

YOUR VIRTUAL DISCOVERY VISIT – 73 TO THE HERITAGE STORIES OF ROTTNEST ISLAND



The Virtual Visit series was initiated during the COVID-19 pandemic when Rottnest Island was closed to the public due to social distancing restrictions and periods of use for quarantine from March to June 2020.

Now that the Island is again open to visitors, these Virtual Visits are continuing in 2021 to enable a further enjoyment of stories introduced at the Wadjemup Museum, the Chapman Archives or sites around the Island.

Enjoy, reflect and share.

Anchors Aweigh Away



City of York anchor with wooden stock on Rottnest

Visitors to Rottnest arriving by ferry make their way past two anchors strategically positioned in front of the Visitors' Centre. Many pass them by quickly anxious to secure their accommodation or to begin enjoying their stay on the island. A few take the time to read the brief interpretation identifying these significant relics of our maritime heritage. Some will discover more on the **Reefs and Wrecks** tour or during their visit to the **Wadjemup Museum**.

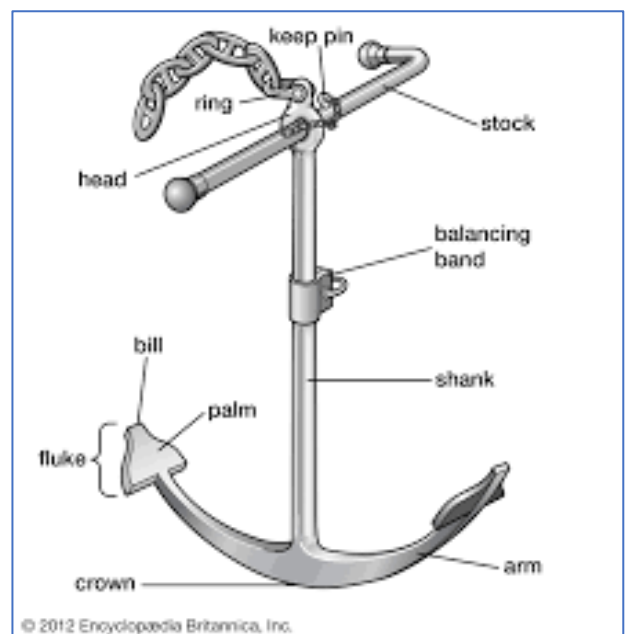


Mira Flores anchor with metal stock on Rottneest

The anchors are familiar to RVGA guides as reminders of the wrecks of the ***Mira Flores*** in 1886 and the ***City of York*** in 1899. Both are of the Admiralty Pattern known simply as an "Admiralty" or as a "Fisherman". This pattern of anchor consists of a central shank with a ring or shackle for attaching the rode (the rope, chain, or cable connecting the ship and the anchor). At the other end of the shank there are two arms, carrying the fluke. A wooden or metal stock is mounted to the shackle end, at ninety degrees to the arms.

When this type of anchor lands on the bottom, it will generally fall over with the arms parallel to the seabed. As a strain comes onto the rode, the stock will dig into the bottom, canting the anchor until one of the flukes catches and digs into the bottom. The Admiralty Anchor is an entirely independent reinvention of a classical design which has remained unchanged for centuries. Iron stocks began to replace wood in the late 1830s and early 1840s.

Handling and storage of this type of anchor required special equipment and procedures. Once the anchor was hauled up to the hawsepipe, the ring end had to be hoisted up to the end of a timber projecting from the bow known as the cathead.



The crown of the anchor is then hauled up with a heavy tackle until one fluke can be hooked over the rail. This is known as "catting and fishing" the anchor. Before dropping the anchor, the fishing process is reversed, and the anchor is dropped from the end of the cathead.



Since one fluke always protrudes up from the set anchor, there is a great tendency of the rode to foul the anchor as the vessel swings due to wind or current shifts. A fouled anchor is used by many of the world's navies as part of their badges or heraldry.

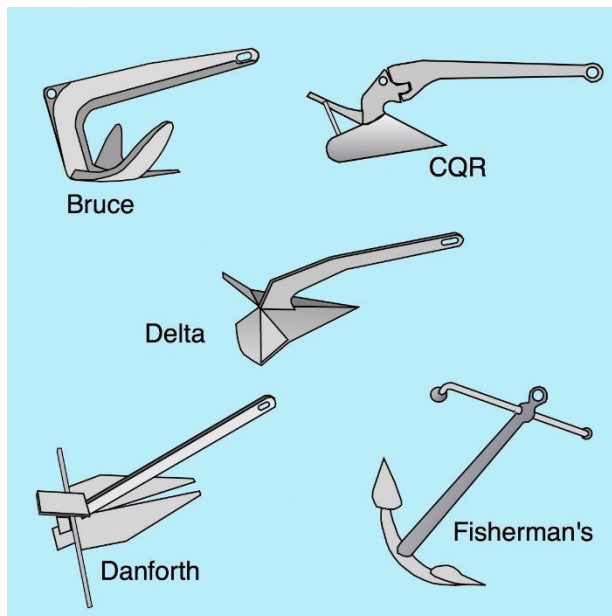




The stockless anchor, patented in England in 1821, represented the first significant departure in anchor design in centuries. Though their holding-power-to-weight ratio is significantly lower than admiralty pattern anchors, their ease of handling and stowage aboard large ships led to almost universal adoption.

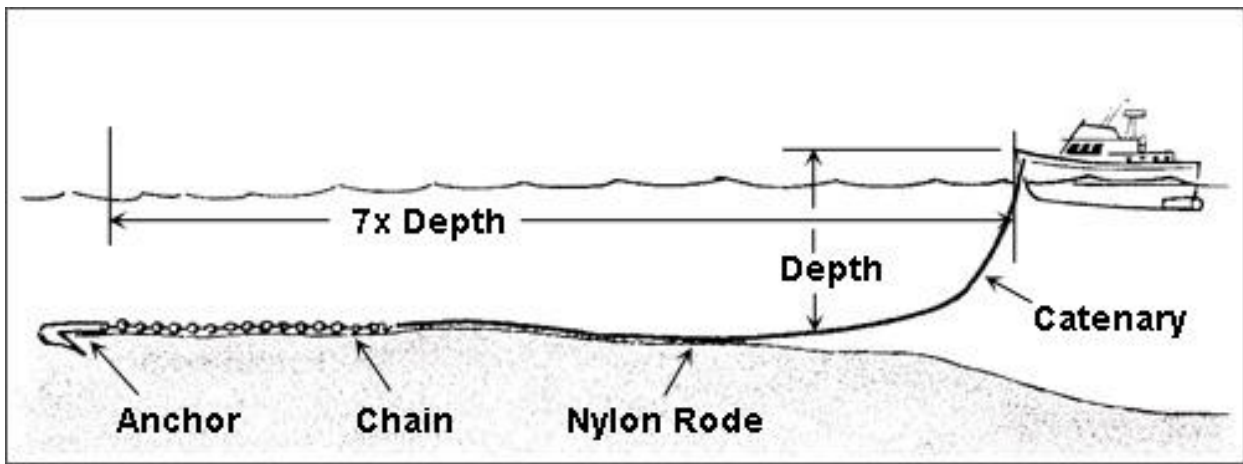


In contrast to the elaborate stowage procedures for earlier anchors, stockless anchors are simply hauled up until they rest with the shank inside the hawsepipes, and the flukes against the hull (or inside a recess in the hull).



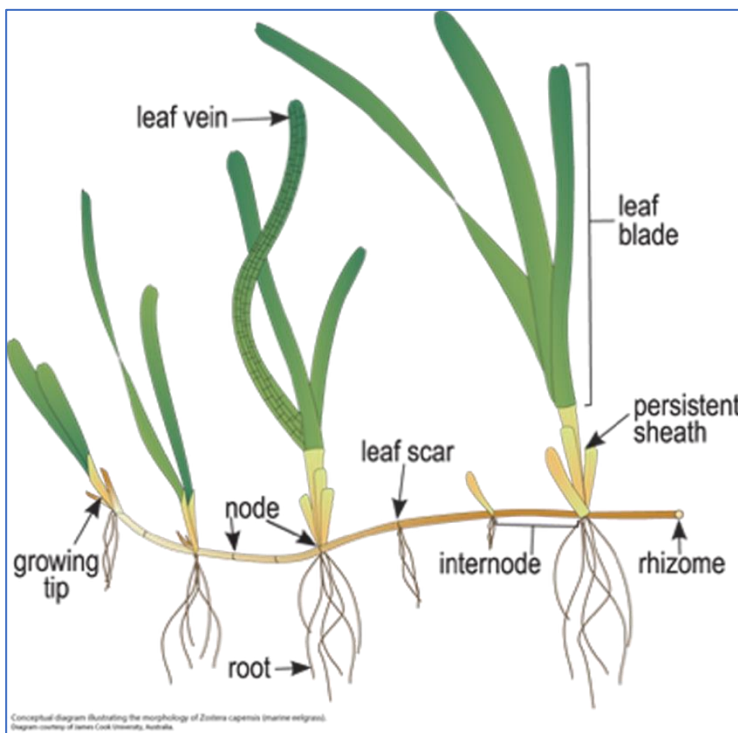
The choice of anchor for today's small boat owner is vast. The classic method of anchor design mostly revolved around coming up with a hook for a specific bottom type. For mud and sand, a plow design was appropriate, like the CQR or Delta anchors. For grass or rocks, a hook was suitable, like a fisherman or a Danforth. The most common small boat anchors to this day are Danforth anchors. Their folding flukes allow them to store flat, and they can dig into quite a few different types of substrates. Deltas are another popular anchor for boats with dedicated bow rollers.

When an anchor penetrates the surface of the seabed, suction generates resistance, created by the bottom material plus the weight of the material above the anchor. As the boat pulls on the anchor rode, the anchor digs in deeper, creating additional resistance. In rocky bottoms, anchors can't dig in, but rather snag on protrusions and hold precariously. Scope is defined as a ratio of the length of an anchor rode from the bit to the anchor shackle and the depth of the water under the bow of the boat measured from deck height. Most anchoring texts and anchor manufacturers agree that a scope of 7:1 achieves the anchor's designed holding power, and more scope is better than less. In theory, 7:1 scope is great, but at a crowded anchorage most cruisers scoff at the idea of paying out more than 3:1 or 4:1; there just isn't that much space for boats to swing. When an anchor is securely set, you can consider shortening scope in a crowded anchorage. In variable wind and tide changes anchor chains can drag across the seabed and cause considerable disruption particularly to seagrass meadows.



Seagrass Meadows, Anchors and Moorings

Seagrass meadows provide a range of services to the marine environment. These benefits include CO₂ sequestration, reduction in wave energy and coastal erosion and nursery and feeding habitat for fish and other ocean living wildlife. All these benefits derive from the well-developed leaf canopy of a healthy seagrass meadow. Seagrass meadows are among the most vulnerable and threatened ecosystems with major losses caused by natural events and coastal development. Although loss through anchoring, propellers and moorings represent a small proportion of total world-wide loss, in concentrated areas of boating, such as the bays of Rottneest, damage could be significant in the absence of mitigation measures.



Previous scouring from mooring chains can still be seen in waters around Rottneest. Seagrass meadows were fragmented by overlapping mooring scars created by densely packed moorings. Since 2000, the Rottneest Island Authority has introduced improved mooring designs which have significantly reduced mooring scars. This has led to an overall reduction of scour area as the meadows regenerate. Monitoring is ongoing as *Posidonia australis* and *Amphibolis antarctica*, which form the basis of seagrass meadows on Rottneest are slow growing species averaging only 10 – 50 cm per year. Another Rottneest species *Halophila ovalis* grows more rapidly.

Posidonia australis, or ribbon weed

<https://www.rotnestisland.com/boating/boating-on-rotnest-island/anchoring>

<https://wildlife.rotnestisland.com/water/habitats/seagrass-meadows>

<https://www.boatingsafetymag.com/boatingsafety/learning-set-and-retrieve-anchor-important-safe-boating-skill#page-4>

<https://storymaps.arcgis.com/stories/ff5fd3b126174f8480c44d5b3bdc4f25>

<https://www.sharkbay.org/nature/plants/seagrass-species-guide/>

Next time you visit Rottnest have a closer look at the *Mira Flores* and *City of York* anchors. Relatively pure iron as found in old wrought iron articles with laminar or fibrous structure such as anchors or large anchor chain links is not brittle. What rusted away in the photo below was mostly the stringer inclusions, not the iron. The iron component of wrought iron is relatively corrosion resistant.



Anchors of HMS Victory “catted and fished”