



## Review of the trochus fishery in Sudan

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Sudan has a total coastline of about 750 km that lies in the Red Sea between latitudes 18°N and 22°N (Fig. 1). The widest part of the Red Sea is 306 km and the greatest depth for the central trough that lies off Port Sudan is 3040 m. Much of the coast is bordered by fringing reefs that are 1–3 km wide and a few meters deep, with occasional depressions (25 m deep or more) such as those north of the harbour entrance at Port Sudan, at *mersas* (coastal inlets), and at Tokar Delta.

The reefs off the Sudanese coast have been described as having the highest diversity of habitats and species in the region. The coastal people are semi-nomadic. Fishing is their main activity along with herding small numbers of goats and camels.

Generally speaking, Sudanese Red Sea fisheries are small-scale fisheries and mainly artisanal. The unemployment rate in coastal areas is very high and fishing pressure on the reefs is intense.

The two main commercial mollusc species in Sudan are trochus (*Trochus dentatus*) and pearl oyster (*Pinctada margaritifera*). Although this fishery makes a low contribution to the overall Sudanese economy, it is of importance to coastal people as a source of income and an important source of animal protein found in the fresh fish markets in coastal areas.

The average annual Sudanese trochus (*T. dentatus* and *T. virgatus*) export between 1970 and 1998 was

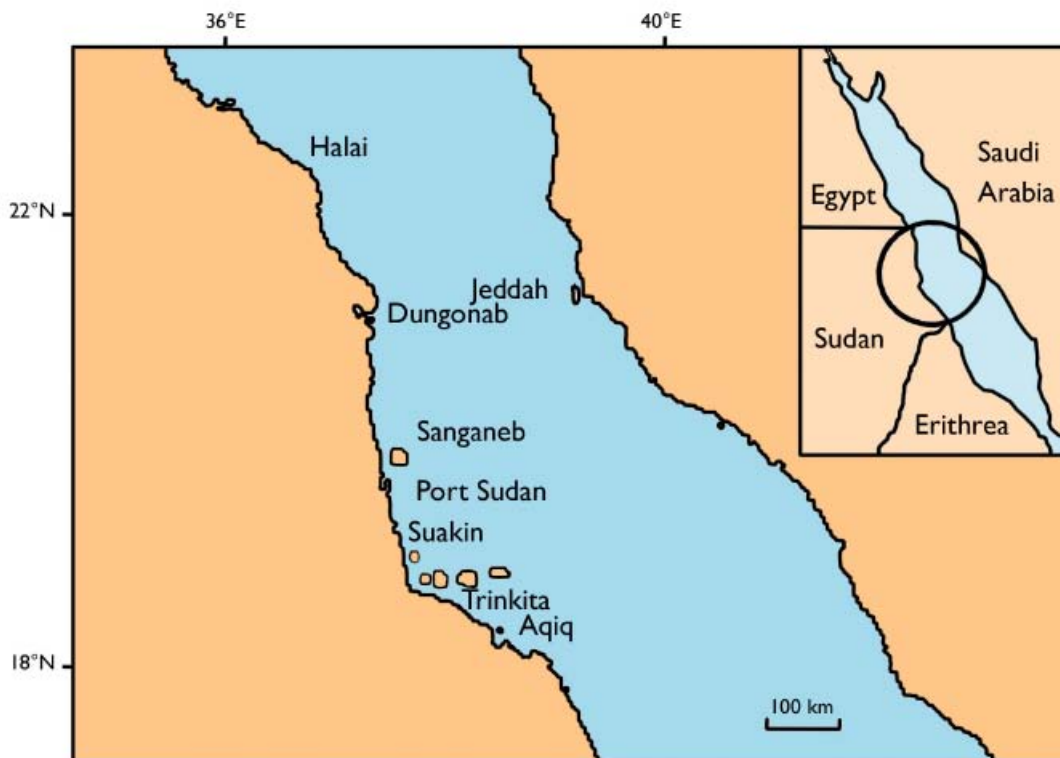


Figure 1. The Sudanese Red Sea Coast

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521 tonnes (t) per year (Fig. 2) valued at USD 182,803. *T. dentatus* forms the backbone of the mollusc fishery (Eltayeb 1999). The value of the trochus export is equivalent to about 0.042% of the total value of Sudanese exports (Fig. 3).

According to FAO statistics, between 1980 and 1997, New Caledonia and the Solomon Islands — with an average annual production of 349 and 578 t, respectively — were the two major trochus producing countries in the world. Sudan’s average annual trochus export during the same period was 489 t, indicating that Sudan is among the major world trochus producers (Figs. 4 and 5).

The trochus fishery in Sudan has faced dramatic changes over the past 40 years. An analysis of the

official Sudanese *T. dentatus* export figures show some interesting trends. In the early 1960s there was a flourishing shell fishery in Sudan and surrounding countries. At that time, native Red Sea fishermen of different nationalities would sail their loaded *sambouks* to the shell markets in Ongoiai and Suakin (Sudan), Mosowa (Eritrea), Jeddah (Saudi Arabia), Djibouti (Djibouti), Barbara (Somalia), Aden (Yemen) and Safaga (Egypt). In these markets, trochus shells collected from all parts of the Red Sea were sold to local businessmen and traders. However, Ongoiai and Suakin shell markets in Sudan were the most important and most favoured by shell fishermen of all nationalities living along the Red Sea (Ali et al. 1990). This was mainly due to:

- A shell ordinance in 1959 in Sudan, ensuring shell fishermen, irrespective of their nationality or the source of their shells, would get the best price and the best protection from buyers and brokers. Such arrangements were not available in any other Red Sea market.
- During the 1950s, 1960s and to some extent 1970s, the majority of shell fishermen who landed shells in Ongoiai and Suakin were Saudi (Gihainia tribes), Eritreans and Ethiopians (Danakla tribes) and Yemenis; some were Egyptians and a few were Sudanese. During this period, foreign fishermen contributed to about 90% of shell landings in Suakin.
- Foreign fishermen were allowed to buy barter commodities in Sudan using the proceeds from shell sales. Often these commodities were difficult to obtain in their native countries.
- By means of special permits, foreign fishermen were allowed to collect shells from Sudanese territorial waters and sell them at Ongoiai or Suakin shell markets.
- The central geographical position of Ongoiai and Suakin along the Red Sea had, no doubt, contributed to their importance.

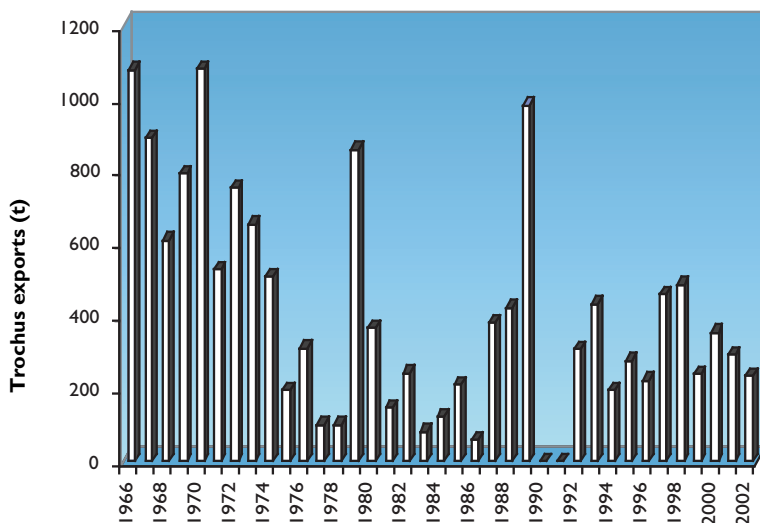


Figure 2. Official Sudanese trochus exports from 1966 to 2002

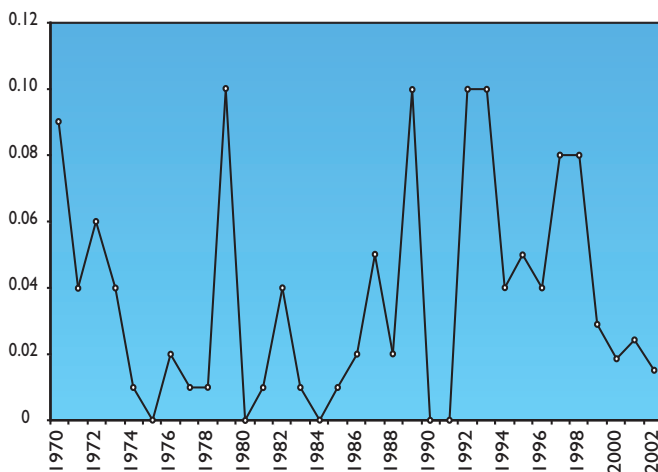
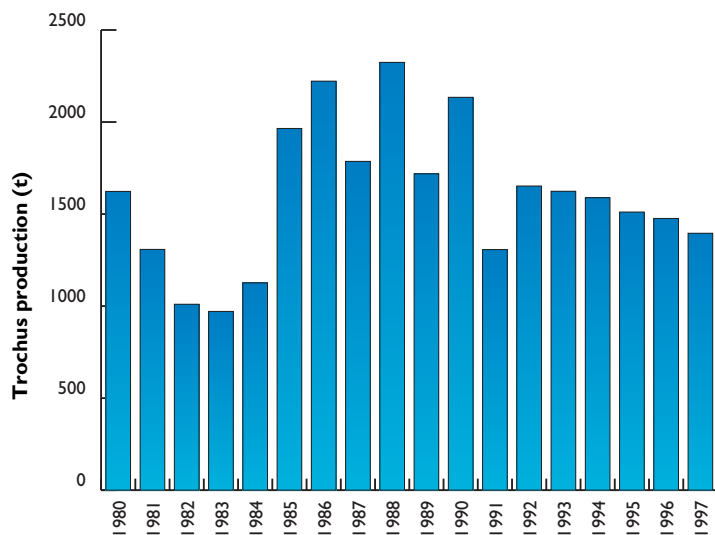


Figure 3. Trochus contribution to overall Sudanese exports (in %).

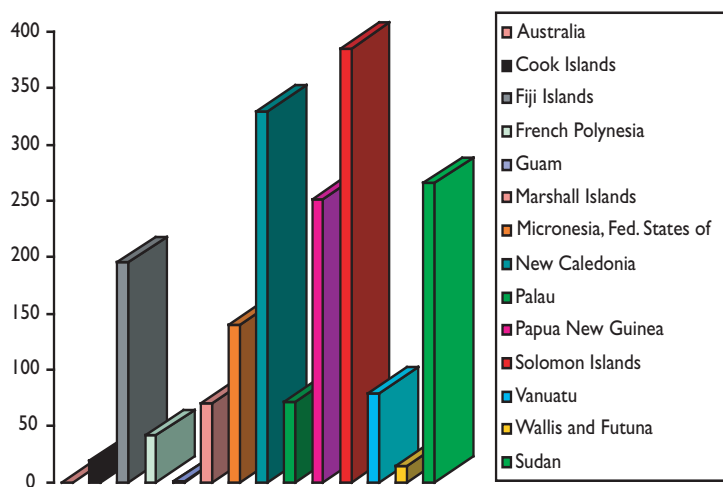
However, during the 1970s, the trochus fishery declined, apparently because of the following reasons:

- The government decision to stop involvement of foreign fishermen in shell trading and fishing in Sudan and to replace them gradually with Sudanese. Withdrawal of these fishermen deprived Sudan from receiving shells from foreign waters.
- Crossing national borders had become increasingly difficult.
- The Saudi fishermen, rich with oil money, had abandoned shell collection.
- Almost all the barter commodities that were previously desired by foreign fishermen had

- become commodities of high national and international demand and were no more available for bartering.
- The appearance of plastics and other similar synthetics that could substitute shells to make buttons, jewellery and artefacts during the 1960s.
- Sudanese shell fishermen were thought to be smugglers. Consequently, larger boats capable of sailing across international waters were often confiscated and put out of business. This limited shell production to national territorial waters.
- The closure of the Suakin shell market in 1978. This became inevitable after withdrawal of foreign fishermen from the business, tightening security measures to counteract smuggling, and the many difficulties that Sudanese fishermen faced in collecting shells from other countries' shores (mainly Saudi Arabia) (Ali et al. 1990).



**Figure 4. World trochus production 1980–1997**  
(source: FAO statistics)



**Figure 5. Comparison of average catches (in tonnes) in major trochus producing countries, 1980–1997**  
(source: FAO statistics).

Note: Sudan figure only shows exports

In addition to the government restrictions cited above, traditional fishing grounds have been overexploited and most of the fishing activity has taken place on barrier reefs and near coral islands, the main trochus habitat. Therefore, the majority of *T. dentatus* collected today are small and the catch per unit effort has decreased. A study (1992 to 1999) indicated increases in the overall *T. dentatus* catch in the Red Sea, but careful analysis showed that most of these *T. dentatus* were illegally collected from Saudi Arabian Red Sea waters. All these factors indicate that the Sudanese *T. dentatus* fishery may be overexploited. Unless management practices are established and implemented, the decline in the catch and, hence, exports of trochus shell will continue.

**References**

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Eltayeb M.M. 1999. Some aspects of *Trochus dentatus* biology, ecology and fisheries in the Sudanese Red Sea Coast. M.Sc. thesis, Royal Holloway, University of London.

