-hand investigative materials by Earth League International, this report analyzes the intricacies involved in trafficking totoaba swim bladder from Mexico to international destinations.

Crime script analysis, an analytical technique proposed by criminologist Derek Cornish in 1994 (Cornish, 1994), is an increasingly popular method used by crime analysts and crime scientists around the world to understand the crime 'event' and the procedures involved in leading to and after that 'event'. This technique is founded on three fundamental crime science theories (the rational choice perspective, the routine activities approach, and the geometry of crime theory) that, combined, help assess the circumstances, opportunities, and situational dynamics surrounding this 'event', as well as explain the sequential steps involved in any given criminal activity.

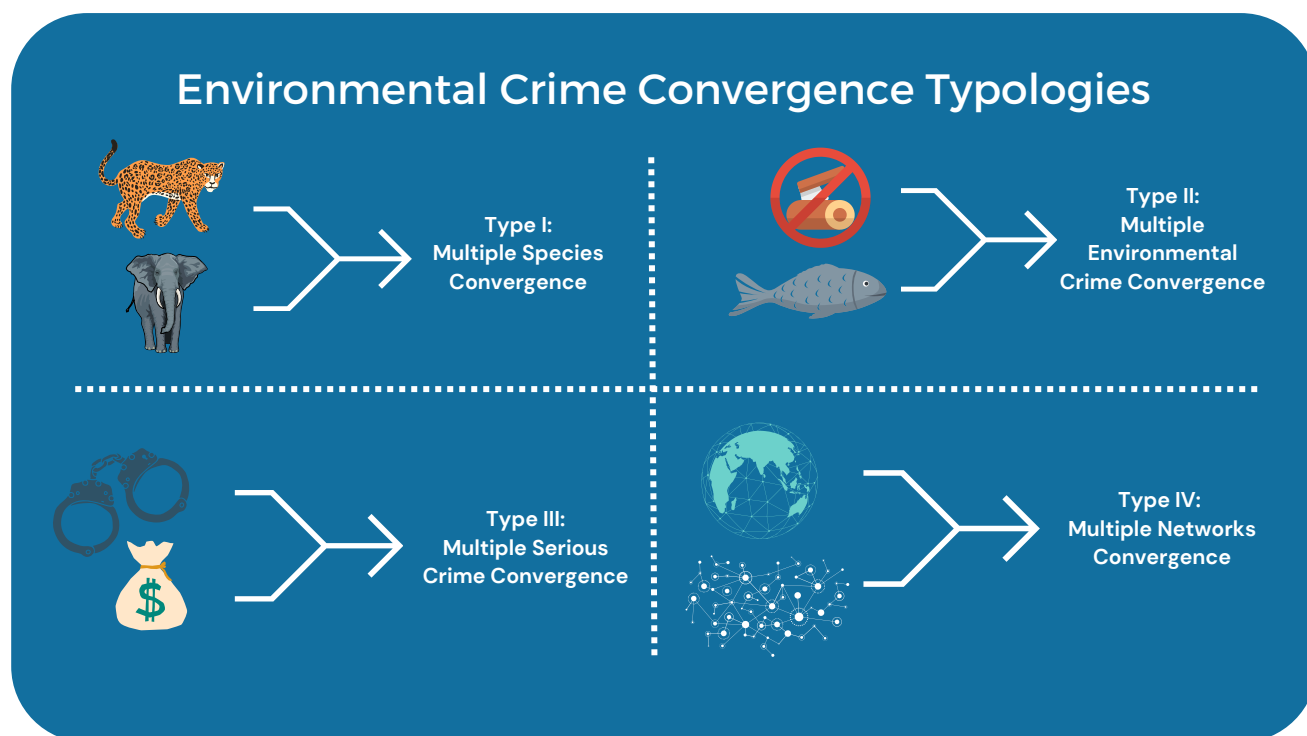
Recent years have seen a growing application of this technique to crimes against wildlife, examples of which include endangered species markets (Moreto & Clarke, 2013); illegal online sales of wildlife (Lavorgna, 2014); IUU fishing and seafood fraud (Petrossian & Pezzella, 2018); jaguar paste production in Suriname (Lemieux & Bruschi, 2019); illegal harvesting of live corals from Indonesia and Fiji (Sosnowski et al, 2020); Amur tiger poaching in Russia (2021); and redwood burl poaching in California (Pires & Solans, 2023), among others.

Crime script analysis is a tool that helps analysts reconstruct the crime from the point of preparation to its aftermath, and it requires detailed descriptions of the actual acts undertaken by offenders. These acts can be organized into scenes that involve the offenders, facilitators, and settings where they take place, as well as four core stages that include (a) preparation, (b) pre-activity, (c) activity, and (d) post-activity. At the preparation phase, analysts seek to answer such questions as 'how do individuals prepare?', 'how do they select co-offenders?', 'where are the necessary tools or weapons sourced from?', among others. For the pre-activity phase, which is the period immediately before the crime 'event', crime analysts may seek answers to such questions as 'how did the individuals gain access to the targets and what vulnerabilities did they exploit?', 'did they have to travel far?', 'how did they avoid detection?', and so on. The activity phase involves understanding the actual crime and how it was committed. Analysts may ask such questions as 'how were the targets selected?', 'does the activity require special skills?', 'where and when did this activity take place?', among others. Lastly, at the post-activity phase, analysts are more interested in the aftermath of the crime, that is the steps involved in getting away with the crime and successfully 'completing' it. Such questions as 'how did they leave the scene undetected?', 'what happened to the product?', 'what benefits were gained from this crime?', 'how did they dispose of the stolen product?', among others. **Such detailed understanding of the steps, actors, settings, and activities involved in the commission of a crime allows law enforcement agencies to identify anchor points of intervention.**



Using the crime script analysis lens, this report creates two distinct scripts that detail the illegal fishing of totoaba (Script 1) and the trafficking of its swim bladder (Script 2) by organized criminal groups in Mexico and transnational trafficking networks often run by Chinese nationals. This is the first-ever report that details this activity from the point the species is extracted to the point it reaches its end-users, i.e. where the gathered information allows one to build a script for both the poaching and trafficking phases. **Most importantly, this is the first application of this analytical technique that provides detailed information on not only the actual crime 'event', but also its convergence with other crimes.**

Like many organized criminal groups, those involved in the illegal fishing of totoaba and the trafficking of its swim bladder often engage in many other crimes, especially environmental crimes. Understanding this convergence is crucial for uncovering how these criminal groups operate. As defined in the **Environmental Crime Convergence Report** (Earth League International & John Jay College of Criminal Justice, 2023), the four convergence typologies include: (1) multiple species convergence; (2) multiple environmental crime convergence; (3) multiple serious crime convergence, (4) multiple networks convergence.



Script 1:

The Illegal Fishing of Totoaba

Totoaba fishing requires extensive preparation and involves the participation from both illegal fishers and Mexican cartels like Los Chapitos. These cartels play a crucial role by protecting the fishers from law enforcement activities, protecting the transport of the totoaba swim bladders, supplying gillnets to fishers, or providing loans to finance their purchase. The illegal fishing activities occur in the Sea of Cortez, in Baja California, Mexico, where the special gillnets used to fish totoaba can cost thousands of dollars each. After getting the expensive gillnets, fishers head to the Sea of Cortez, Mexico, using fast boats, known as pangas, to strategically position their nets. To retrieve the totoaba from the nets, the fishers record the GPS coordinates of the nets and monitor the activities for totoaba catches.

Fishers return to the Sea of Cortez to harvest the totoaba. They extract the valuable swim bladders (maws) from the fish and discard the remains of the totoaba into the water. This process is repeated throughout the year, in different parts of the Sea of Cortez, with the peak fishing season occurring from March to May in the upper part of the Sea of Cortez. Upon returning to shore using different landing points, the fishers transfer the swim bladders and illegal gillnets to their accomplices. Using a truck, accomplices transport the maws and leave the shore. Meanwhile, fishers discreetly return to the port to dock their pangas, reducing the risk of detection.

Pictured (right): Painting of the vaquita San Felipe



Pictured (left): Illegal fishermen on a 'panga', with totoaba, Gulf of California



Stage	Steps and Options	Spatial	People/Actors
Preparation	<ul style="list-style-type: none"> -Fishers and fishing cooperatives acquire the special, expensive gillnets, often with loans from the Cartels -Fishermen follow totoaba migration up and down the coast using different fishing methods 	<p>Baja de California Sea of Cortez</p> <p>Upper Gulf of California (San Felipe and Santa Clara)</p>	Mexican cartels like Los Chapitos, illegal fishermen and fishing cooperatives
Pre-Activity	<ul style="list-style-type: none"> -Fishers use fast boats or pangas, to position/lay out nets -GPS coordinates of net locations are marked and monitored 	Sea of Cortez	Illegal fishermen
Activity	<ul style="list-style-type: none"> -Fishers return to sea to check the nets for totoaba -Totoaba is removed from the nets -Swim bladder is removed from the fish and the fish are discarded back into the waters 	Sea of Cortez	Illegal fishermen
Post-Activity	<ul style="list-style-type: none"> -Fishers return to shore, giving maw and illegal gillnets to accomplices waiting for them in a truck nearby capture areas OR -Fishers hand maw to middlemen who transport the maw to safe houses and processing facilities -Fishers are paid thousands of US dollars per swim bladder harvested, depending on the weight -Fishers return the pangas to the port or to other landing sites -It may require members of cartels to bribe or threaten authorities to avoid capture of fishers 	<p>Sea of Cortez</p> <p>San Felipe Baja California</p>	Illegal fishermen and fishing cooperatives; accomplices; middlemen; cartel members; businessmen; corrupt authorities

Recommendations

1

Increase Surveillance and Patrols:

Strengthen patrolling and surveillance efforts, especially during the peak fishing season (March to May) in known hotspots like the Sea of Cortez and the vaquita refuge. Deploy drones and satellite tracking to monitor illegal fishing activities, targeting areas where gillnets are frequently used.

2

Harden Target Sites:

Install physical barriers or technological solutions like acoustic deterrents in critical totoaba habitats. This would disrupt the ability of illegal fishers to place or retrieve gillnets without being detected.

3

Regulate and Monitor Fishing Gear Sales:

Impose stricter regulations and monitoring of the sale and distribution of gillnets. Cartels often finance or supply this equipment to fishers, so identifying suspicious purchases and implementing real-time tracking can curtail access to the necessary tools for illegal fishing.

4

Introduce Economic Alternatives for Fishers:

Collaborate with local communities to create economic incentives for sustainable fishing practices or alternative livelihoods. This can reduce the dependency on illegal fishing driven by cartel loans and gillnet sales.

5

Community-Based Reporting and Reward Systems:

Set up anonymous reporting hotlines or websites, like WildLeaks, with financial incentives for locals to report illegal fishing or suspicious activity in the region. This would leverage community engagement and encourage vigilance against organized criminal operations.



Pictured: In 2014, ELI launched WildLeaks, the world's first whistleblowing initiative dedicated to environmental crime. The mission of WildLeaks is to provide a secure space for those with insider knowledge of environmental and wildlife crimes to report anonymously, without fear of retribution.

Script 2

The Trafficking of Totoaba Swim Bladder

After fishers harvest and transfer the swim bladders to accomplices, the maws are transported by car or truck to processing facilities in various locations, mostly in Baja California, including San Felipe, La Paz, Tijuana, and Mexicali. The totoaba cartel bribes police at checkpoints along the transportation route. The accomplices then transfer the bladders to Chinese traffickers who control the rest of the illegal supply chain, all the way to China. Once delivered to Chinese traffickers, the maw is prepared for shipping. The traffickers clean, dry, and package the maws for transportation, as well as organize routes for delivering the fish maw from Mexico to consumers in China but also the United States. The shipping often goes through multiple transit countries to avoid detection.

To transport the maw internationally, they are smuggled in suitcases and carry-on luggage or mixed into seafood shipments. The maws are typically transported through connecting flights to minimize detection. Maws are smuggled through such places as the U.S., Japan, Taiwan, Vietnam, and South Korea. To smuggle maws from Mexico to the U.S. and China, Chinese traffickers use mules to cross the border or fly with luggage. Fish bladders shipped to the U.S. are often delivered in separate batches to Southern California and other hubs, where they are distributed to clients in the U.S., sometimes fresh (not dried).

Some smugglers fly from Mexican cities to Mainland China, for example to the Xi'an Airport, after which they deliver the maws from Xi'an to Shanghai. Other methods traffickers take is transporting bladders from Mexico to Hong Kong, Japan, South Korea, Myanmar or Vietnam. Once bladders arrive in those transit countries, Chinese associates finalize smuggling to China. Once the totoaba fish bladders arrive in China, they are delivered to seafood businesses and intermediaries who distribute the maws to wholesalers and shops. The maws are sold mainly in the Guangdong Province in Southern China, and are typically sold to wealthy consumers. The maws are sold from anywhere between \$20,000 and \$80,000 (USD) per kilogram, depending on the size and age. The bladders are then used for business gifts, bribery, investments, Traditional Chinese Medicine (TCM) or as wedding dowries.



Pictured: A totoaba maw being carefully weighed before determining its market value.

Stage	Steps and Options	Convergence	Spatial	People/ Actors
Preparation	<ul style="list-style-type: none"> - Totoaba maws are sourced from the Totoaba Cartels in cash - Maws are transported by car to processing facilities in Mexico, often using mules - Mexican cartels protect the transport of the maw 	<p>Type 3 Convergence: Bribe police at checkpoints; Use of police cars Overlaps with other criminal activities</p> <p>Type 4 Convergence: Collaboration between Chinese traffickers and Mexican organized crime groups</p>	<p>Baja California-Tijuana, Mexicali, La Paz.</p> <p>Mexico City</p>	<p>Mexican cartels like Los Chapitos; Mexican middlemen; Chinese traffickers/businessmen</p>
Pre-Activity	<ul style="list-style-type: none"> -Middlemen or mules hand over maw to Chinese traffickers in Mexico who prepare it for shipping/organize shipments -Fish maw is placed on ice and then processed and dried; maw is packed for international shipping -Chinese traffickers living in Mexico organize routes for trafficking the fish maw 	<p>Type 1 Convergence: Chinese totoaba traffickers are also often involved in the trafficking of shark fin, sea cucumbers and other marine products</p> <p>Type 3 Convergence: Money laundering, human smuggling and other criminal activities with the Cartels</p>	<p>Baja California; Tijuana; Mexicali; Mexico City</p>	<p>Middlemen; Chinese traffickers/businessmen in Mexico</p>
Activity	<ul style="list-style-type: none"> -If sold to clients in the U.S., maw batches are usually prepared in Tijuana or Mexicali, then Chinese smugglers use mules to get across US-Mexico border into California or other border states -If sold to China, fish maw are put into suitcases, carry-ons, or are mixed with other seafood shipments -Network ships totoaba to China, often via transit countries such as Taiwan, South Korea, Japan, Vietnam, Thailand and even Latin American countries. 	<p>Type 1 Convergence: Chinese totoaba traffickers smuggle internationally also shark fin, sea cucumbers and other marine products</p> <p>Type 3 Convergence: Money laundering, human smuggling and other criminal activities with the Cartels</p>	<p>Mexican International Airports; transit countries, such as South Korea, Japan, Taiwan, South East Asian countries, Latin American countries like Venezuela; United States of America</p>	<p>Chinese traffickers/businessmen; middlemen;</p> <p>Corrupt government officials in Mexico, transit countries and China;</p> <p>Shipping companies and airlines</p>

Stage	Steps and Options	Convergence	Spatial	People/ Actors
Activity (ctd.)	<ul style="list-style-type: none"> - Other smuggling methods: An individual delivers maws to cargo in LAX and flight attendants smuggle them to China, or frozen (not dried) maws are sent from Mexico to China from Hermosillo Airport through Japan or other transit countries -Traffickers go through the airport with paid off/lenient authorities to fly to Hong Kong International Airport 	<p>Type 4 Convergence: Human smuggling cartels and totoaba traffickers often use same airports, hubs and routes</p> <p>They collaborate with each other, they have connections with police and customs to evade inspections, allowing maws not to be inspected at the airport</p>		<p>Traffickers; Mules;</p> <p>Shipping companies and airlines;</p> <p>Corrupt customs officials</p>
Post- Activity	<ul style="list-style-type: none"> -Importers/seafood wholesalers receive the totoaba maws and distribute them to shops that sell seafood in Southern China (mostly Guangdong Province) -Maw is also sold to relatively rich and middle aged/old Chinese consumers (generally from Shantou and the greater Guangdong Province) -Maw is usually sold for anywhere from \$20,000-\$80,00 USD per kg. Very big and old maws can reach 100,00 USD. -Maw is used for Traditional Chinese Medicine (TCM), business gifts, bribery, investment, or as wedding dowries 	<p>Type 1 Convergence: Totoaba wholesalers in China import, legally and illegally, many other marine products such as shark fin, sea cucumbers, abalone, fish maw, etc.</p>	<p>Shantou and the Guangdong Province (South China);</p> <p>Hong Kong</p>	<p>Importers; traffickers; seafood wholesalers in China; seafood shops; upper-class Chinese;</p>

Recommendations

1 Expand Intelligence-Led Field Investigations:

Deploy law enforcement undercover operators and human intelligence (HUMINT) specialists to infiltrate trafficking networks and gather real-time information on their operations and the convergence with other serious crimes. This on-the-ground intelligence is crucial for understanding the modus operandi of traffickers, identifying key players, and uncovering hidden links between various criminal enterprises. By leveraging field investigations, law enforcement can disrupt trafficking activities at their core, targeting the leadership and dismantling the network's structure from within.

3 Collaborate with International Law Enforcement:

Improve coordination between Mexican, U.S., and Chinese authorities to dismantle transnational trafficking networks. Sharing intelligence and conducting joint operations can lead to the identification and arrest of key players within these networks.



Pictured: Fish maw on sale in Hong Kong

2 Disrupt Transportation Routes:

Strengthen border security and customs inspections at key checkpoints along the U.S.-Mexico border and airports known for trafficking routes. Implement more rigorous X-ray and detection protocols at international airports, particularly for seafood shipments and passenger luggage.



Pictured: ELI's field Investigators on the ground in Mexico.

4 Target Corruption:

Address corruption within law enforcement and customs officials by increasing internal audits, establishing anonymous whistleblower channels, and offering specialized training to identify and prevent collusion with traffickers.

Recommendations

5

Leverage Crime Convergence to Form Specialized Task Forces:

Establish multi-agency task forces that address the convergence of wildlife trafficking with other serious crimes, such as drug trafficking, money laundering, and human smuggling. By tackling these interconnected issues simultaneously, law enforcement can disrupt multiple criminal enterprises and weaken the financial and operational infrastructure of transnational networks. These task forces should include experts from various government agencies, such as customs, financial intelligence units, and anti-narcotics divisions, to coordinate comprehensive investigations and enforcement actions.



Pictured: Through capacity building, training events, and collaboration, ELI supports law enforcement and governmental authorities around the world in addressing environmental crime convergence.

ELI's Executive Director, Andrea Crosta presents confidential findings from Operation Fake Gold to the Head of the Mexican Navy in 2019.

6

Enhance Airline and Shipping Oversight:

Work with airlines and shipping companies to track suspicious cargo and passengers flying from known trafficking hubs. Implementing protocols for flagging unusual travel patterns, such as frequent small-batch shipments or multi-stop routes, can help intercept smuggling attempts.

7

Raise Awareness in Consumer Markets:

Partner with Chinese and U.S. authorities to launch public awareness campaigns aimed at discouraging the consumption and gifting of totoaba maws. Highlight the environmental consequences and the role of organized crime in driving the illegal trade to reduce demand at its source.

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