An underwater photograph of a coral reef. In the foreground, several large, colorful giant clams (Tridacninae) are visible, with their shells open, showing intricate patterns and colors like purple, yellow, and green. The background is filled with various types of coral and other marine life, creating a vibrant and detailed underwater scene. The lighting is somewhat dim, highlighting the textures and colors of the clams and coral.

TRAFFIC

April 2023

TRADING GIANTS

A RAPID ASSESSMENT OF GIANT CLAM *TRIDACNINAE*
SEIZURES IMPLICATING SOUTHEAST ASIA 2003-2022

Marianne Allison Lee
Ramacandra Wong

TRAFFIC REPORT

ABOUT US

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BACKGROUND

Giant clams (Bivalvia: Cardiidae: Tridacninae) are the largest bivalves in the world. They are distributed in the tropical and subtropical waters of the Indian and Pacific oceans and play a vital role in the ecosystem. Giant clams contribute to coral reef health, abundance, and diversity by increasing seabed heterogeneity, acting as a substrate for reef-associated organisms, providing an additional food source, and filtering water to sequester nutrients, among others (Othman et al., 2010; Neo et al., 2015).

trade that led to some species like Southern Giant Clam *Tridacna derasa*, Giant Clam *T. gigas*, and Scaly Clam *T. squamosa* becoming locally extinct in their range countries (Lucas, 1994; Wells, 1997; Huelsken et al., 2013). In 2010, Othman et al. reported that populations of all seven species of giant clams in Southeast Asia were in severe decline, while some species were functionally extinct. This has moved some countries, such as the Philippines and Indonesia, to implement giant clam restocking programmes.



giant clam species
there are twelve extant giant clam species

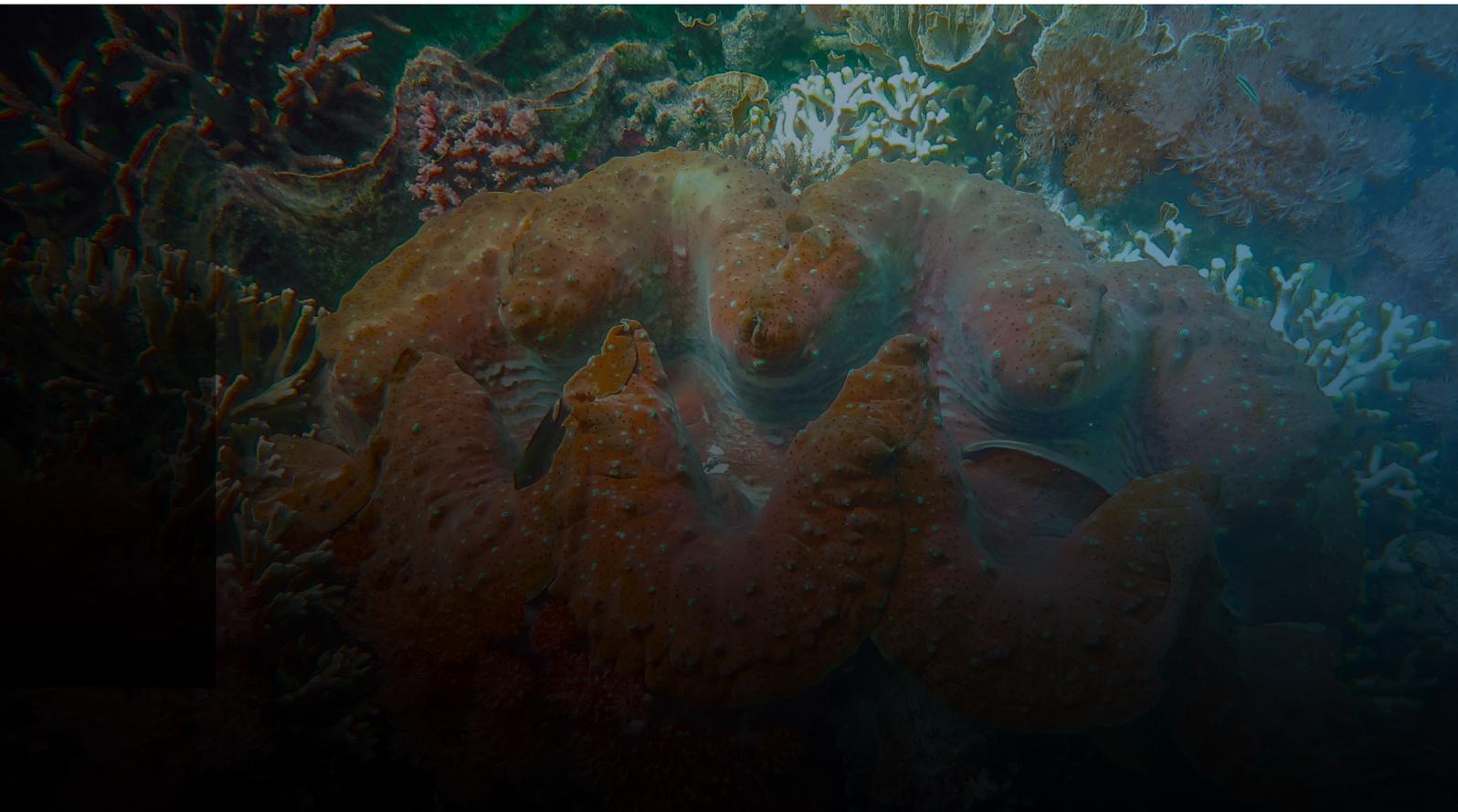
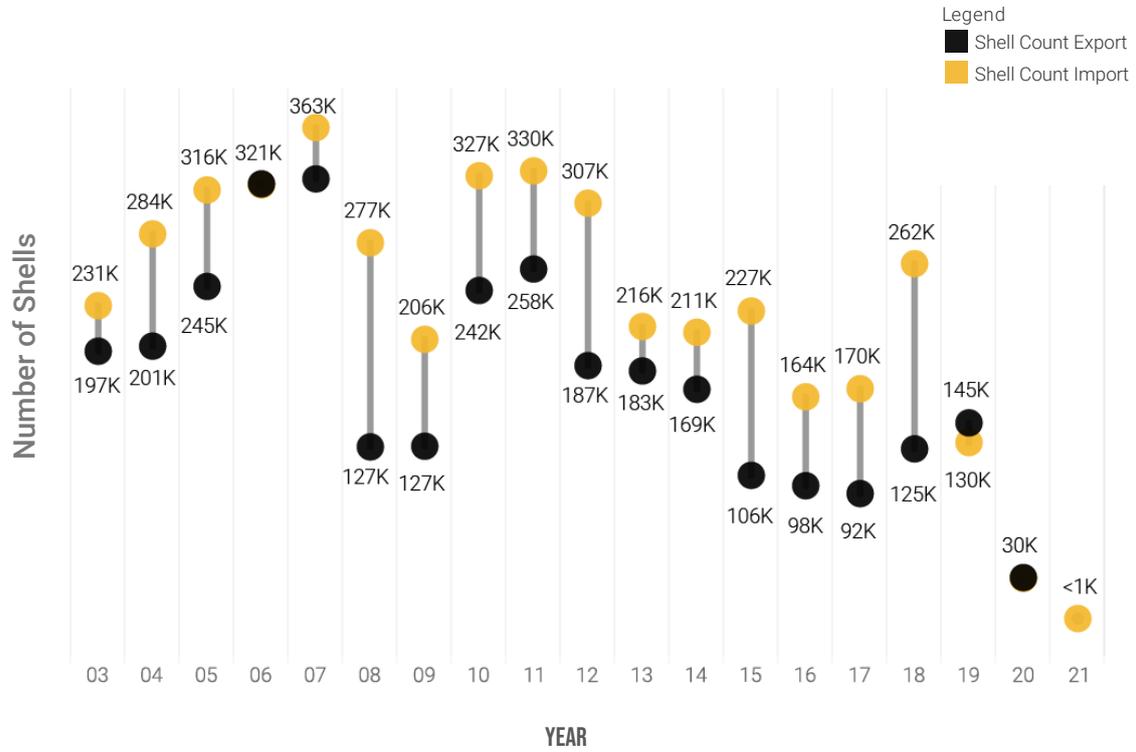
Under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), giant clams are classified under family Tridacnidae, but a recent phylogenetic analysis placed the twelve extant giant clam species under family Cardiidae and sub-family Tridacninae (Tan, 2021). Ten of these giant clam species have been listed on CITES Appendix II since 1985. This listing was in response to the increased harvesting of giant clams for their meat, shells, and the aquarium

Investigations by the Wildlife Justice Commission in 2021 noted a potential new nexus of organised criminality with giant clam trafficking involving selected Asian countries. Among others, it noted that almost half of the seizures in China showed a convergence of giant clam smuggling alongside other wildlife species, including ivory from elephants, mammoth and narwhals, hawksbill turtle shell crafts, seahorses and other sea shells (Feltham and Capdepon, 2021).

An overview of CITES trade data for giant clam shells provides context to the legal international trade. Between 2003 and 2021, CITES trade data (for commercial, trophy, and/or personal use) indicated a slightly decreasing trend in giant clam shell trade (**Figure 1**).

FIGURE 1

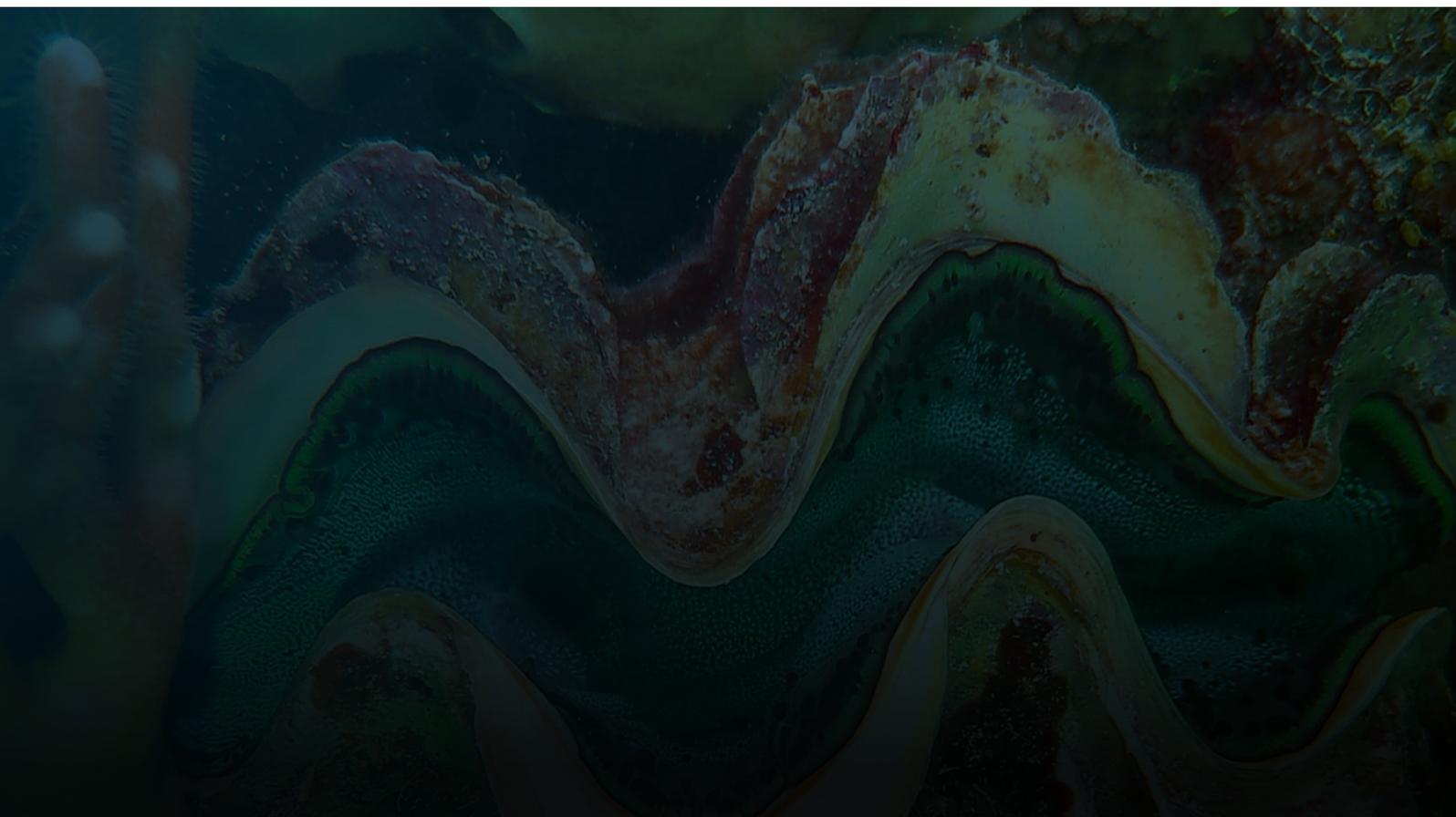
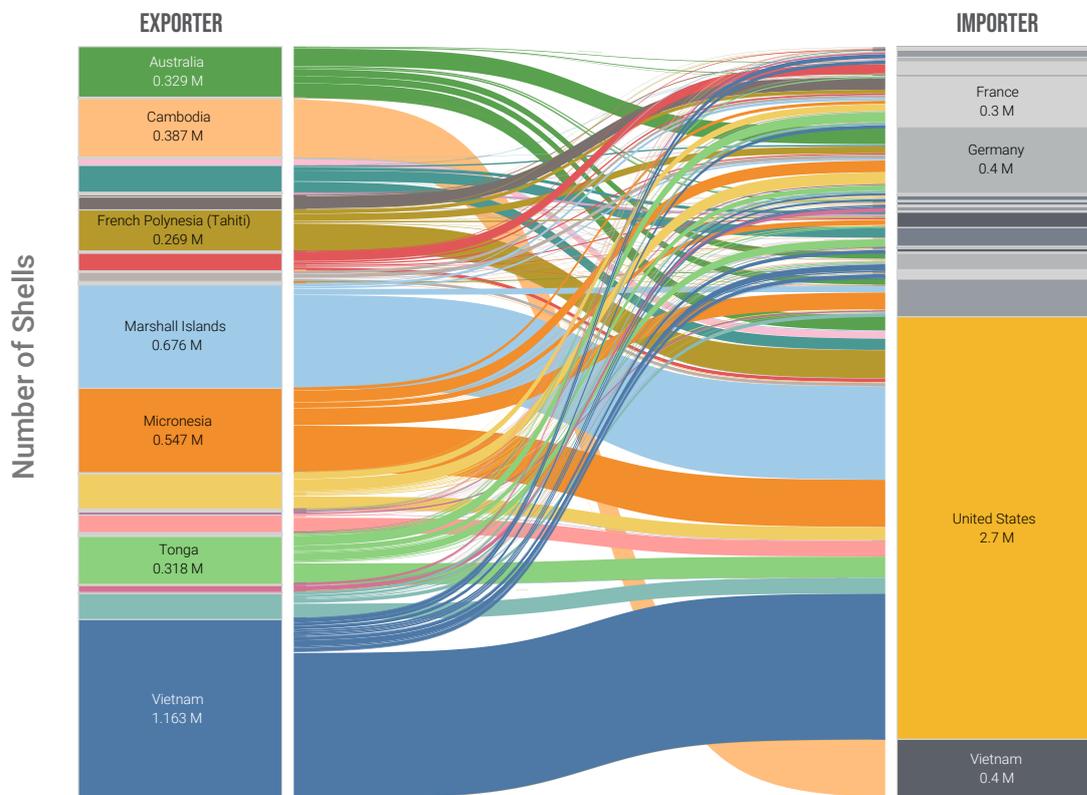
CITES reported export and import quantities of giant clam shells between 2003 and 2021.



Based on CITES trade data, over 4.3 million giant clam shells were traded according to importer reported quantities, while almost 3.2 million shells were reported in trade through exporter reported quantities (**Figure 2**).

FIGURE 2

Exporters (left) and importers (right) that traded giant clam shells between 2003 and 2021 as reported by importing countries to CITES.

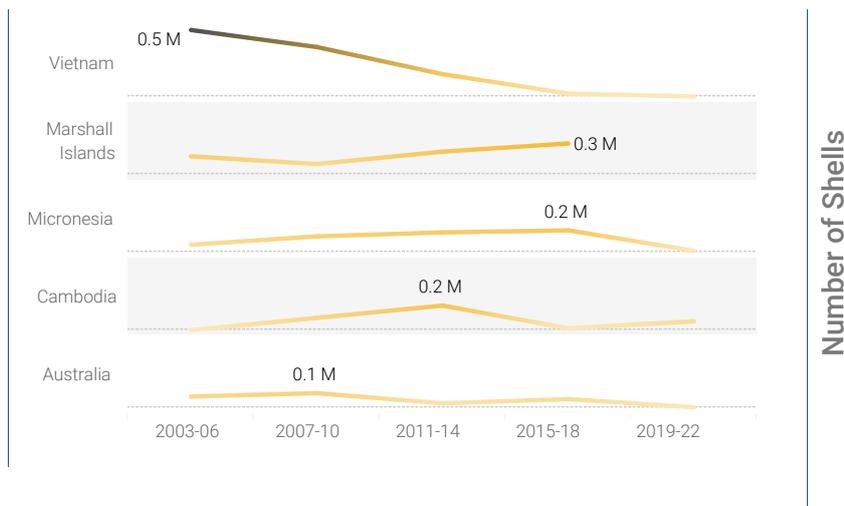


Viet Nam accounted for almost one fourth in volume by count (24% equalling to 1.16 million shells) followed by Marshall Islands (14% - 0.7M) and the Federated States of Micronesia (11% - 0.5M).

The USA were the largest importer of giant clam shells, accounting for and 56% of the traded shells by count (2.7 million). (Figure 3).

FIGURE 3

The export trends and volume variations in the giant clam shell trade between 2001 and 2021 based on reporting by exporting countries to CITES.



Despite existing national and international level protections across most range states, illegal trade of giant clams continues to occur (Bale, 2017; Fabro, 2021). While the Food and Agriculture Organization (FAO) compiles data on giant clam aquaculture and CITES records legal trade data on giant clam imports and exports (Mies et al., 2017), the limited coverage of data on giant clam harvesting by FAO and severe discrepancies in the importer and exporter quantities

recorded in the CITES trade database prevent reliable analysis of giant clam production and trade.

Due to these challenges, there is limited knowledge of the global illegal trade in giant clams. This briefing document provides insight into the role of Southeast Asian countries in the global trafficking of this subfamily, as illustrated through the analysis of seizure data.



despite existing protections illegal trade of giant clams continues to occur



METHODOLOGY

This analysis covered the period January 2003 - December 2022, and involved seizure incidents involving giant clams (family: *Cardiidae*, genera: *Tridacna* and *Hippopus*) that implicated any of the Southeast Asian countries along its trade route. Information on giant clam seizures were obtained from open-source media reports, published scientific literature, and government records that were already available to TRAFFIC through the Wildlife Trade Information System (WiTIS).

Seizure incidents often reported the volumes or quantities of giant clam commodities in different units of weight and count of giant clam shells. The analysis presented these volumes or quantities alongside each other. However, there were some seizure incidents that reported volumes through other measurements: sacks, bags, and cubic metres. As such, the volumes reported in this analysis are minimum estimates that do not fully capture the total volume of all seized giant clams. Due to vastly differing shell size and weight depending on the giant clam species and their age, it was not possible to report a synthetic measure; therefore all findings are separately reported both as shell count and weight throughout the analysis.

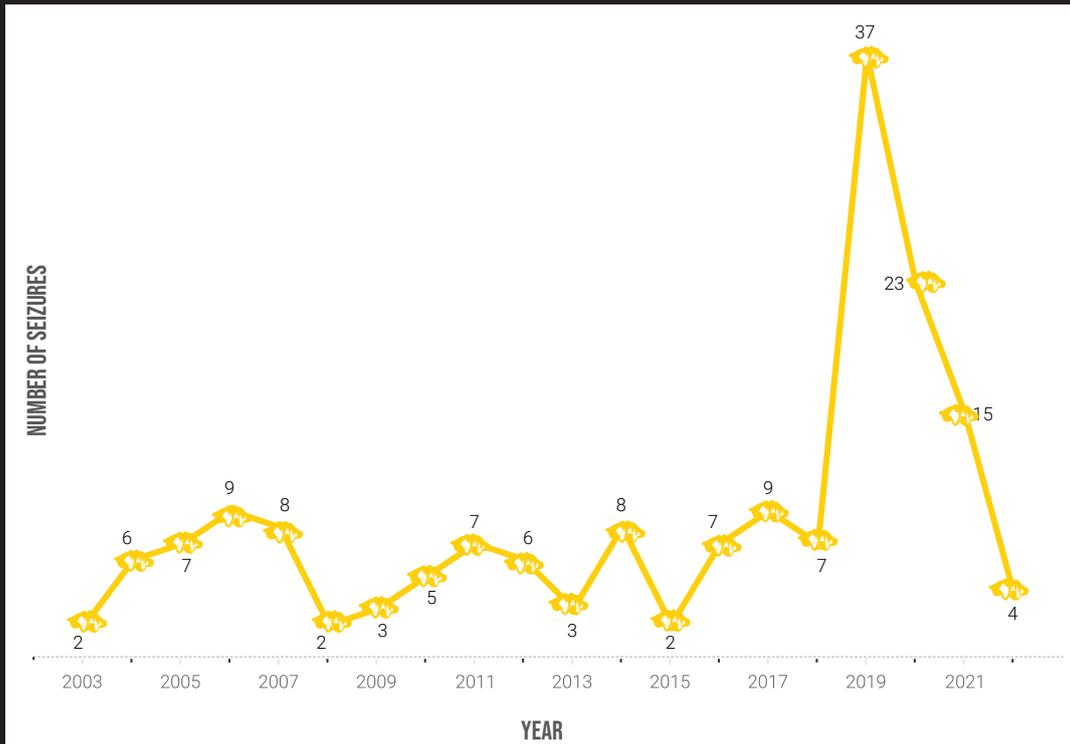
Moreover, seizures involving raw giant clam shells were included in the analysis. Throughout this analysis, one valve is counted as one shell following the prevalent counting method in seizure reports.

FINDINGS

TRAFFICKING INCIDENTS

FIGURE 4

Giant clam seizures between 2003 and 2022 implicating Southeast Asia.



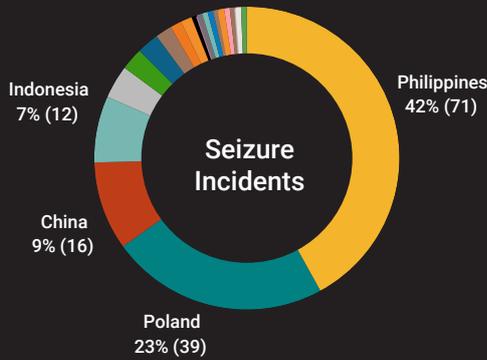
- **170** seizures of giant clams implicated Southeast Asia between 2003 and 2022 (**Figure 4**)
- 56% of these seizures (95 of 170) occurred between 2017 and 2022.
- **24** countries across multiple geographic regions reported seizures that implicated Southeast Asia along the trade route including: Europe (58 seizures), Southeast Asia (93 seizures), East Asia (17 seizures) and the Americas (2 seizures).
- **The Philippines** contributed the most significant increase and overall number of seizure incidents between 2018 and 2022 reporting 59 incidents, **69% of the regional total in this period.**





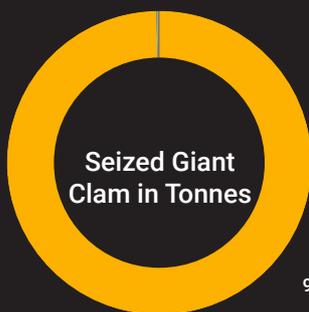
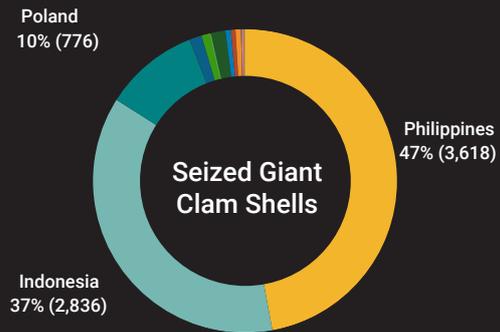
FIGURE 5

Countries that confiscated giant clams in trafficking incidents that implicated Southeast Asia.



There were 170 giant clam seizures implicating Southeast Asia from 2003-2022

The 170 incidents resulted in at least 7,682 giant clam shells seized

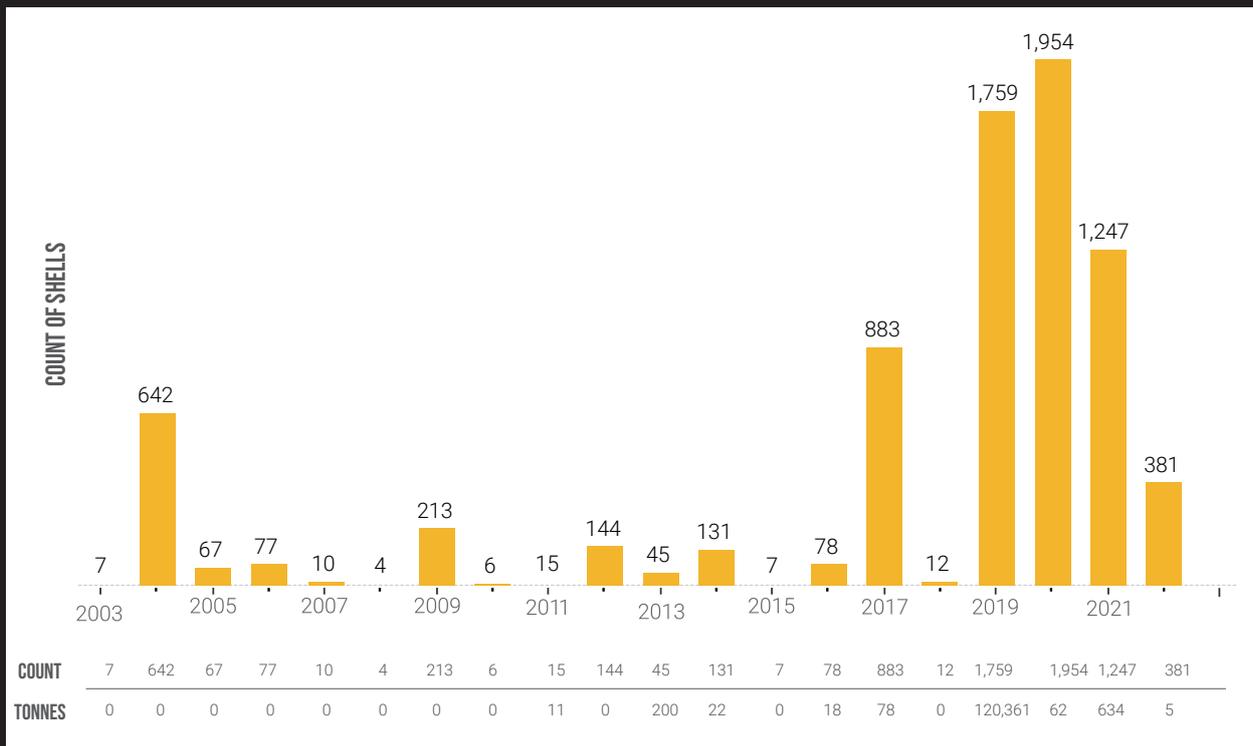


The Philippines accounted for almost all of the 121,391 tonnes seized, 99.8% of which were fossilized clams.

VOLUMES TRAFFICKED

FIGURE 6

Confiscated volumes from trafficking incidents implicating Southeast Asia expressed in number of giant clam shells and tonnes.



- **7,682** giant clam shells and an additional **121,391 tonnes** of giant clams were seized from trafficking incidents implicating Southeast Asia (Figure 5).
- **The Philippines (47%)** and **Indonesia (37%)** were together implicated in over 4/5 of the entire volume (84%) of giant clams assessed by number of shells.
- **The Philippines** accounted for nearly the entire volume expressed in weight (**99.7%**)
- A single **120,000-tonne** giant clam seizure in General Santos City, South Cotabato Province, Philippines was responsible for the volume spike in 2019.

SPECIES INVOLVED

Species information was reported in only 22.3% of cases (29 seizures). Of these, **70.5%** of seized giant clams assessed by number of shells were China Clam *Hippopus porcellanus*, followed by *T. gigas* (16.6%) and *T. squamosa* (4.4%).

The **China Clam** is one of the rarest giant clam species in the world, restricted to the geographic range of Indonesia, Palau, and the Sulu archipelago within the Philippines (Schneider and Foighil, 1999; Dolorosa et al., 2014).

44.1% of seizures where species information was available involved *T. gigas*, the largest of all extant giant clam species. The species also accounted for 99.6% of the confiscated volume assessed in weight.

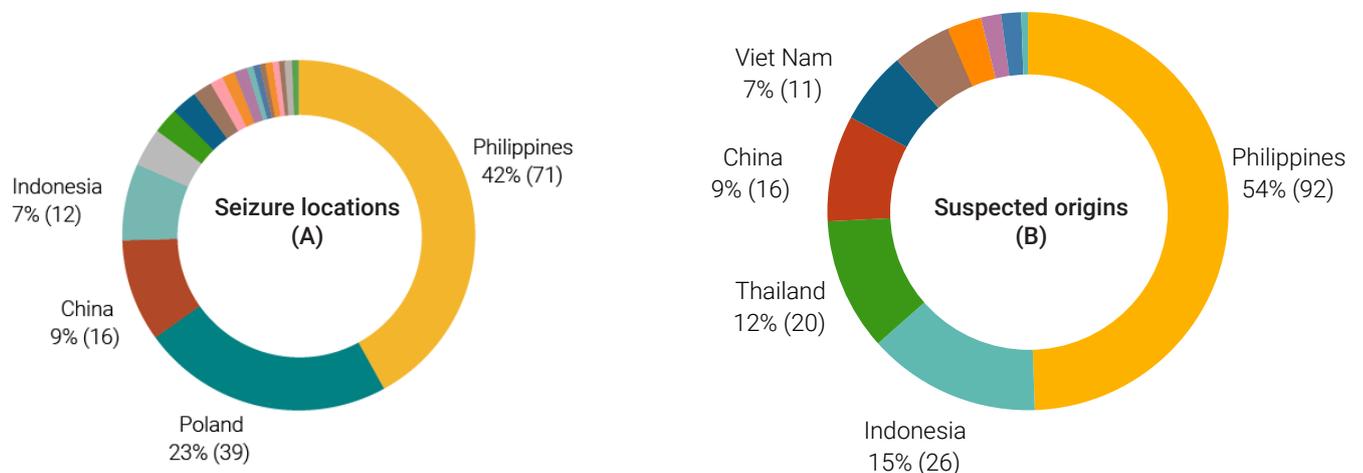


COUNTRIES AND TRADE ROUTES

- **The Philippines (54%)** and Indonesia (15%) together accounted for over two-thirds of giant clam seizures by reported origin, or confiscation country where no origin was reported.
- **Mainland China prohibited the catching of giant clams in 2015** (Larson, 2016; Master, 2016). All 16 giant clam seizures implicating mainland China occurred from 2016 onward, accounting for 24.5 tonnes. Giant clam handicrafts and the carving industry in mainland China has existed for decades. Giant clams are in demand due to the belief of their protective powers and visual similarity to finished ivory products but are not under the strict trade controls of elephant ivory for commercial trade (Bale, 2016; Master, 2016).
- **Poland** accounted for approximately one-fourth of global giant clam seizures, however, detailed seizure records obtained by TRAFFIC from the Polish government may have over-represented the role of Poland in the top trading countries breakdown.¹

FIGURE 7

Reported (A) seizure locations and (B) suspected origins by number of giant clam-related seizure incidents.



¹ Raw data was acquired from the Europe Trade in Wildlife Information exchange (EU-TWIX).

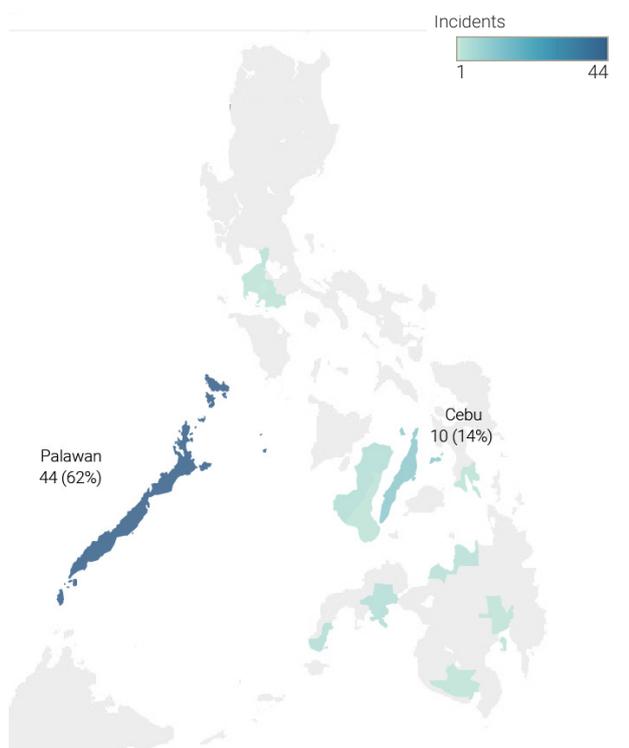
SPOTLIGHT ON: THE PHILIPPINES

- In the Philippines, seizures between 2018 and 2022 accounted for 59 out of 86 seizures (**69%**) of all giant clam seizures implicating Southeast Asia over the assessment period.
- The Philippines seized 121,071 tonnes, 99.7% of the volume of giant clams seized in trafficking incidents implicating Southeast Asia between 2003 and 2022.
- **Palawan** province accounted for 62% of the country's seizures resulting in 677 tonnes of giant clams seized (0.56% of the total volume).
- Most large scale seizures featured fossilized giant clams. The Philippines does not distinguish between fresh and fossilized clams when determining penalties for those traders caught trafficking the giant clams.
- Two seizures that occurred in Mindanao contributed largely to the overall volume seized and expressed in weight in the Philippines. There was a 120,000-tonne haul in South Cotabato in 2019 and a separate seizure of giant clams that had been stockpiled by a collector in Zamboanga City in 2020. Due to the sheer volumes in the 2020 seizure, the giant clams could neither be counted nor weighed.

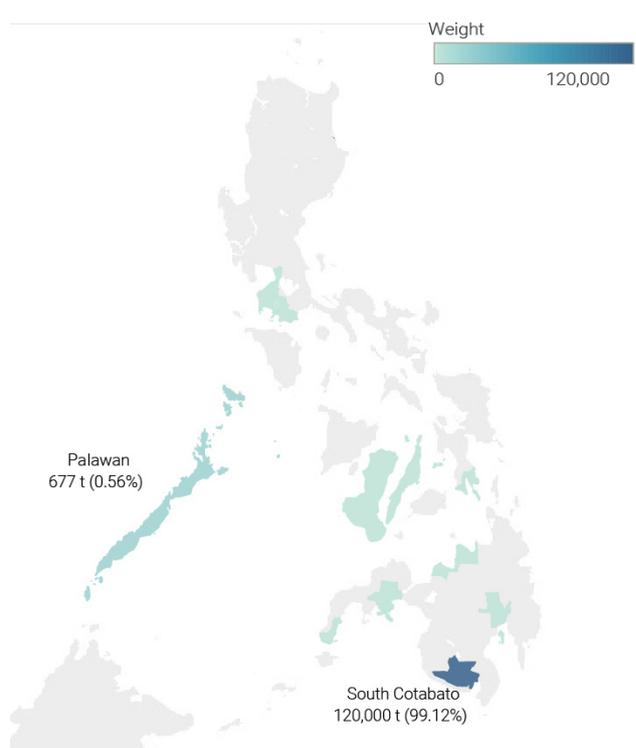
FIGURE 8

Detected Giant Clams trafficking across provinces in the Philippines.

(A) by number of seizures



(B) by seizure volume (tonnes)





NEXT STEPS

1

EXAMINE DEMAND AND MARKET AVAILABILITY

An **examination into demand harvest and market availability** in key source and consumer countries by government agencies tasked with protecting wildlife and enforcing wildlife protection laws is needed to ascertain the scale and understand the dynamics of both legal and illegal trade. This will be crucial to improving efforts in regulating the legal trade and preventing the illegal trade of giant clams.

2

INVESTIGATE TRADE NETWORKS

The large volumes seized point to the involvement of organised crime. As such, deeper **investigations into trade networks and their modus operandi and prosecution of perpetrators** involved in the illegal catch and trafficking of giant clams are needed. This should be prioritised by maritime agencies in important source countries like the Philippines and Indonesia, customs and border control officials in transit and consumer countries like Poland, and both enforcement groups in countries like mainland China, Malaysia, and Thailand that may be both source and consumer countries.

3

SCRUTINIZE TRADE MEASURES

These findings also warrant **scrutiny on legal trade measures** for giant clams to ensure that legal provisions are not being exploited, including the regulatory frameworks in place, and any gaps that may exist. Analysis of CITES trade records may aid in identifying gaps and loopholes, but this is often impeded by discrepancies between importer and exporter reported quantities. Such analysis relies on data integrity and consistency from CITES Parties submitting their trade records that more accurately reflect the trade dynamics at a country level. Therefore, key import, transit, and export countries must scrutinise their legal and regulatory frameworks, as well as how trade data is recorded and reported to CITES.

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WORKING TO ENSURE THE TRADE IN
WILD PLANTS AND ANIMALS IS NOT
A THREAT TO THE CONSERVATION
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