Tridacna gigas Linnaeus, 1758

FAMILY: Tridacnidae

COMMON NAMES: Giant Clam, Gigas Clam (English); Bénitier géant (French)

GLOBAL CONSERVATION STATUS: Listed as Vulnerable (VU - A2cd) in the *2004 IUCN Red List of Threatened Species* (IUCN, 2004).

SIGNIFICANT TRADE REVIEW FOR: Australia, Comoros, Fiji, Japan, Kiribati, Malaysia, Marshall Islands, Micronesia, Myanmar, Palau, Papua New Guinea, Tonga, Vanuatu, Viet Nam

Range States selected for review

Range State	Exports* (1994-2003)	Urgent, possible or least concern	Comments
Australia	ca 16,000 kg shells & 320 shells	Least concern	Considerable quantities of captive-bred exports; mariculture facility not approved for *T. gigas*
Comoros	No exports	Least concern	No exports; not knows as range State
Fiji	1,000 live, 200 shells	Least concern	Species probably introduced; recorded level of export low (ca 120 specimens a year).
Micronesia	Minimal trade	Least concern	Minimal trade
Japan	No exports	Least concern	No exports
Kiribati	Minimal trade	Least concern	Minimal trade
Malaysia	Minimal trade	Least concern	Minimal trade
Marshall islands	Minimal trade	Least concern	Minimal trade
Myanmar	No exports	Least concern	No exports
Palau	Minimal trade	Least concern	Minimal trade
Papua New Guinea	Minimal trade	Least concern	Minimal trade
Tonga	Minimal trade	Least concern	Minimal trade
Vanuatu	Minimal trade	Least concern	Minimal trade
Viet Nam	29,000 kg shells, 100 live	Least concern	Not definitely known as range State; shell export recorded in a single year (2000); apart from 100 live specimens in 2002, no subsequent export of *T. gigas* or of *Tridacna* spp. or *Tridacnidae spp*.

*Excluding re-exports

SUMMARY

Tridacna gigas is the largest giant clam species. It has a wide distribution from northern Australia and Thailand east into the south Pacific but has become locally or nationally extinct in many areas and introduced into others. Wells (1997) observed that abundant populations were known only in Australia and the Solomon Islands, but stated that relict populations might still occur in Myanmar, Palau, Papua New Guinea, Marshall Islands, Kiribati and on the west coast of Thailand.

Reported exports from Australia from 1994–2003 were almost entirely of captive-bred specimens, with trade therefore considered of Least Concern. Recorded levels of trade from Fiji were low (ca 120 specimens a year, mostly live). Almost if not all current populations of *T. gigas* in this country are artificially established, the species being not definitely known to have ever occurred naturally there. Because of this, and despite the reasonable number of specimens of giant clams recorded in trade at the level of genus or family, some of which may have been *T. gigas,* trade in this species from Fiji is considered of Least Concern.

Viet Nam lies within the overall range of *T. gigas* but definite records of the species in the wild have not been located. In 2000 export of a significant weight (29,000 kg) of shells of *T. gigas* from Viet Nam was

reported. Large number of live specimens of *Tridacnidae spp*. were also reported exported in that and the previous year. Subsequently, Viet Nam has reported virtually all its substantial export of giant clams at the species level, with none recorded as *T. gigas.* Trade in this species from Viet Nam is therefore considered of Least Concern.

Ongoing trade in giant clam species recorded to the family level hinders accurate analysis of the impact of trade on specific species.

Species characteristics

Globally the IUCN classifies the conservation status of *T. g*igas as Vulnerable (A2cd).

Tridacna gigas is the largest giant clam species, reaching a maximum shell length of 140 cm. The species reaches sexual maturity at age 9-10 (Anon., 1987; Wells *et al*., 1983). It has a wide distribution from northern Australia and Thailand east into the south Pacific but has become locally or nationally extinct in many areas and introduced into others. Wells (1997) observed that abundant populations were known only in Australia and the Solomon Islands, but stated that relict populations might still occur in the southern waters of Myanmar, Palau, Papua New Guinea, Marshall Islands, Kiribati and on the west coast of Thailand. It was also believed to survive in Indonesia, Malaysia and a few parts of the Philippines. It was thought extinct in Japan, New Caledonia (where known only from fossils) and Guam, and possibly extinct in Taiwan Province of China, Vanuatu and Tuvalu (where it may never have occurred). Populations had been reintroduced in the Federated States of Micronesia and the Northern Marianas and introduced to American Samoa, the Cook Islands, Tonga, the USA (Hawaii) and Western Samoa. Those in Tonga and Western Samoa had subsequently died out. Populations had also been introduced to Fiji, where it was unclear if the species had ever originally occurred.

INTERNATIONAL TRADE

T. gigas is a popular food item; its shells are also traded. Over the period 1994-2003, exports of *T. gigas* were recorded for 23 countries. These included 11 of the 14 countries selected for inclusion in the review of trade in this species. Of these 11, eight were identified as countries where trade was of Least Concern i.e. the average annual trade over the 1999-2003 period was less than 100 for all terms and were therefore excluded from detailed review. These were: Comoros, Federated States of Micronesia, Japan, Kiribati, Malaysia, Marshall islands, Myanmar, Palau, Papua New Guinea, Tonga and Vanuatu. No exports were recorded for Comoros, Japan or Myanmar. Trade from Australia, Fiji, and Viet Nam warranted detailed analysis. Significant imports of *T. gigas* were as originating from the Solomon Islands, which was not selected for the review.

Exports of *T. gigas* from Australia, Fiji, the Solomon Islands and Viet Nam are shown in Table 1.

Table 1: Exports excluding re-exports of *Tridacna gigas* from significant trading countries, 1994-2003

Term	Unit	S	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Totals
Australia													
Live		C	35		200	5							240
Meat	kg	C					10						**10**
Shells		C	390			1	30	6	309	2459		2	**3,197**
Shells	kg	C								15921			**15,921**
Shells	Pairs	C				1	2						**3**
Specimens		C	50										**50**
Live		W				5						30	**35**
Shells		W				3	3		4	1			**11**
Fiji													
Live		C				8	5	570	188	50			**821**
Shells		C							100				**100**
Live		F									181		**181**
Shells		F									100		**100**
Carvings		W	7										**7**
Live		W		3		196	13	113	46		53		**424**
Shells		W	2										**2**

Solomon Islands													
Live		C		98	89	402	325	207	61	1	404	12	**1,599**
Shells		C										5	**5**
Live		F								200	1	16	**217**
Live		W	795	2202	1660	717	258	354	11	4	12	5	**6,018**
Shells		W											
Viet Nam													
Live		W		2							100		**102**
Shells	Kg	W							29000				**29,000**

(Source: CITES trade statistics derived from the *CITES Trade Database,* UNEP World Conservation Monitoring Centre, Cambridge, UK.)

COUNTRY ACCOUNTS

Australia

Status:

Queensland. Abundant on parts of the Great Barrier Reef; natural breeding populations only north of 18°S; limited by cold temperatures (Wells, 1997).

Management and trade:

Over the period Australia recorded significant exports of *T. gigas* shells from captive-bred specimens. The number of shells exported peaked in 2001, when 2,459 shells and 15,921kg of shells were reported as exported. In 2003, 30 live specimens were exported recorded as of wild origin.

In Australia giant clam trade is regulated by the Australian Management Authority under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A permit may only be issued for commercial export if the specimens are sourced from a captive breeding program or an approved harvesting or ranching operation (CITES Management Authority Australia, 2005). No information was available on population monitoring, but it is likely that this species is included in coral reef monitoring activities undertaken on the Great Barrier Reef.

Mariculture: There is one captive-breeding operation for *T. gigas.*

Trade from Australia was almost entirely of captive-bred specimens and therefore of Least Concern.

Fiji (CITES Party since 1997)

Status:

There is some question as to whether Fiji forms part of the original range of *T. gigas* (Lukan, 2000). Current populations are artificially established from brood stock imported in the 1980s and 1990s (Wells, 1997).

Management and trade:

Although Fiji provided export data for giant clams in their CITES annual reports beginning in 1998, these have not been incorporated into the CITES trade database by UNEP-WCMC as there are questions concerning the data. Queries have been sent to Fiji's CITES Management Authority, and the data will be incorporated into the database once the questions have been resolved (Caldwell *in litt*., 2006). Information below on CITES-reported trade is therefore based solely on data from CITES Parties reporting imports from Fiji.

There was no information available on the domestic market for, or level of collection of, *T. gigas* specifically, but this species is known to be used in Fiji along with other giant clam species. Clams are collected for subsistence purposes and considered as 'high status food' for use on special occasions or as a reserve food when times are difficult. In the 1980s, giant clam meat was sold in municipal markets

and directly to restaurants, supermarkets and other outlets, and was considered to be expensive relative to other seafood products (Wells, 1997). In 2003, clam meat from wild stocks was being sold in markets (Raymakers *et al*., 2003) and in 2004 clam meat was still served in at least one restaurant (Parry-Jones, *in litt*., 2006).

There is no regulation of domestic harvest of giant clams, although exploitation guidelines were drawn up by the Fisheries Division in 1984 (Wells, 1997). Available information indicates that domestic use and sale is also unregulated. Export of wild giant clam meat was banned in 1988 under the Fisheries Act (Cap. 1.58) of 1942, amended in 1992. The Act includes a clause allowing the Permanent Secretary responsible for fisheries to make exceptions for meat from verified mariculture sources. It is therefore possible that the classification of 'wild' in trade data may refer to clams from hatcheries that are placed on the reefs to grow out (Parry-Jones, *in litt*., 2006). It is not clear whether the export ban also applies to live specimens. No information was available with regard to population monitoring.

Mariculture: Brood stock of *T. gigas* was imported from countries such as Australia and Tonga to establish small village farms in the 1980s and 1990s (Wells, 1997). The trade data for captive-bred specimens indicates that mariculture operations are active.

Recorded levels of trade area at a low level (ca 160 specimens a year). Some 1,000 shells a year of Tridacnidae spp. are recorded as exported, some of which may conceivably be *T. gigas.* However, available evidence indicates that all current *T. gigas* stock in Fiji is artificially established and the species may not be native to the country. For this reason export of *T. gigas* is from Fiji is categorised as Least Concern.

Viet Nam

Status:

T. gigas is not known to occur in Viet Nam, and was not listed by Wells (1997) as one of the species likely to occur there.

Management and trade:

Recorded exports of *T. gigas* from Viet Nam comprise 2 live specimens in 1995, 29,000 kg of shell in 2000 and 100 live specimens in 2002; all were recorded as of wild origin. In addition, in 1998, 1999 and 2000 there were substantial exports of live clams recorded as *Tridacna* spp. or Tridacnidae spp. Subsequently, all exports from Viet Nam have been reported to the species level, and involve species other than *T. gigas.* It is possible that the records of *T. gigas* were the result of misidentification or misreporting and therefore these exports could have been exports of *T. crocea*, *T. squamosa* or *T. maxima* for which Viet Nam is a range State.

No information was available on legislation.

No information was available on population monitoring.

Mariculture: no information available.

In view of the absence of recent recorded trade in the species from Viet Nam, despite substantial continuing trade in other *Tridacna* spp., and the probability that the earlier trade records were not of *T. gigas,* trade in the species from Viet Nam is categorised as of Least Concern.

PROBLEMS IDENTIFIED THAT ARE NOT RELATED TO THE IMPLEMENTATION OF ARTICLE IV, PARAS 2(a), 3, or 6(a)

As noted above, the ongoing reporting of trade in giant clam species to the genus (e.g. *Tridacna*) or family level (Tridacnidae spp.) (see Appendix 1) prevents a full assessment of trade levels, and therefore of the potential impact of international trade on wild populations. However, it is important to note that the quality of reporting by some countries has improved significantly, e.g. Indonesia, Viet Nam and Philippines. Reporting of trade from Cook Islands, Fiji, French Polynesia, Tonga, Vanuatu, Samoa and

Solomon Islands continues to contain significant information only at the genus or higher level, often in conjunction with reporting by importing Parties. Reporting of trade at the species level would facilitate more accurate analysis of the impact of trade on specific species. Additional reporting problems that hinder accurate aggregation of data across years and species include: variations in the unit of measurement cited; difficulty in estimating the number of specimens involved when reports are made in "kg", which is common in the case of meat and shells; inconsistencies between records provided by importing and exporting countries.

Concerns regarding illegal trade in Tridacnidae from Indonesia have been noted and merit further review.

Trade from the **Solomon Islands** (not a Party and not selected for review) continues to be of concern. The entire family Tridacnidae was included in Phase 3 of the Review of Significant Trade review. Recommendations concerning export from the Solomon Islands were made in 1996, at which time the Secretariat's policy was to recommend against accepting export permits issued by the Solomon Islands. In July 1996 the Minister for Agriculture and Fisheries in the Solomon Islands explained by letter that the country prohibited the export of wild clams, and that those exported were cultured clams produced by a number of village-based farms from clams supplied by an ICLARM (now WorldFish Center) hatchery, which the Minister considered met the CITES definition of bred in captivity. In view of this, the Secretariat considered its recommendation to be no longer applicable. However, more recent sources, including the Food and Agriculture Organization of the United Nations (FAO) (Anon., 2002) and the South Pacific Commission, through its aquaculture portal (http://www.spc.org.nc/aquaculture, viewed March 3rd 2006) note that aquaculture activity had ceased by 2000 at the latest owing to civil unrest. Since then, Parties have recorded imports from the Solomon Islands of specimens of wild origin of all of the species of giant clam under review here. The nature of the specimens currently in trade from the Solomon Islands should be verified.

REFERENCES

Anon. (1987). *CITES Identification Manual. 3a Invertebrata*. Codes A-841.024.001.001 to 005 1987 (1) & A-841.024.002.001 & 002 1987 (1). CITES Secretariat, Geneva, Switzerland.

CITES Management Authority Australia *in litt*. (2005). to the CITES Secretariat.

Caldwell, UNEP-WCMC *in litt*. (2006). to IUCN Species Programme and TRAFFIC International

Lukan, E. M. (2000). *Tridacna derasa*, Fish 'N' Chips: A Monthly Marine Newsletter November <http://www.exotictropicals.com/encyclo/fishnchips/nov99/fnc1199.html#Critter%20Corner> Downloaded on 26 January 2004

Parry-Jones, R. TRAFFIC Europe *in litt*. (2006) to TRAFFIC International.

Raymakers, C., Ringuet, S., Phoon, N. and Sant, G. (2003). *Review of the Exploitation of Tridacnidae in the South Pacific, Indonesia and Vietnam*. Technical report submitted to the European Commission, TRAFFIC Europe, Brussels, Belgium.

UNEP-WCMC (2006). CITES Species Database, UNEP World Conservation Monitoring Centre, Cambridge, UK http://www.cites.org/eng/resources/species.html Viewed January 2006

Wells, S. (1997). *Giant Clams: Status, Trade and Mariculture, and the Role of CITES in Management*. IUCN, Gland, Switzerland and Cambridge, UK. ix + 77 pp