

AN INVESTIGATION INTO THE TRADE OF NAUTILUS



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TRAFFIC
the wildlife trade monitoring network

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Study Details

- TRAFFIC Staff
 - North America (US, Mexico)
 - Europe
 - East Asia (Taiwan)
 - Southeast Asia (ID, PH)
- Field Surveys, Interviews, Desk Research
 - Indonesia
 - Philippines
- Interviews, Desk Research
 - China, Hong Kong, Taiwan
 - Europe
 - US



Overview of Trade in Southeast Asia

- TRAFFIC investigators surveyed retail outlets, handicraft workshops, collectors, middlemen, fishermen and exporters.

- **Indonesia:**

- Central Java Province Yogyakarta
- East Java Province - Situbondo
- Bali Province - Badung, Gianyar
- West Nusa Tenggara Province - Lombok
- East Nusa Tenggara Province - Kupang and Alor
- South Sulawesi - Makassar
- Papua Barat Province - Sorong

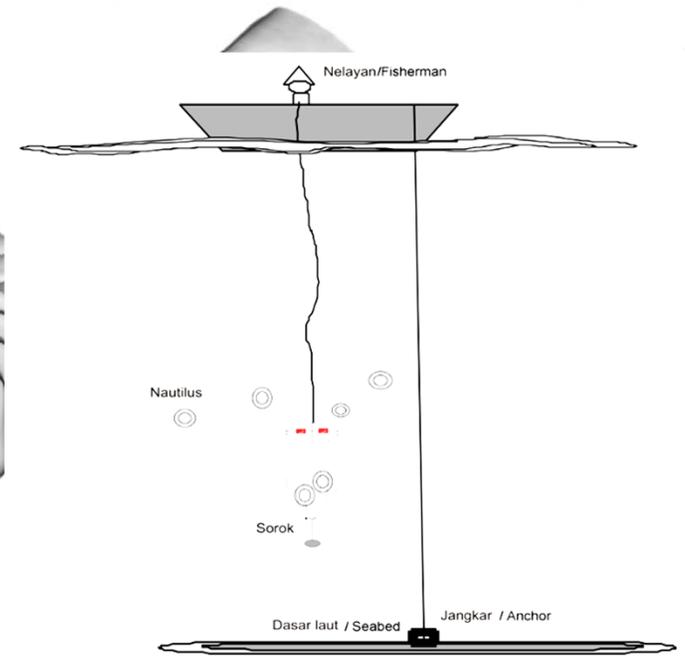
- **Philippines:**

- Central Luzon (Zambales Province)
- Northern Luzon (Pangasinan Province, La Union Province)
- Southern Luzon (Mindoro Occidental Province, Masbate Province, Quezon Province, Batangas Province, Camarines Sur Province, Palawan Province)
- Central Visayas (Cebu Province, Bohol Province)
- Mindanao (Davao Oriental, Tawi-tawi, Jolo/Sulu)



Harvest Methods

Harvest Method	Gear Type	Impact
Diving	Snorkel gear may be used.	Minimal – live and dead specimens collected. Primarily done for subsistence.
Fishing trap	Traps made of bamboo or other material are set at 150 - 200 meters depth in a fixed location with an anchor fixed	1 to 15 nautilus may be caught in a night from traps (past reports – around 5 years ago - estimated catch of 10 to 15 individuals a night; current catch rates average between 1 to 3/night in some parts of Indonesia).
Beach collection		Minimal – specimens are collected after drifting/being washed ashore.
Bycatch	Gillnets, other	Unknown – specimens are usually retained and sold rather than discarded back into the ocean



Indonesia

- *N. pompilius* prohibitions
- Nautilus products found in 5 of the 7 Provinces surveyed.
- More than 30 shops, markets, stalls, warehouses, and traders surveyed carried nautilus products (300 total surveyed).
- Shops offered = between 1 to 50 shells.
 - Orders for larger numbers could be placed with some traders
 - Collectors occasionally travelling to fishing villages in Makassar (Sulawesi) and elsewhere.



Allonautilus scrobiculatus in shop in Bali



Nautilus shells and jewelry in Sanur

Indonesia

Province (location)	Number of shops selling nautilus	None	TOTAL	Average number of products observed for sale	Source or Trade centre
Central Java (Yogyakarta)	1	13	14	2	Trade centre
East Java (Situbondo, Pasir Putih Beach, Jember, Bali)	27	249	276	2	Possible Source and trade centre
West Nusa Tenggara (Lombok)	3	17	20		Trade centre
East Nusa Tenggara (Kupang and Alor)	0	0	0	0	Source, Trade centre
South Sulawesi (Makassar)	0	14	14	0	Trade centre
Papua (Sorong)	2	18	20	1	Trade centre
TOTAL	31	310	341		

Number of shops selling nautilus

Indonesia

- Shops selling nautilus shells and handicrafts incorporating nautilus shell are mainly located in areas that cater for local and foreign tourists.



Ornamented Nautilus crafts and jewelry in Denpasar, Bali



Indonesia

- Interviews suggest number of nautilus collected significantly reduced in the last 10 years.
- Sources of the shells mainly from eastern Indonesia (West Nusa Tenggara & eastwards)
- Main trade /distribution/export centers located in western Indonesia
 - Java, Bali, Sulawesi and Lombok.
- Whole nautilus shells sales may have reduced BUT sale of shell fragments incorporated into furniture and other handicrafts as inlays continues.



Traditional marine curio stall in Sorong



Small pieces of Nautilus shells are used to decorate wooden furniture.

Philippines



Philippines

- 91 of 166 retail outlets (shops, markets, beach vendors, exporters, etc.) surveyed offered nautilus products

- ~10 pieces of shells typically offered

- Significantly more available from larger exporters/traders (more than 1,000 pieces reportedly)

Region	Total No of Shops Surveyed	Total No of Shops Selling Nautilus
National Capital Region (NCR): Metropolitan Manila	38	7
Region I (Ilocos Region), Northern Luzon	18	9
Cordillera Autonomous Region (CAR), Northern Luzon	11	0
Region III (Central Luzon)	6	0
Region IV-A (CALABARZON), Southern Luzon	11	7
Region IV-B (MIMAROPA), Southern Luzon	9	0
Region V (Bicol Region), Southern Luzon	0	0
Region VI (Western Visayas)	20	18
Region VII (Central Visayas)	45	45
Region IX (Zamboanga Peninsula), Southern Mindanao	8	5
Autonomous Region of Muslim Mindanao (ARMM)	0	0
Total	166	91

Philippines

- 18,544 pieces of whole nautilus shell were identified for sale
 - Luzon – 8,851 (48% of the total)
 - Western and Central Visayas – 8,478 (46% of the total)
 - Mindanao (Zamboanga) – 1,215 (7% of the total)



Products include raw, natural forms, polished/pearlized form, table lamps, fashion jewellery, letter opener, glass canisters, decorative eggs made of nautilus chips or in-lay

Philippines

- Palawan waters leading source of nautilus (~ Balabac Island)
- *N. pompilius* supposedly protected (harvest) in some municipal jurisdictions – enforcement lacking
- Exporter claimed 1,000-1,500 pieces collected from harvest sites 6x/yr.



Nautilus fisherman in Panglao Island, Bohol



Nautilus shells on local dock. Balabac, Philippines.

Philippines



Souvenir shops and ambulant vendor of nautilus in La Union and Pangasinan

- Exporters not offering as many today as in previous years
- Leading exporter claimed prior to 2005, ~ 2,000 pieces exported to US 3-4x/yr.
- Cebu major export center (38 exporters identified offering nautilus); Zamboanga major transit point for legal and illegal products (5 exporters offering nautilus)

Overview of Trade in East Asia (CH, HK, TW)

- China, Hong Kong, and Taiwan do not record specific customs codes for nautilus products.
- *N. pompilius* Class I species in China = harvest prohibited
 - Enforcement a challenge
- Origin of shells = unknown, not given, or claimed PH
- Sold in south of China (Fujian, Guangdong & Hainan)
- Small numbers occasionally sold in art ware markets



Trade in East Asia

- Nautilus present in both shell & meat in Guangzhou seafood markets & home décor shops

- Small trade of live specimens for aquaria purposes in Hong Kong
 - Shell rarely seen in markets.

- Nautilus shells sold as souvenirs in fishing ports and tourist spots (four



Nautilus shells for sale at gift store in Zhanjiang Airport, Guangdong, China

Overview of Trade in Europe

- Absence of species or genus specific Customs codes.

[05080020](#)

Coral and similar materials, shells of molluscs, crustaceans or echinoderms and cuttle-bone, powder and waste thereof

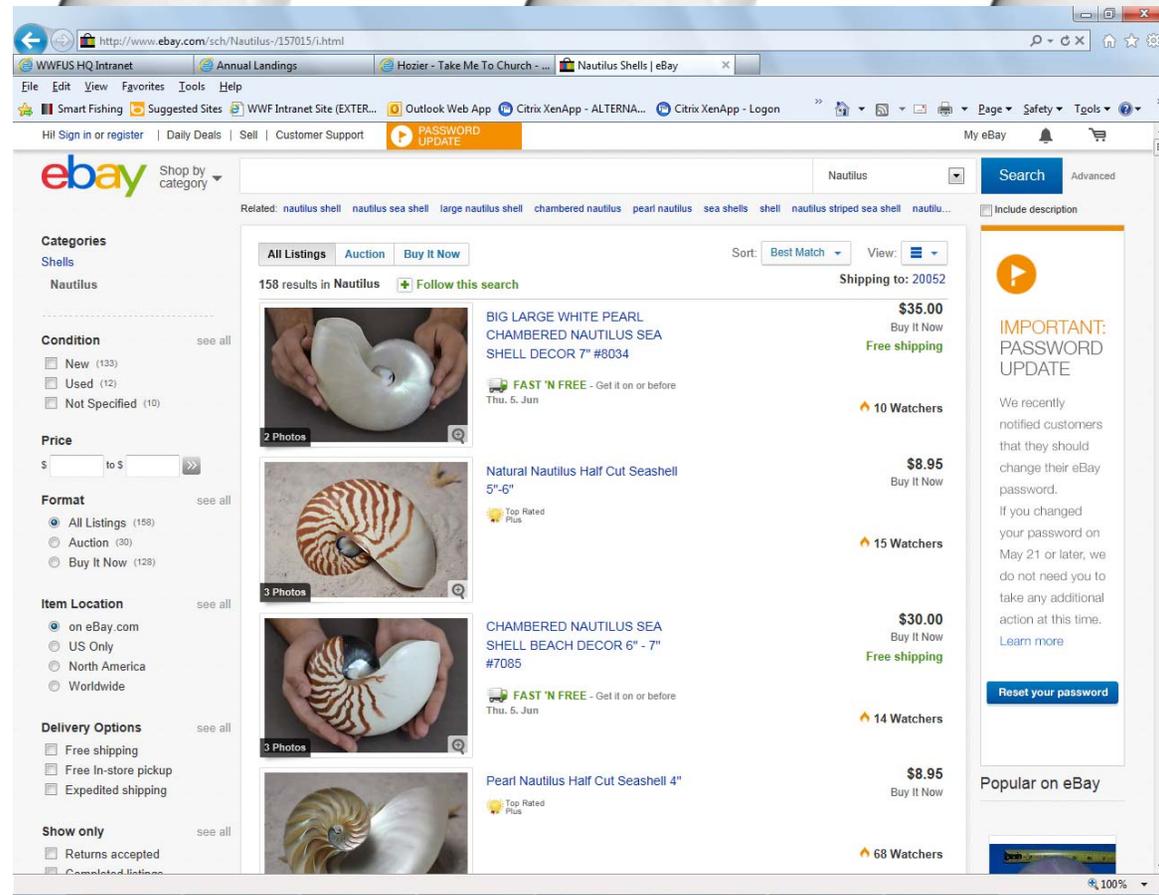
[05080090](#)

Coral and similar materials, unworked or simply prepared but not otherwise worked; shells of molluscs, crustaceans or echinoderms and cuttle-bone, unworked or simply prepared but not cut to shape, other than powder and waste

- Overall, trade and sale of nautilus appears to occur at a low level.
 - Nautilus shells sold individually, or parts of ornaments, ½ shells and smaller pieces used in jewelry.
 - Stock was usually made up of a few pieces.
- The majority of nautilus found for sale on European websites were located in France, Germany and the UK
 - Only very small quantities found on other national websites.
 - Details (the species, country of origin, etc.) not provided
- Monitoring of nautilus trade is not a priority for authorities.

Online Trade in U.S.

- Significant amount available online
- > 500 nautilus items from 40+ vendors in 2 mos.
- Many retailers have supplies or access to supplies in excess of the amount available online at any particular time
- Some retailers = wholesalers, so even if only one nautilus item is offered for sale, it is still possible to purchase hundreds from them



The screenshot shows an eBay search results page for "Nautilus". The search results are sorted by "Best Match" and show 158 results. The page displays several listings with images, titles, prices, and shipping information. The listings include:

- BIG LARGE WHITE PEARL CHAMBERED NAUTILUS SEA SHELL DECOR 7" #8034**: \$35.00, Buy It Now, Free shipping, 10 Watchers.
- Natural Nautilus Half Cut Seashell 5"-6"**: \$8.95, Buy It Now, 15 Watchers.
- CHAMBERED NAUTILUS SEA SHELL BEACH DECOR 6" - 7" #7085**: \$30.00, Buy It Now, Free shipping, 14 Watchers.
- Pearl Nautilus Half Cut Seashell 4"**: \$8.95, Buy It Now, 68 Watchers.

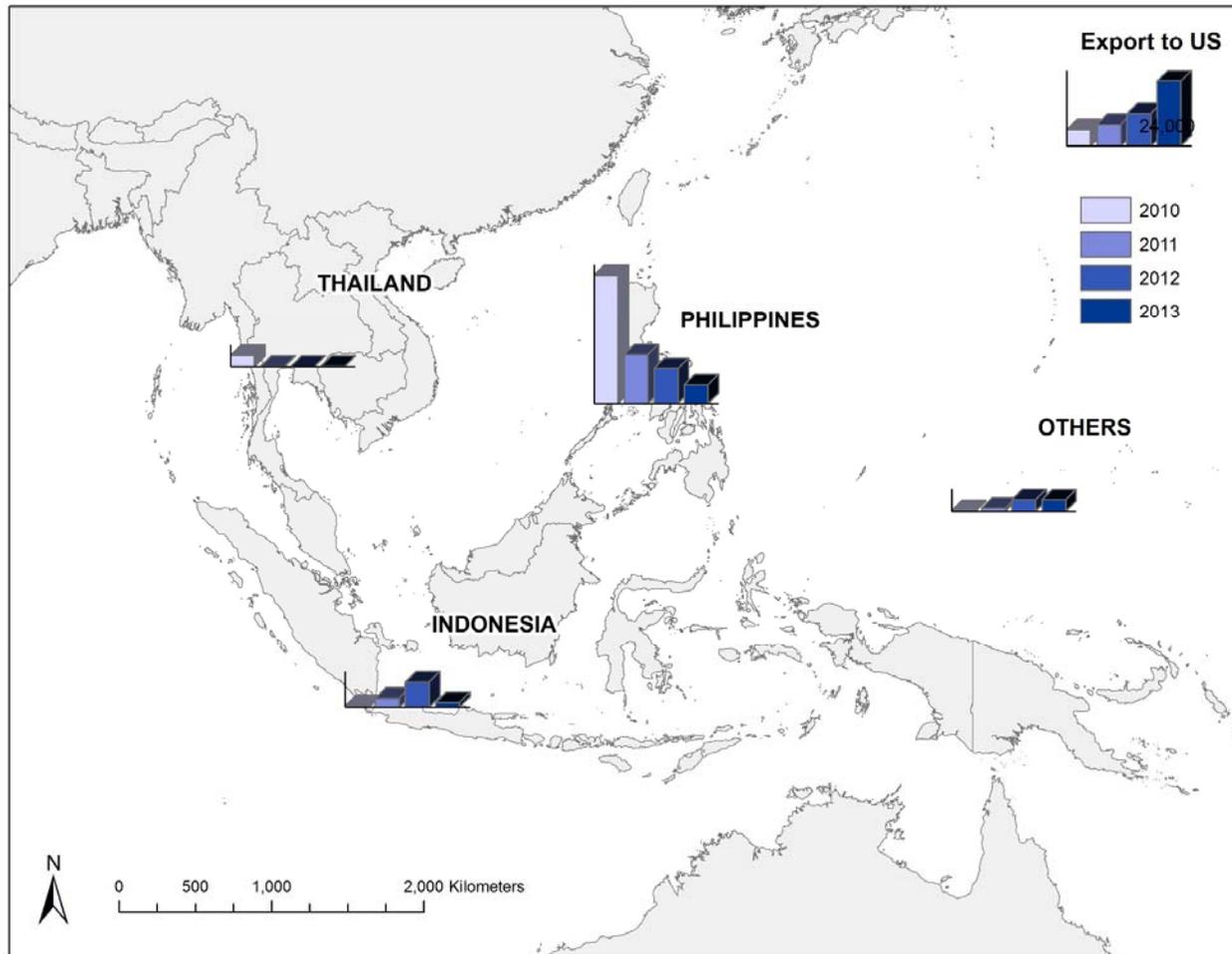
The page also features a sidebar with filters for Categories, Condition, Price, Format, Item Location, Delivery Options, and Show only. A "Reset your password" button is visible on the right side of the page.

Imports of Nautilus into US: LEMIS Data: 2010-2013

Wildlife Desc	Unit	2010	2011	2012	2013	Overall Total (NO)	Overall Total (KG)
BOD	NO			18	27	45	
GAR	NO		10			10	
JWL	KG	0.005	125	87			212.005
JWL	NO	11,308	12,351	15,968	5,652	45,279	
LIV	NO	26	16	12	47	101	
LPL	NO			2		2	
LPS	NO	40				40	
SHE	KG			5			5
SHE	NO	1,947	1,579	2,024	1,785	7,335	
SPE	NO	6	26	4	21	57	
SPR	KG	27	228	22	8		284.8
SPR	NO	21,327	7,839	8,694	5,639	43,499	
TRI	NO	18,043	613	100		18,756	
UNS	NO	150	452			602	
Annual Total	NO	52,847	22,886	26,822	13,171	115,726	
Annual Total	KG	27	353	114	8	0	502

Wildlife Description: BOD: Bodies; GAR: Garments; JWL: Jewelry; LIV: live specimens (live animals or plants); LPL: Large leather products; LPS: Small leather products; SHE: shells (raw or unworked shells); SPE: specimens (scientific or biological); SPR: shell products made from mollusc or turtle shell; TRI: trim (show trim, garment trim, garment trim, or decorative trim); UNS: unspecified. Unit: KG: kilogram; NO: number (does not necessarily imply a whole animal).

Major Export Countries to U.S. for Pieces of Nautilus from 2010 – 2013 (LEMIS 2014)



Conversion Metrics? - When KG Recorded

Wildlife Desc	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
JWL - KG	30	300			41		125	87		583
<i>Low Est. - Individuals</i>	68	682			93		284	198		1,325
<i>High Est. - Individuals</i>	83	833			114		347	242		1,619
SHE - KG	1,033		2,776	35	724			5		4,573
<i>Low Est. - Individuals</i>	2,348		6,309	80	1,645			11		10,393
<i>High Est. - Individuals</i>	2,869		7,711	97	2,011			14		12,702
SPR - KG	332	620	1	133	16	27	228	22	8	1,387
<i>Low Est. - Individuals</i>	755	1,409	2	302	36	61	518	50	18	3,152
<i>High Est. - Individuals</i>	922	1,722	3	369	44	75	633	61	22	3,852
Annual Ttl - KG	1,395	920	2,777	168	781	27	353	114	8	6,723
Total Low Est. - Individuals	3,170	2,091	6,311	382	1,775	61	802	259	18	14,870
Total High Est. - Individuals	3,875	2,556	7,714	467	2,169	75	981	317	22	18,175

- 440 g/shell for a low estimate of individuals

- 360 g/shell for a high estimate of individuals

- Between 2005 -2013: ~15,000 to 18,000 individuals

Conversion Metrics? No. of Pieces

Commodity	Number of Individual Nautilus for Commodity	% of Commodity Traded by Reported Number of Items (Imported to U.S. 2010-2013, LEMIS)	% of Commodity Traded by Reported Weight of Items (Imported to U.S. 2010-2013, LEMIS)
Shells (raw or unworked)	1	6%	1%
Shell products (lamps, furniture, etc.)	Less than 1 – 100 (between 40 -100 for table and chair furniture set)	38%	50%
Trim	Less than 1 - 1	16%	(>7%)
Jewelry	Less than 1 – 1 (earrings, pendants, necklaces, etc.)	39%	42%

Estimates of Individual Nautilus Used for Different Commodities

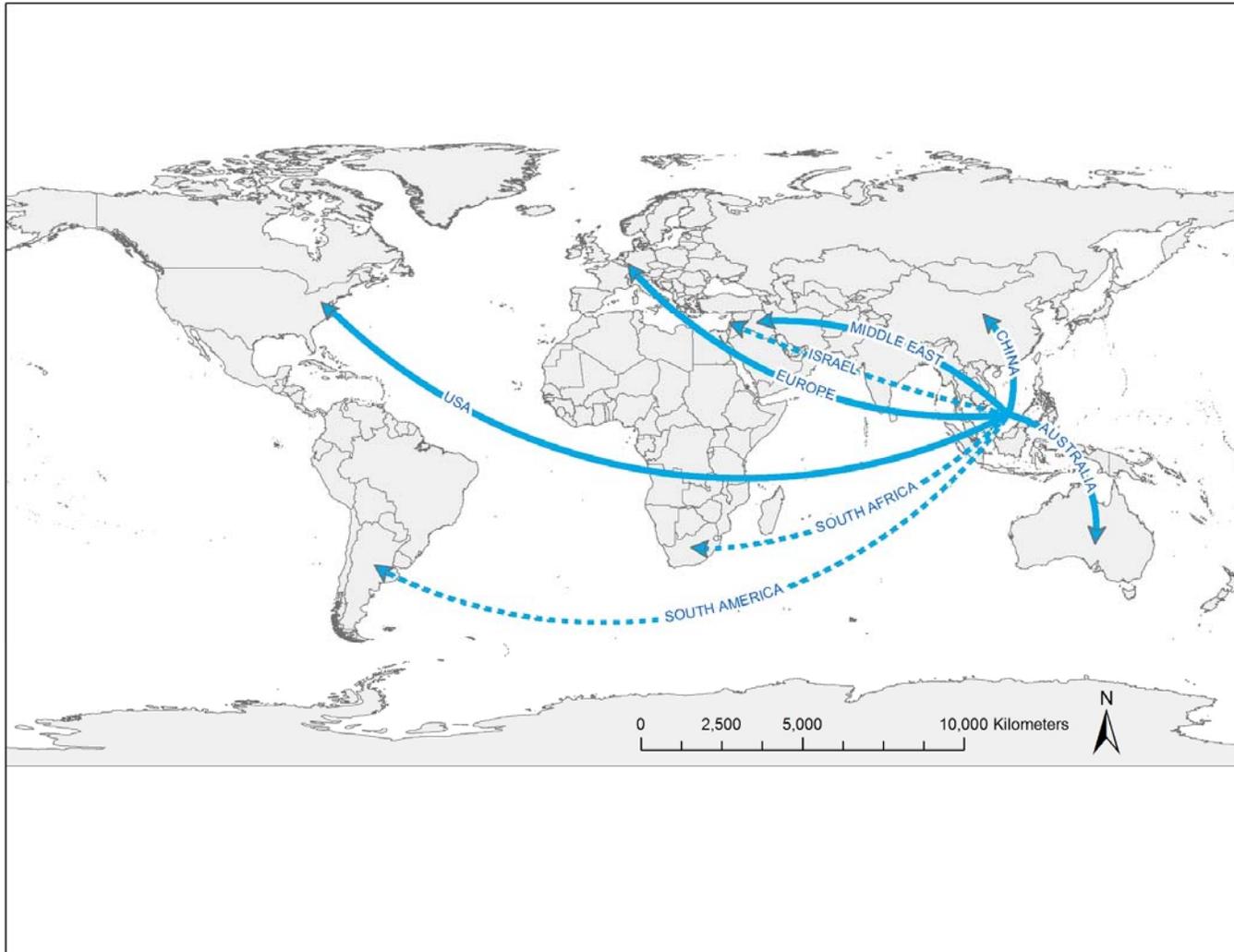
Estimate of Individual Nautilus Imported to U.S. (2010 -2013)

Commodity	Number of pieces reported as imports to US (2010 – 2013, LEMIS)	Estimate of Individual Nautilus/number of pieces	Estimate of Individual Nautilus Imported
Shell	7,335	1	7,335
Shell products (lamps, furniture, etc.)	43,499	0.1 (Low Estimate)	4,350 (Low Estimate)
		1 (High Estimate)	43,499 (High Estimate)
Trim	18,756	0.1 (Low Estimate)	1,876 (Low Estimate)
		0.2 (High Estimate)	3,751 (High Estimate)
Jewelry	45,279	0.1 (Low Estimate)	4,528 (Low Estimate)
		1 (High Estimate)	45,279 (High Estimate)
TOTAL	114,869		18,089 (Low Estimate)

Overview of Identified Species in Trade

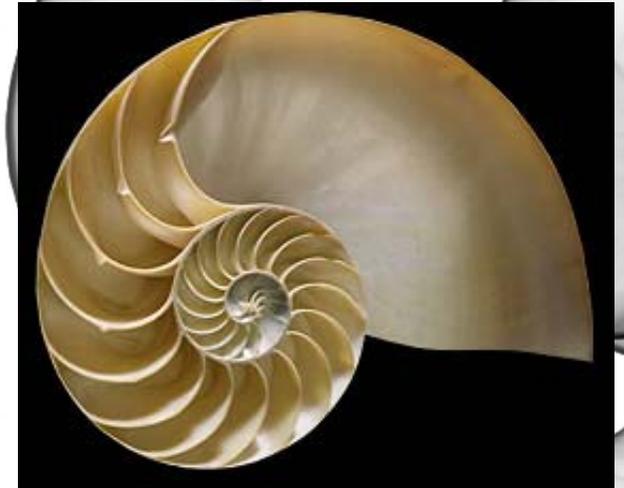
Species	Origin of Traded Commodities	Known Consumer Markets	Intl. Trade Notes
<i>Nautilus pompilius</i>	Australia, China, Taiwan, Fiji, India, Indonesia, Malaysia, New Caledonia, Papua New Guinea, Philippines, Solomon Islands, Vanuatu, Viet Nam	Global; US, EU (Italy, UK, France, Portugal), Middle East (UAE, Saudi Arabia), Australia, Singapore, Malaysia, Indonesia, Philippines, Hong Kong, Russia, Korea, Japan, China, Taiwan and India	Most prevalent species in trade. Numbers of specimens in trade are high at the artisanal and subsistence levels. Fisheries in the Philippines and Indonesia exist for the shell business primarily. The meat is reported as sold fresh in local markets. Large-scale exports reported for wholesalers Philippines. Additional sales to individual tourists and visitors reported for significant amounts. Illegal harvest and trade in Indonesia and some jurisdictions in Philippines. Retailers in the U.S. offer <i>Nautilus</i> shells whole, sliced, and pearled products. Shells on sale in souvenir stores cost upwards of \$65 depending on shell size. Retailers also sell shells in EU and are offered for sale in some specialty fairs.
<i>Nautilus belauensis</i>	Palau	US	Some shells noted for sale in the U.S.
<i>Nautilus macromphalus</i>	New Caledonia	US	Shells of the species for sale in the U.S. with live specimens offered for the aquaria trade.
<i>Nautilus repertus</i>	Australia		Specific data for trade in this species is scarce. Some wholesalers in Germany have been reported as stating they have shells of this species on stock.
<i>Nautilus stenomphalus</i>	Australia		Shells very similar to <i>N. pompilius</i> . No trade data available.
<i>Allonautilus scrobiculatus</i>	Indonesia, Papua New Guinea, Solomon Islands	US, EU, Indonesia	Some reported trade in Indonesia. Low commercial availability makes this species highly-prized by shell collectors.

Overview of Consumer Destinations for



Gaps in Investigation/Analysis

- More research needed on extent of trade in:
 - East Asia (China, Hong Kong, Taiwan, Japan)
 - Southeast Asia (Thailand, Malaysia)
- Little known about trade in:
 - Oceania (Australia, New Zealand, Fiji, Pacific Island States)
 - South America
 - Africa
 - Middle East (Saudi Arabia, UAE, Israel, Bahrain, Oman, Kuwait)
 - North America (Canada, Mexico)



Conclusions - Main Findings

- Significant volumes entering both international trade and consumed locally in source countries
- Growing source of trade online
- Illegal harvest and trade in Indonesia
 - Weak enforcement
- Substantial harvest and trade in Philippines
 - Lack of management and controls
- Absence of customs codes to track intl. trade
- Absence of market measures to ensure trade is legal



Recommendations

- States should record nautilus products that are imported/exported
- Stock assessments to determine the status of the stock and extent of fishing pressure to ensure harvest and trade is sustainable
- Catch documentation identifying the origin of nautilus products
 - Eventually traceability systems – verify legality

WWF FOR A INDONESIA NUSA
KALAI KONSERVASI SUMBER DAYA ALAM NUSA TENGGARA BARAT

鹦鹉螺 (Nautilus)
 鹦鹉螺，海洋软体动物之一，它被称作活化石，是地球上最后一只活着的史前生物。它已经存活了数亿年的漫长岁月，是自然界中真正的“活化石”。

唐冠螺 (Cassis Cornuta)
 唐冠螺，海洋软体动物，外形酷似皇冠，故名。它生活在浅海，是海洋生态系统的重要组成部分。由于过度捕捞，其数量正在急剧下降。

虎斑宝螺 (Turbo suluensis)
 虎斑宝螺，海洋软体动物，外形独特，色彩斑斓。它是海洋生态系统的重要组成部分。由于过度捕捞，其数量正在急剧下降。

TRAFFIC 简介
 国际野生动植物贸易研究组织 (TRAFFIC) 是野生动植物贸易监测网络 (WWMN) 的秘书处，致力于防止野生动植物非法贸易。我们与世界各地的政府、科学家、环保组织和社区合作，打击非法贸易，保护生物多样性。

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 the wildlife trade monitoring network

PROHIBITED IN TRAFFICKING PROTECTED SPECIES OF WILD FAUNA AND FLORA

Based on Article 21 verse (2) Act Number 5 of 1990 concerning Conservation of Living Resources and their Ecosystems, everyone is prohibited to catch, hunt, keep, sell and buy of protected species (live, dead, or its parts). The violation of the article is threatened by penalty of maximally 5 years in jail and fine for Rp. 100.000.000.00.

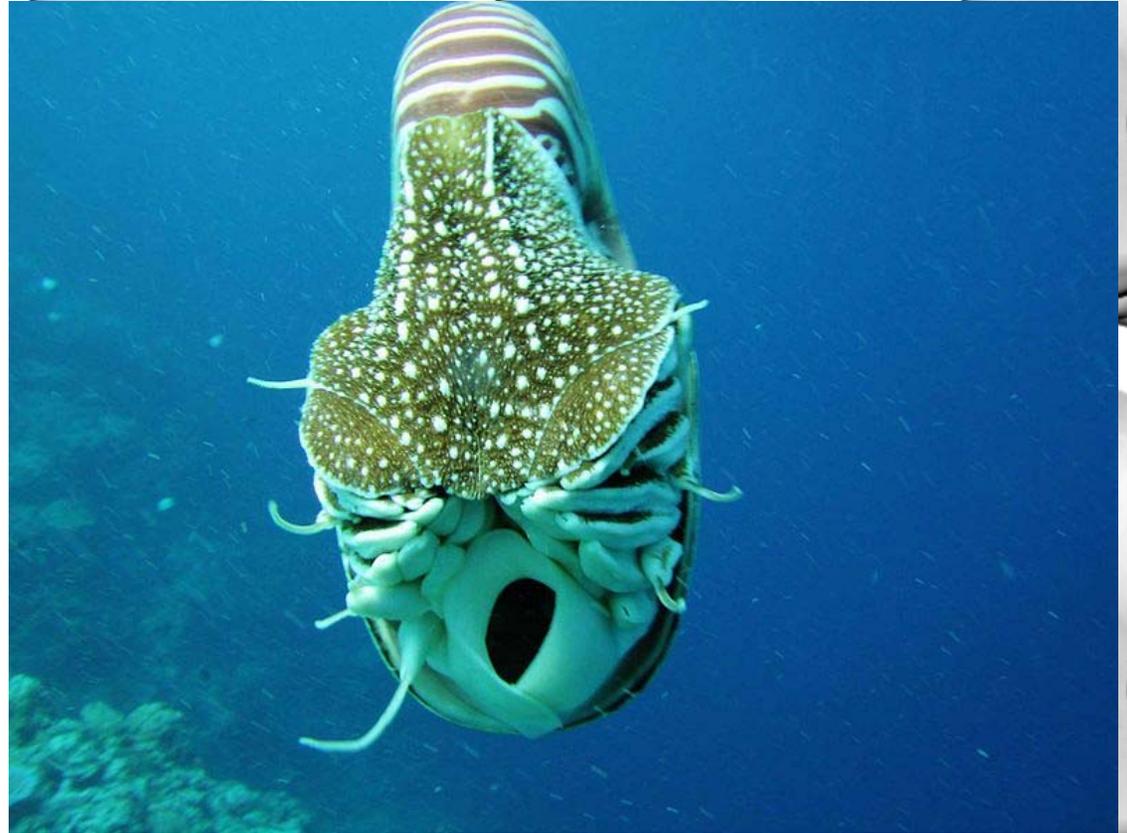
Some of Protected Species:

- Bull Shark (*Carcharodon carcharias*)
- Barnacles (*Balanus*)
- Dark-rumped Noddy (*Noddy*)
- Tiger Shark (*Galeocerdo cuvier*)
- Top Shell (*Turbo*)
- Sea Turtle (*Chelonia*)
- Adoles of vulnerable protected species are contained in forest reserve habitat
- Sea Snake (*Laticauda*)
- Sea Snake (*Laticauda*)
- Sea Snake (*Laticauda*)

OFFICE OF NATURAL RESOURCES CONSERVATION - WEST NUSA TENGGARA REGION - NTB
 Jl. Mayjidal - 83161
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Recommendations

- Systematic exchange of info on illegal harvest and trade
- Capacity building & ID training for enforcement
- Govt. monitoring of trade



Questions?

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