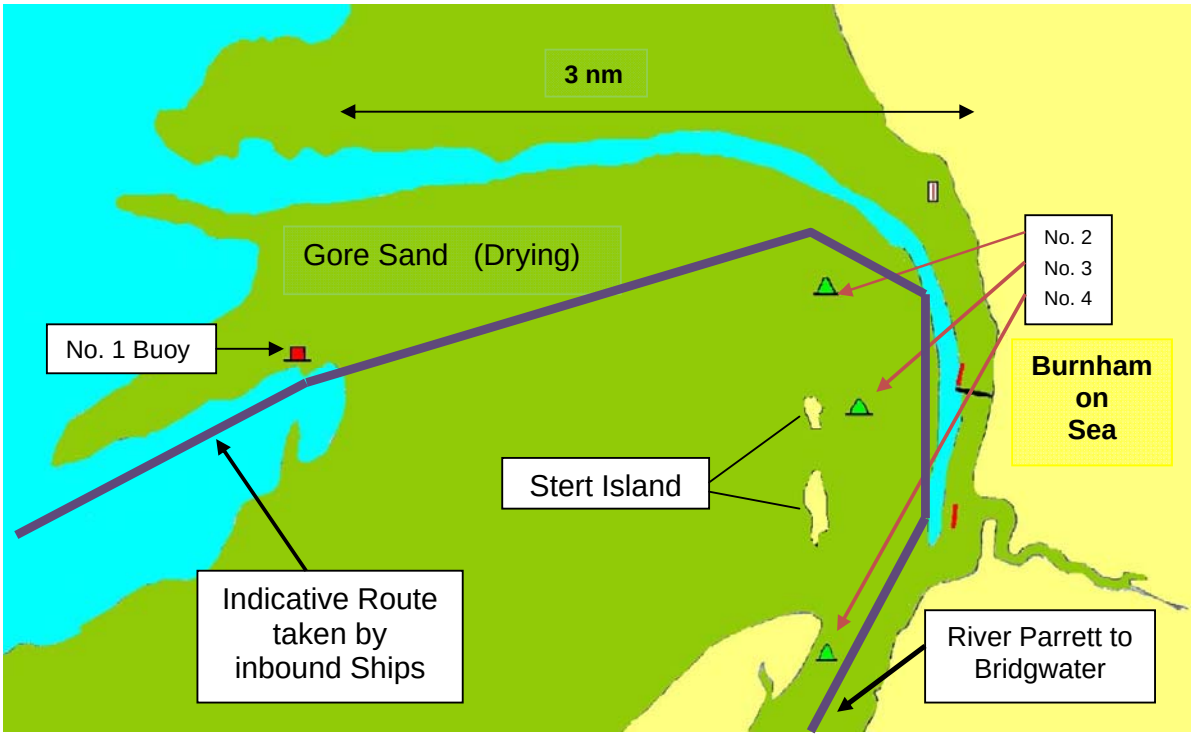
Reinstatement of No.1 Buoy – Winter 2011

The Port of Bridgwater is a Municipal Port run by Sedgemoor District Council.
C F Spencer and Company Ltd provide contractual Harbour Master Services and Pilotage Management to the Council.

Ships enter the port of Bridgwater having crossed a drying sandbar off Burnham on Sea, the navigable channel over the bar and into the River Parrett is marked by a number of aids to navigation including four lighted buoys. Conditions in the approaches are hard on buoy mooring arrangements particularly in the more exposed positions. Wear and tear on moorings is exasperated by continually taking the ground and floating off as the tides ebb and flow. It is not then altogether surprising that at times failures occur.



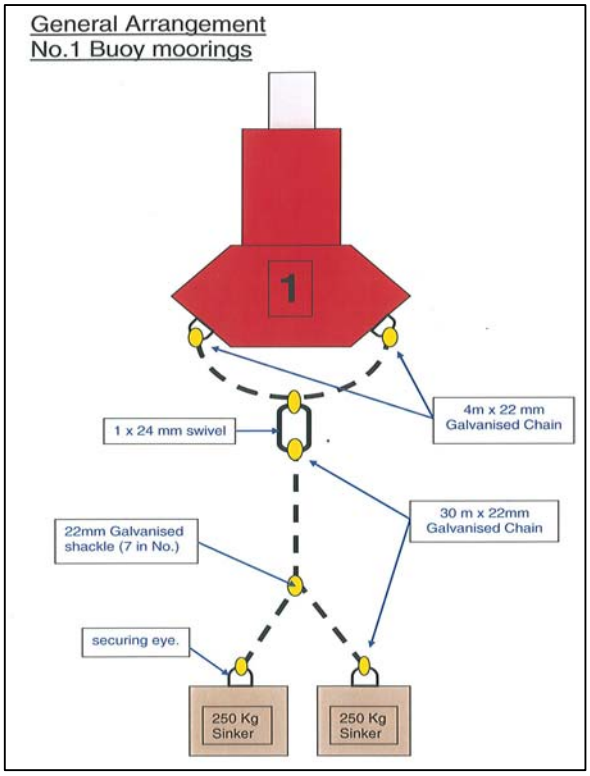
Such was the case in the winter of 2010 / 2011 when it was discovered that No 1 Buoy normally in position on the drying sandbar some 3 miles off the seafront at Burnham on Sea had beached on Stert Island, half a mile from the seafront. The local RNLI seeing an opportunity for a different form of exercise, “rescued” the buoy and brought it safely to shore. With the buoy ashore it was evident that the cause of its wandering was a failed swivel.

Having issued a Local Notice to Mariners warning Port users that No.1 Buoy was off station and making the appropriate entries in the Trinity House PANAR database, (All Ports with Local Aids to Navigation are required to maintain the database) we commenced work to get the buoy back on station.

As the port does not have any in-house capability to lay or recover buoy moorings we had to look to contractors to re-instate the buoy, and given the likely costs, to satisfy the local authority's procurement procedures. We needed to obtain a number of quotes.

The first stage therefore was to produce a specification for the works. These were intentionally left open to interpretation as we wished to explore options and we invited contractors to submit ideas for the process.

The general arrangement plan shown was included within the specification to indicate the requirements showing lengths and specification for chain, shackles and swivel.



Replacement of No. 1 Navigation Buoy in the approaches to Burnham on Sea.

No. 1 Buoy is currently off station due to failure of a swivel in the mooring arrangement.
The buoy (a Hydrosphere Mobilis Module 1200) is in safe storage ashore at Burnham on Sea.

To place the buoy back on station will require renewal of the sinker, chain and fittings.

The sinker to be placed in position:
51º 14.22' North
003º 04.58' West

Mooring Requirement:
1 x sinker at minimum 500kg (or 2 x 250kg) with securing eye(s).

Note:- Arrangement last used comprised 2 x 250kg concrete sinkers fitted with 24 mm rebar as securing eyes.

22mm Galvanised shackles.

24 mm swivel to fit between chain and the buoy

The specification and request for methodology were dispatched to a number of contractors to seek their views on alternatives to safely re-instate the buoy. One option we considered was to cast the concrete sinker(s) in situ using a quick setting mixture.

Included within the distribution were a number of local workboats we had used before, (they already had experience of working with the buoys within the harbour), plus larger companies with lifting equipment that could handle the buoy, chain, and sinker pre-assembled on the deck of buoy tenders.

Having received responses from contractors we chose one of the local workboats based upon the methodology stated within the response, the price quoted and a previous satisfactory record of completion of works within the harbour.

Works commenced. The method involved pre casting a number of concrete sinkers using old tyres as formers, which allowed the sinker segments to be more easily manhandled when assembling the final composite sinker arrangement.

Each cast segment weighed approximately 112 kgs and the contractor intended to use a total of 6.

The buoy was pressure washed and all exposed metal work was painted before being reinstated in its original position on Gore Sands off Burnham on Sea.

With the buoy gleaming, exposed metal painted and all the sinker segments, chain, shackles and other fittings ready the workboat departs port with the buoy on tow.

The workboat took the ground in the position detailed for the sinker and offloaded the components ready for assembly.

This is where the sinker design comes into its own as the segments can be rolled into the desired position.

It was then simply a case of creating a sinker mass in excess of 500 kg by forming the sinkers into three towers of two and linking them with chain.

For added security the sinkers were partly buried in the sand.

With the bridle and swivel attached the job is complete. All that remains now is for the flood tide to lift both the buoy and workboat.

That left just the paperwork to sort …… Another local notice to mariners was issued advising port users that the buoy was back in position and cancelling the original “off station” notice.