

# Search for Shipwrecks in Goa Water

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## Amee Shoal

After a local tipoff describes the possibility of a wreck in Amee Shoal area, the Marine Archaeology Unit, (MAU), of the National Inst. of Oceanography started under Dr. S.R. Rao's direction exploration in a water depth of about 3.7m. The water depth in the centre of these shoals is less and gradually increases in the Northwest direction. There are two other locations on these rocky shoals which are marked on Naval Hydrographic charts as probable shipwreck points both in shallow waters of 5.7 m and 3.7 m suggesting that the vessel's must have run aground on the rocky shoals. There are bottom eddy currents or gyres in this area which constantly churn up sediment. The fine sediment is poorly sorted and consists predominantly of silts and clays which are present in the central bay area of low energy. The eastern part and also the area we explored has coarser sediments.

Exploration of the site by MAU in December 1989 revealed large and well dressed granite blocks ranging in length from 30 inches to 86 inches and width of 15 inches to 42 inches. The orientation of these is random. The highlight of this are was the discovery of two five prong anchors. Anchor #1 had a shaft length of 80 inches and a diameter of 24 inches and was lying in the North-south direction. Anchor #2 lay in almost the same orientation some 12.8 inches apart facing Northwest with a shaft length of 98 inches and a diameter of 24 inches. The climax of the survey was the discovery of three cannons (Pl. 29) of which only the barrels survived. Cannon piece 1 oriented North South with a length of 77 inches; cannon piece 2 oriented North East with a length of 75 inches and a diameter of 4.11 inches and cannon piece 3 lay at 30° to piece 1 with a length of 77 inches. A few small blocks of 18 × 5 inches lay in between the cannons. The exterior is encrusted with calcareous materials and muscles. The sand in the area (medium grain) does not favour preservation. Obviously if more details could be worked out it would give an insight into how ships worked, where they were going, what kind of artillery they were carrying. After comparing the barrel to several cannons we feel it might be a Drake (commonwealth Culverin). Drake is a term used to describe guns which were shorter though not always lighter than ordinary guns and the barrel did not taper. But the culverin drakes are usually lighter. The cannon we found is an alloy of metals which could account for its being lighter. Also according to Robert Norton drakes require a paves charge of 1/3 to 1/2 of ordinary go as of the same calibre. Therefore even in that period weight and price were a major criterion and large calibre low weight composite cannons must have been favoured. Our cannons also showed a distinct cascable button slightly rounded at each end which

was unfortunately not measured but confirmed that the objects at our site were indeed parts of cannons. Typical lengths of the commonwealth barrels are around 75 cm and lengths averaged around 76 cm. The barrel construction is usually one piece construction. Before any more definite conclusion can be drawn a detailed u/w survey map of the area needs to be prepared and some of the cannons need to be lifted and treated so that the alloy is determined and if there is a seal or marking of the manufacture we can determine the details of shipboard use, vessels of artillery. A propeller was also reported N.E. of this site. We are excited at the prospect of what this site has to offer and are looking forward to further excavations in the future.

Portuguese literature is rich in its reference to wrecks along the Goa coast, which obviously suggests strong maritime activity and important trade links that Goa had with Portuguese and neighbouring ports. In the 15th and 16th centuries spices such as pepper were valued higher than gold. The great route for spice was Malacca to Aden via the Malabar or Gujarat (Dabhol Chaul, Goa), Red Sea and the Persian Gulf. The Portuguese needed a secure base from which they could patrol western India and Goa is located on the crucial NW Sector of the Arabian Sea, midway between key economic areas of Malabar and Gujarat. Fleets could attempt to control trade of both the areas. In the 15th century Goa was the main port of trade for both Bahamani and Vijaynagar kingdoms. Besides spices horse trade was another key factor in the Goan economy. At least a 1000 horses came through Goa each year and there were import taxes on them. The Portuguese also tried to centralize the entire horse trade through Goa so that any ship coming from S. Arabia with horses for the Indian market could come only to Goa. Their main aim was to take over the trade in spice and horses from the Muslims.

The spice trade mainly took place in Old Goa where the Portuguese had forts and factories. The vessels left Lisbon by March end and reached Malabar by September end. Annually about 1500 ships plied between Portugal and India. 70% of these would carry back spices (pepper, ginger, cinnamon, cardamoms, tamarind, cotton seedling and wax) and the rest were sent for guarding the Malabar coast and as security vessels to escort the spice vessels.

The coastline of Goa consists of a narrow strip of sandy plains and beaches. This sandy shore is interrupted by estuaries and at other places by laterine plateaus of the central sector which jut-out to form headlands. The promontories of Bareshe and Sashti created estuaries of the Mandovi and Zuari which give a fine natural harbour and two anchorages;

Marmugao in the South and Aguada in the North. Marmugao is sheltered even during the south-west monsoon and serves as an all-weather port. Aguada was a one time fuel and water supply point which is currently not being used as a harbour. The seasonal port of Panaji where Goa-Bombay steamers, fishing trawlers, ferries and country craft dock, require a continuous dredging as a natural sand bar makes it unapproachable. Also the ports of Betul, Talpona, Chapora and Terekhol are seasonal. Goa is gifted with islands such as Chodan, Tiswadi, Kumbarjuve, Anjediva. The islands are of two types (1) alluvial and (2) rocky. The latter are protrusions of drowned topography separated from the mainland by faulting. The basic Geology of the area is Schistone and gnossonic rocks of the Dharwar supergroup. However two-thirds of the territory is covered with laterites. The hydrographic survey map shows reefs at Aguada head around Rai Magus, Cabo, Sunchi reefs and Ameer Shoals, Odshel and Kankona; all in shallow waters (0.9m-3.4m). The reefs are dying out probably due to global warming or siltation from the dredging in the surrounding areas. An ever increasing global warming trend causing accelerated sea level rise and increase in sea surface temperature has affected the marine community specially the corals because they are close to the shoreline and in shallow water. During the Holocene period when the sea level began rising and conditions for coral reef survival such a water temperature of 25-29°C and clear shallow waters were not available the corals migrated and moved towards the shore. Thus successive rises in the sea level kept requiring the coral community to migrate closer to shore. The signatures of sea level rise are therefore entrenched within this fragile ecosystem. The present day reefs along Ameer shoals and Sunchi reefs are fringing reefs.

The Ameer shoal reef extends in a North-South direction across the entrance to the bay and separates the bay from the Arabian Sea. There is coarse sediment extending from the North-West end of the bay to inflow and outflow of currents and fine material is not allowed to settle here. The coarse material predominantly silt and clay along with the calcareous sand does not favour preservation of archaeological material because such an environment is highly susceptible to biofouling.

Wrecks shown in hydrographic chart.

Type	Lat.-Long.
Wreck with hull intact	15°29'30", 73°47'07"
Wreck with hull intact	15°29'16", 73°47'32"
Wreck of which exact depth is not known but is thought to be 30 m or less and	15°26'15", 73°46'35"
dangerous for surface navigation	15°26'08", 73°46'50"
	15°26'02", 73°46'50"
	15°25'42", 73°46'54"

Besides the wrecks in the Ameer Shoal area a few wrecks listed by P. Gudigar on the basis of the information available in the Marine Records are worth noting.

It is said that twelve Portuguese ships which were to go to Calcutta sank owing to a severe storm near Aguada and seven

smaller ships were also lost in Nerul river; the loss is being estimated at one million xerofins. The date of the disaster is put at 24th April, 1648 (Ref: *Subsidios para a historia Militas Maritima da India*, by Botelho de Sousa).

Five Portuguese wooden sail vessels namely *St. Helena*, *S. Joao*, *Evangelista*, *St. Francisco* and *St. Thome* set sail from Portugal to Goa. Only two managed to approach the Goa coastline and they were also wrecked in a storm. The *S. Cristovan* and *Santo Andre* both being Portuguese wooden sail vessels were lost due to natural calamities. The latter was sailing from Lisbon to Goa (Ref: *Anees da Mannha Portuguesa*, I *Parte Quarta Memoria*).

The Portuguese relied on sea power and trade and ceased internal expansion as it would not yield any additional economic profits. The desire to acquire products from the African coast and crush the Arab power and trade, to discover the extent of the Muslim territory and spread christianity were also some of the driving motives besides their love for adventure. The commercial motives were that exotic spices and aromatic goods spices, pepper, cardomom, indigo, saffron, pearls, ivory, silk, muslin, alum, carpets fetched good revenue. The Portuguese profited from parasitic activity, they skimmed off money without providing reciprocal advantages or engaging in trade themselves. The profits derived from customs duties were sent to Goa for general state needs. Therefore Goa can be viewed as the centre of Portugal's seaborne empire getting revenue not from its own economic activity so much as its dominance (political and military) in Asian waters.

The large number of shipwrecks on the coast makes us wonder at the kind of maritime technology that the Portuguese possessed. A lot of these shipwrecks are due to old ships sailing on long voyages. The greed for profiting by building cheap vessels and overloading of ships, buying of ports in the Portuguese armada, lack of spare sails and not enough provisions and spares are perhaps some of the reasons for so many disasters. Overcrowding and overloading of heavy goods on top for easy offloading were also dangerous practices. A lot of the teakwood was immature and unseasoned and it would shrink and split. The dampness of the water on the outside and the heat of the pepper inside made the timber rot. The lack of repairs such as refitting of timbers and nailing and stitching of sails was never finished properly. It resulted in concealed defects showing up on a voyage.

#### Grandy Island (Pl. 27)

At this site the ship is located about 6 km west of Marmugao harbour (Fig.1). Hydrographic chart and information from fishermen helped the Marine Archaeology Unit to search for the wreck at the proper station and exploration was undertaken in November, 1987. This seems to be a steel-hulled cargo vessel with a cabin, hatch, bridge and accomodation. It is more than 32 m long. Though the cabin is ransacked, its lower deck and hull which lie covered by 1.5 to 2.0 m thick layer of sediment seem to be intact. The vessel lies tilted towards the star board side and a small portion of the

edge of deck covered by coral is visible. The mast and ladder are lying on the sea floor. The cabin of the ship, visible during the low tide is 9 m in height, 5 m in length and 4 m in width. According to S.N. Bandodkar, Diver-Photographer, this ship might have sunk in a storm after it lost anchor and drifted towards the rocks near the shore. This wreck can be an excellent training base for marine archaeologists.

**Baga Shipwreck:**

The Deputy Inspector General of Police, Panjim was informed by local fishermen near Baga village that some artifacts from a wreck were being removed stealthily. He informed the Marine Archaeology Unit and showed the spot which is 15 km north of Mormugao harbour. Exploration was carried out 200 m seaward of the Baga beach in water depth of 3 m to 6 m and

diving was undertaken on 24th November, 1990 after anchoring the survey vessel *Sardadevi* in 2 stations. Divers of MAU explored the area within 100 m radius of the vessel, but were unable to locate the shipwreck. At a water depth of 3m the seafloor is rocky and thickly covered with sponge, while in 5 to 6 m there is coarse sand. During exploration divers recovered a two-holed stone anchor, which is rectangular in plan and section with a square socket on the top. This anchor *in situ* was photographed and lifted. The Marine Archaeology Unit is planning further exploration of the area to locate the shipwreck.

**Participants in Exploration**

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