



Hydrographic Survey Directorate

Kingdom of Bahrain

Introduction

- The Hydrographic Survey Directorate was established in 1978
- Bahrain became a member of IHO in 1992
- About 65% of the EEZ has been surveyed till date
- Produces charts and publications pertaining to the territorial waters of Bahrain

Charting the
territorial and EEZ
waters of Bahrain

Supplementing
information with regard
to safeguarding
sea lanes of
communication

Update charts and
provide chart
corrections to UKHO &
NGA

Monitoring tides

Customized charts
according to the
requirement of clients

Extraction and
provision of Digital
Data in customized
format as per Client's
request.

Sales of Paper Charts,
ENCs, Tide Tables,
Symbols &
Abbreviations

Current meter
observations

Role & Responsibilities

Major Achievements for 2014

- Bahrain Tidal Network (BTN)
- The National sand search project
- Production of 4 new Navigational Charts

Bahrain Tidal Network (BTN)

A network of 12 Radar type tide gauges has been installed around the coastal areas of Bahrain.

Four of these stations have been equipped with temperature sensor to obtain water temperature also.

The full network has become operational since Jun 2014.

Presently HSD is obtaining tidal data from all these 12 stations at 10 minutes interval through the locally hosted SLRB web server.

Bahrain Tidal Network

Base Station at HSD premise

Tide gauges transmit data in every 10 minutes to SLRB Server via GPRS Connection

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SLRB Server connected to Tidal Database shares Information through SLRB Web User Interface



[Home](#)[Report](#)[Comparison Chart](#)

Welcome SLRB\VChristopher!

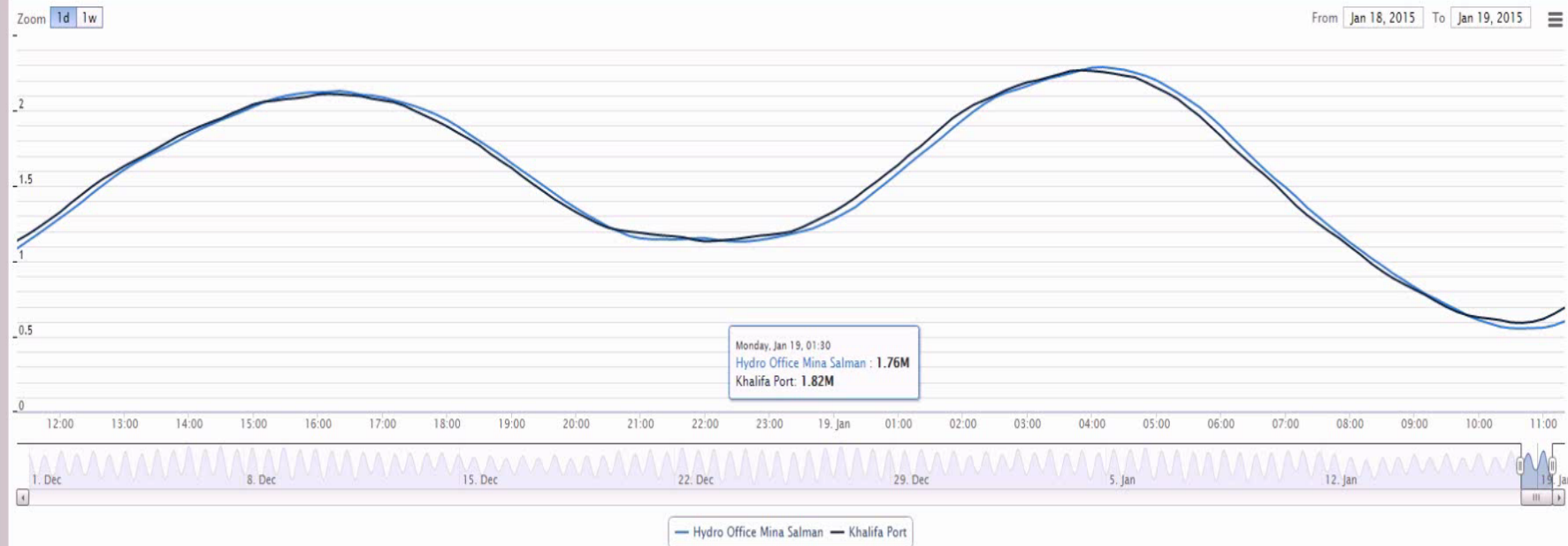
BAHRAIN TIDE NETWORK

WATER LEVEL - COMPARISON

Date From : 01/12/2014

Date To : 19/01/2015

Stations : ☒ Hydro Office Mina Salman ☒ Khalifa Port ☐ Sitra ☐ Durrat Al Bahrain ☐ Bahrain Sailing Club ☐ Hawar West
☐ Hawar East ☐ Saudi Causeway Island ☐ Budayyi ☐ Amwaj Marina ☐ Reef Island ☐ Fasht Al Jarim

[Graph it](#)

SLRB.GOV.BH

National Sand Search Project

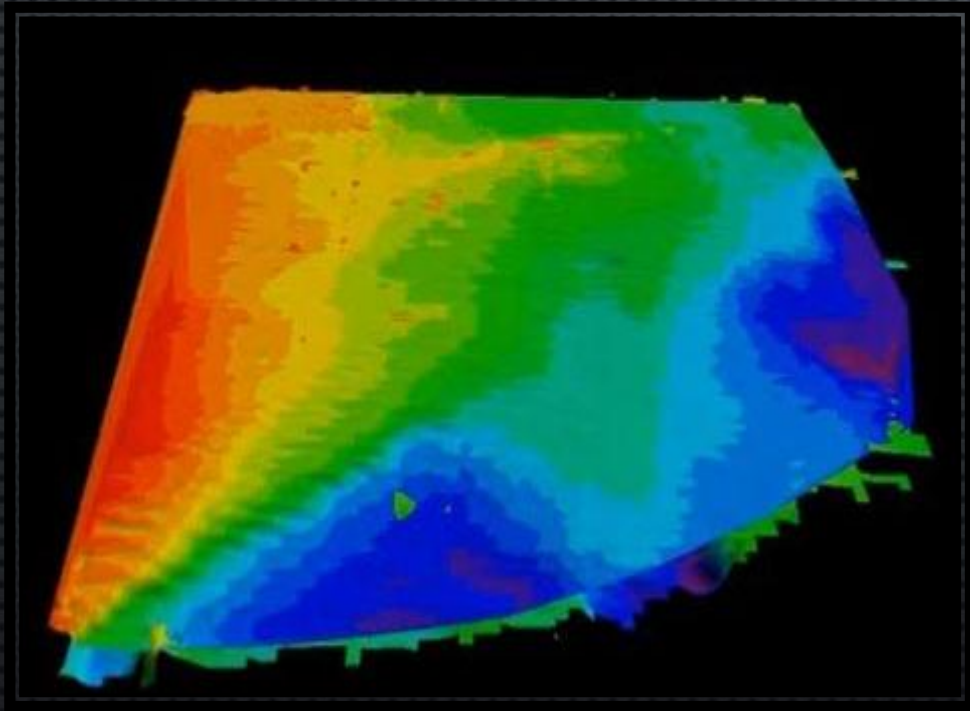
The National sand search project is aimed towards identifying the potential sand resources all around Bahrain to continue with the economic growth of Bahrain.

HSD carried out the sand search survey for the existing borrow area off East Hidd.

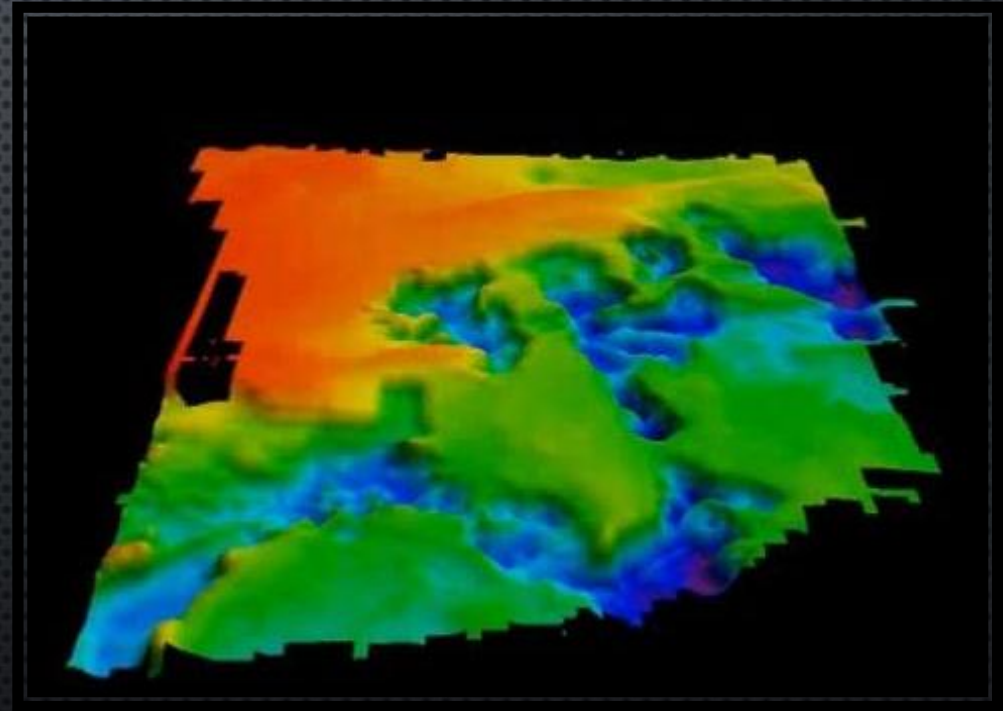
The remaining sand resources in the area has been calculated and also the sand that has been extracted over the past 20 years have been estimated by HSD.

Seabed Comparison

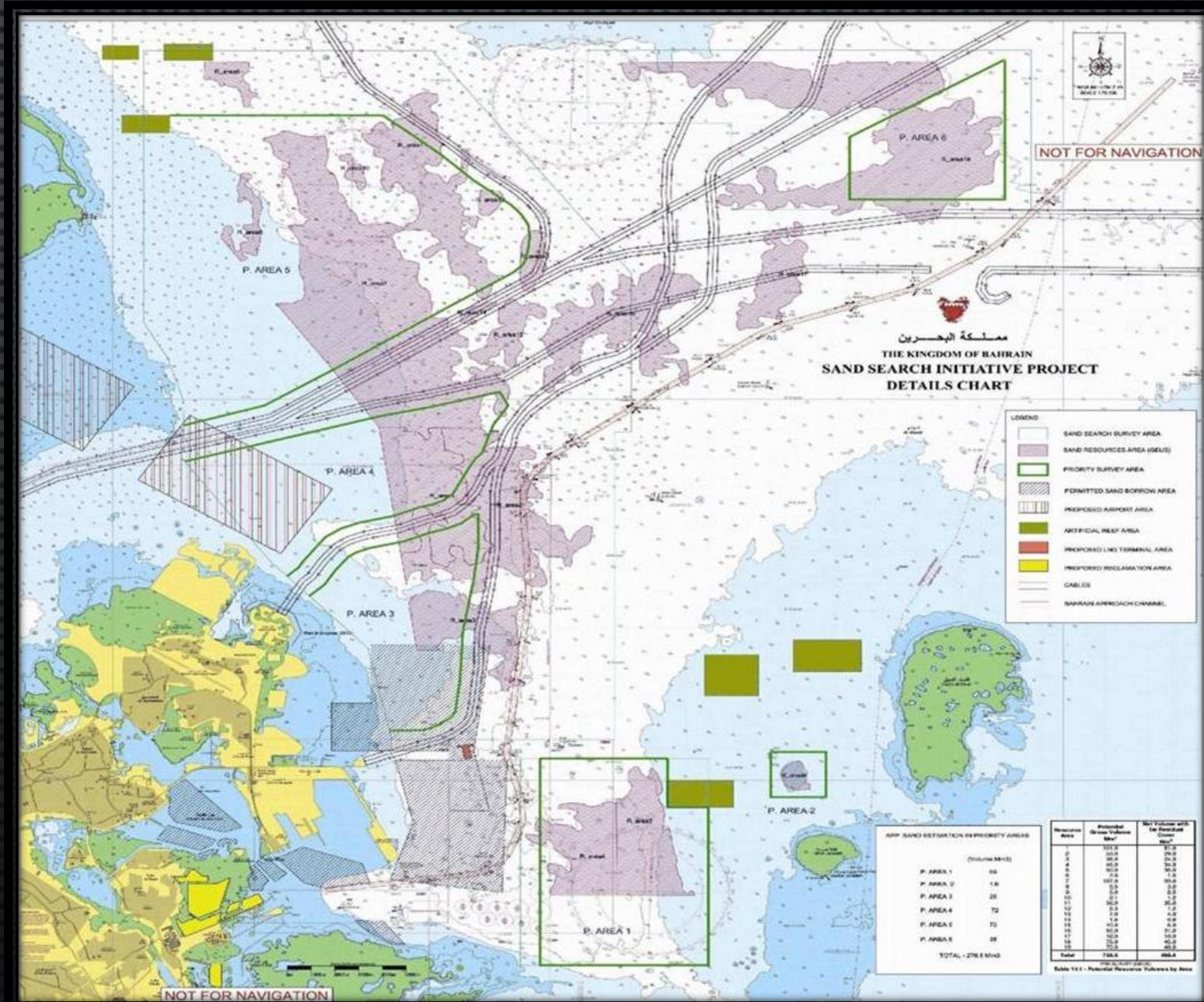
Seabed – 1990 Data



Seabed - 2014 Data



Sand Search Project Chart



Production of 4 new Navigational Charts

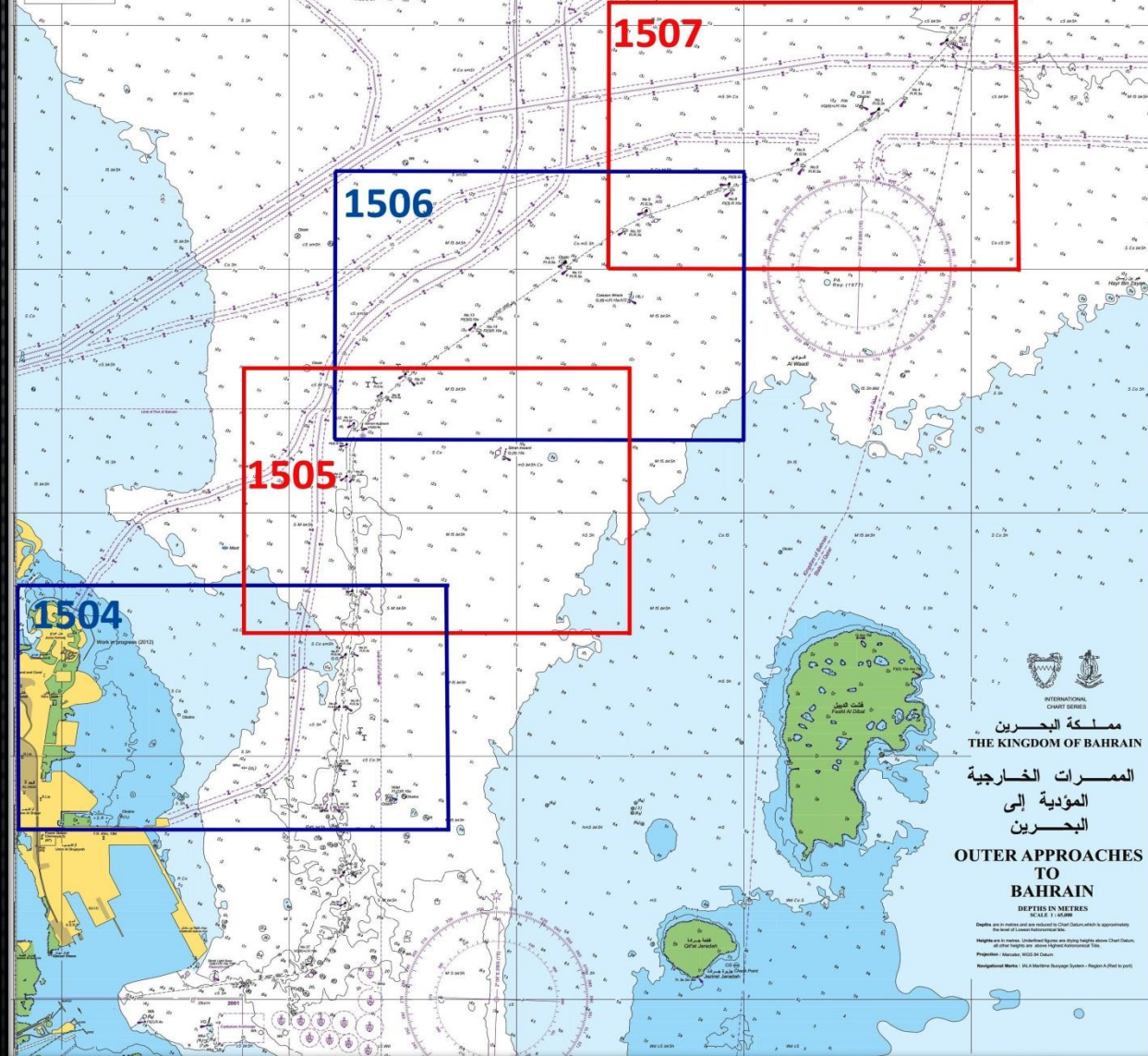
The existing navigational chart of the Bahrain Approach channel is on a scale of 1:65 000

Mariners demands for a larger scale chart for safer navigation

HSD conducted joint Multibeam surveys in 2010 & 2012 with US Navy

Four new charts covering the entire channel on a 1:15000 scale has been produced and is ready for publication

NEW NAVIGATIONAL CHARTS OF BAHRAIN APPROACH CHANNEL



HSD Capabilities Survey Craft - Al Masaha



- Cruises with 5 to 20 knots speed
- Length Overall 19 m
- Simultaneous Data collection(online) and processing(offline)
- Hull mounted Multibeam echo-sounder and sub-bottom profiler
- Accurate Positioning systems

HSD Capabilities

Survey Craft - Al Masaha II



- For shallow water surveys less than 2m
- Fitted with Single beam echo sounder (pole mounted) and positioning system

HSD Capabilities Survey Equipment



R2Sonic MBES



POS MV 320 E



EA 400 SBES

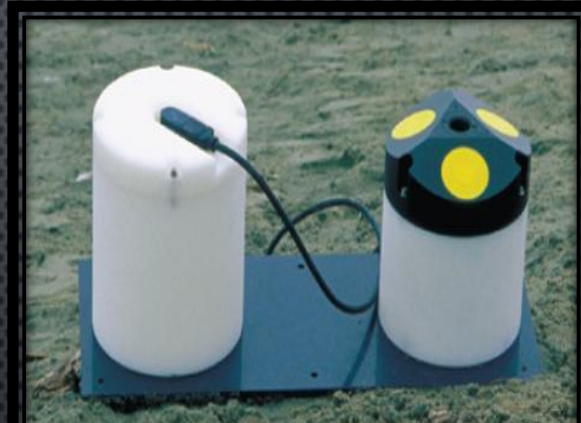


OTT Radar Tide Gauges

HSD Capabilities Survey Equipment



DGPS Max systems



Sontek current meters

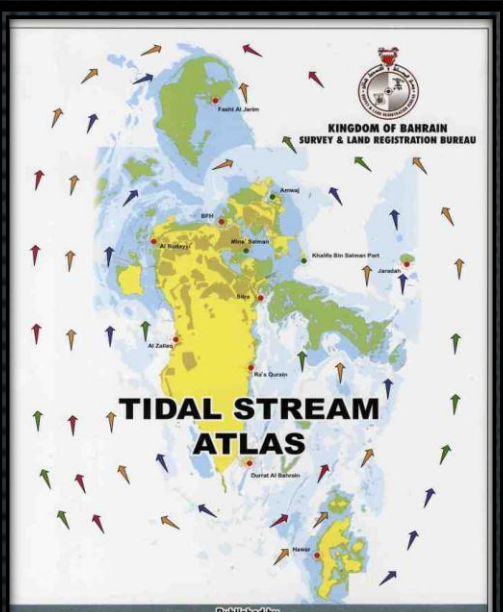


Geo Acoustic Sub bottom profiler

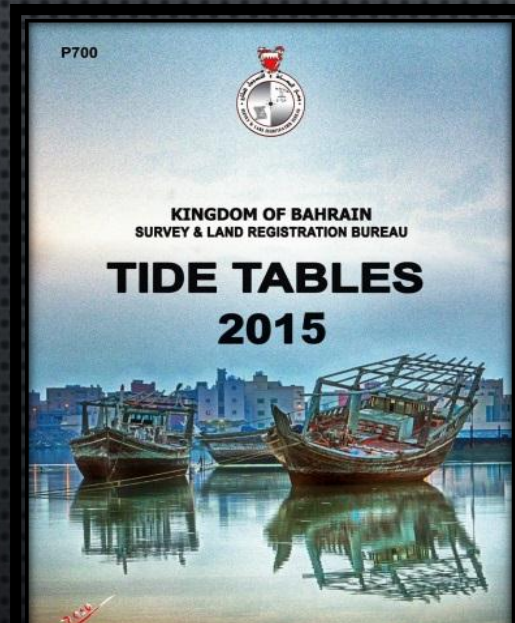


Cast away CTD

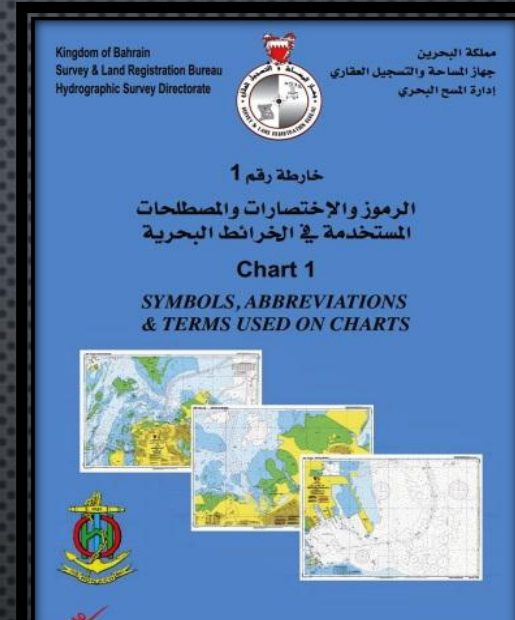
HSD Products & Publications



Tidal Stream Atlas



Tide Tables



Symbols & Abbreviations



Navigational Charts

Future Projects & Works

- Progress with the National sand search survey project.
- Produce the four new ENC chart and release it to the market.
- Resurvey of the Approach Channel following phase 2 dredging and route alteration.
- Analyze the tide data obtained from the new BTN project and derive more accurate harmonic constituents for tide predictions.

Future Projects & Works

- Updation of all navigational charts and ENCs.
- Publication of Annual Tide Tables.
- Conduct the survey of the northern part of the Bahrain.
- Carry out Current meter observations at navigationally important areas.



Thank You

Hydrographic Survey Directorate
Kingdom of Bahrain