Common Mistakes by Ships

Accidents at Chittagong Anchorage and Approaches

Introduction:

- Significant number of incidents of collision & grounding takes place at Chittagong Anchorage & Approaches, raising concern by Ship-Owners, Charterers, Managers, Underwriters, Agents, Cargo Receivers and several other concerned parties.
- If we look into the causes of the above incidents, we will find that majority of the incidents are caused due to some common mistakes or errors by ships mainly for not following the basics of safe navigation at sea. Eliminating these errors will greatly reduce the number of such incidents.
- The objective of this seminar is to look into the common mistakes by ships and raise awareness and also discuss the correct procedure of navigation while approaching Chittagong Port or its designated anchorages.

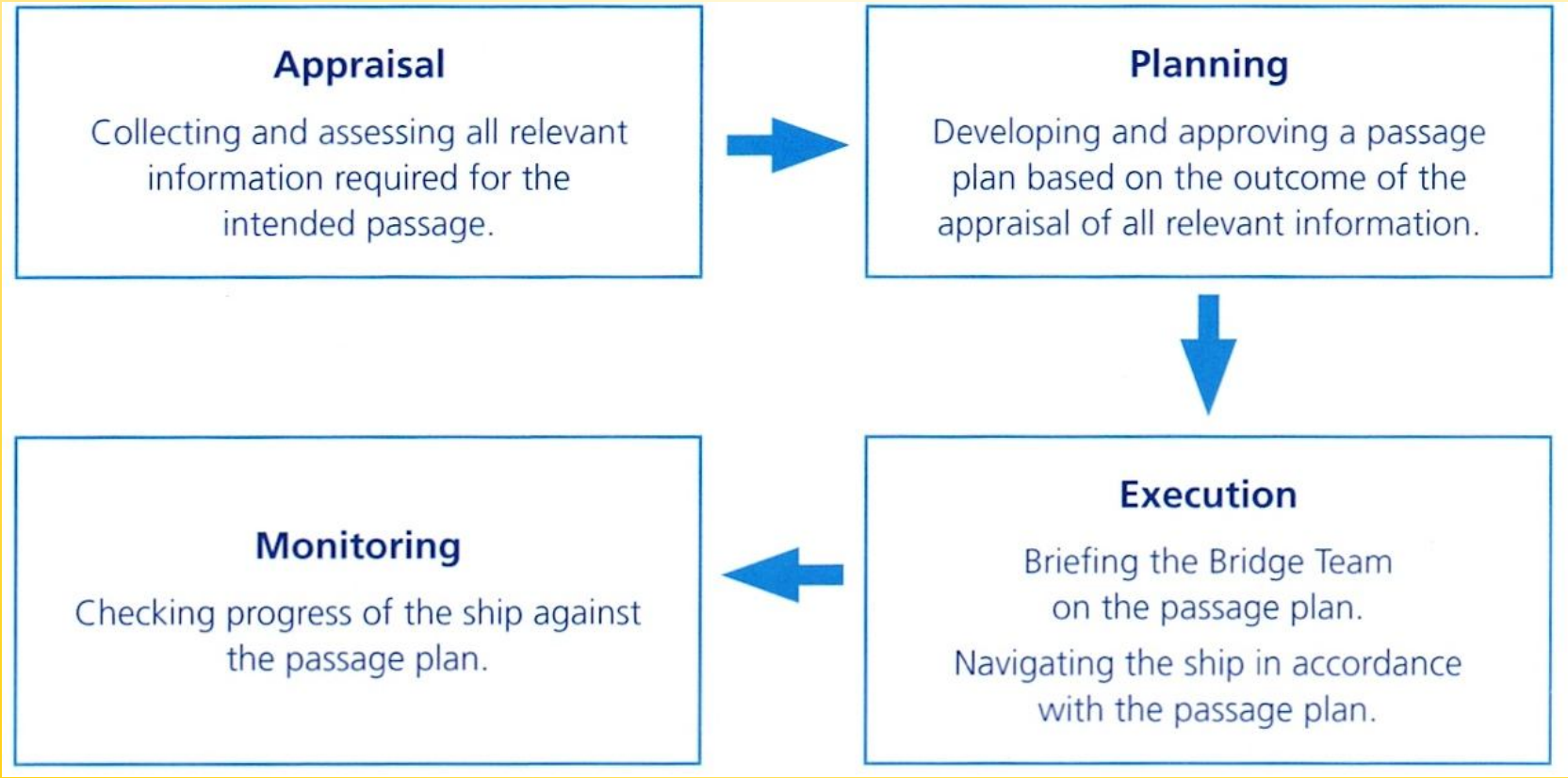
Common mistakes

1. Not following the prescribed directions while approaching Chittagong
2. Failure to judge the effect of tidal current and error in navigation
3. Not calculating the tidal rise
4. ECDIS- misinterpretation
5. Excessive draft & Low Under Keel Clearance (UKC)
6. Lack of good seamanship practice

Steps

- Passage Planning: First step for safe navigation to a destination by sea is to develop a comprehensive plan for safe conduct of the ship from berth to berth.
- The procedure for Passage Planning is detailed in the Bridge Procedure Guide published by the International Chamber of Shipping and the publication is mandatory to be carried onboard by all seagoing ships.
- Chapter 2 of the Bridge Procedure Guide deals with Passage Planning.

Principles of Passage Planning



Appraisal (Gathering information)

Navigation

- Advice in sailing directions
- Anchoring and contingency options
- Availability and adequacy of charts and reliability of hydrographic data
- Availability and reliability of navigation aids
- Available sea room and traffic density
- Communications including MSI and GMDSS
- Pilotage requirements
- Draught restrictions including air draught, under keel clearance (UKC) requirements and squat
- Position fixing requirements
- Reliability of propulsion and steering systems and defects affecting the control or navigation of the ship
- Route selection and waypoints
- Routeing and reporting measures
- Weather routeing

General/Operational

- Berth requirements
- Bridge manning
- Bunker calculations
- Cargo considerations
- Commercial and charter considerations
- Helicopter operations
- Mooring and tug operations
- Port entry requirements
- Security and anti-piracy measures
- Strength and stability

Environmental

- Ballast water management
- Emission Control Areas (ECA)
- MARPOL Special Areas
- National or regional requirements
- Particularly Sensitive Sea Areas (PSSA)
- Port reception facilities

Contingency

- Emergency response plans
- Notifications and reporting
- Passage plan amendments

Publications

A full appraisal of the passage plan should include a review and consideration of information additional to that on navigational charts, including but not limited to:

Sailing Directions

Provide essential information on all aspects of navigation including hazards, buoyage, weather patterns, pilotage details, regulations, port facilities and guides on port entry.

Ocean Passage/Routeing Charts and Guides

Provide information on established ocean routes.

Notices to Mariners

Provide essential corrections and amendments to official nautical charts and publications.

May also be used by Port Authorities and Harbourmasters to provide specific local safety information to ships.

Port Guides

Provide port approach details that include information based on the experience of seafarers.

Lists of Lights

Provide information on all lights of navigational significance.

Lists of Radio Signals

Provide information on maritime radio communications, particularly vessel reporting and VTS, GMDSS and information on availability of MSI.

Tide Tables and Tidal Stream Atlases

Provide detailed information on tidal conditions in coastal areas, port approaches and harbours.

Load Line Charts

Provide information on zones and seasonal periods for consideration when determining compliance with load line requirements.

Maritime Security Charts

Provide security advice and information about reporting schemes in designated areas.

Incidents at Chittagong

- Incidents concerning deep draft vessels while approaching Kutubdia Roads
- Incidents at Kutubdia Roads
- Incidents while approaching designated anchorages of the port
- Incidents at designated anchorages of the port
- Incidents while picking up pilot for berthing in Inner Harbour.

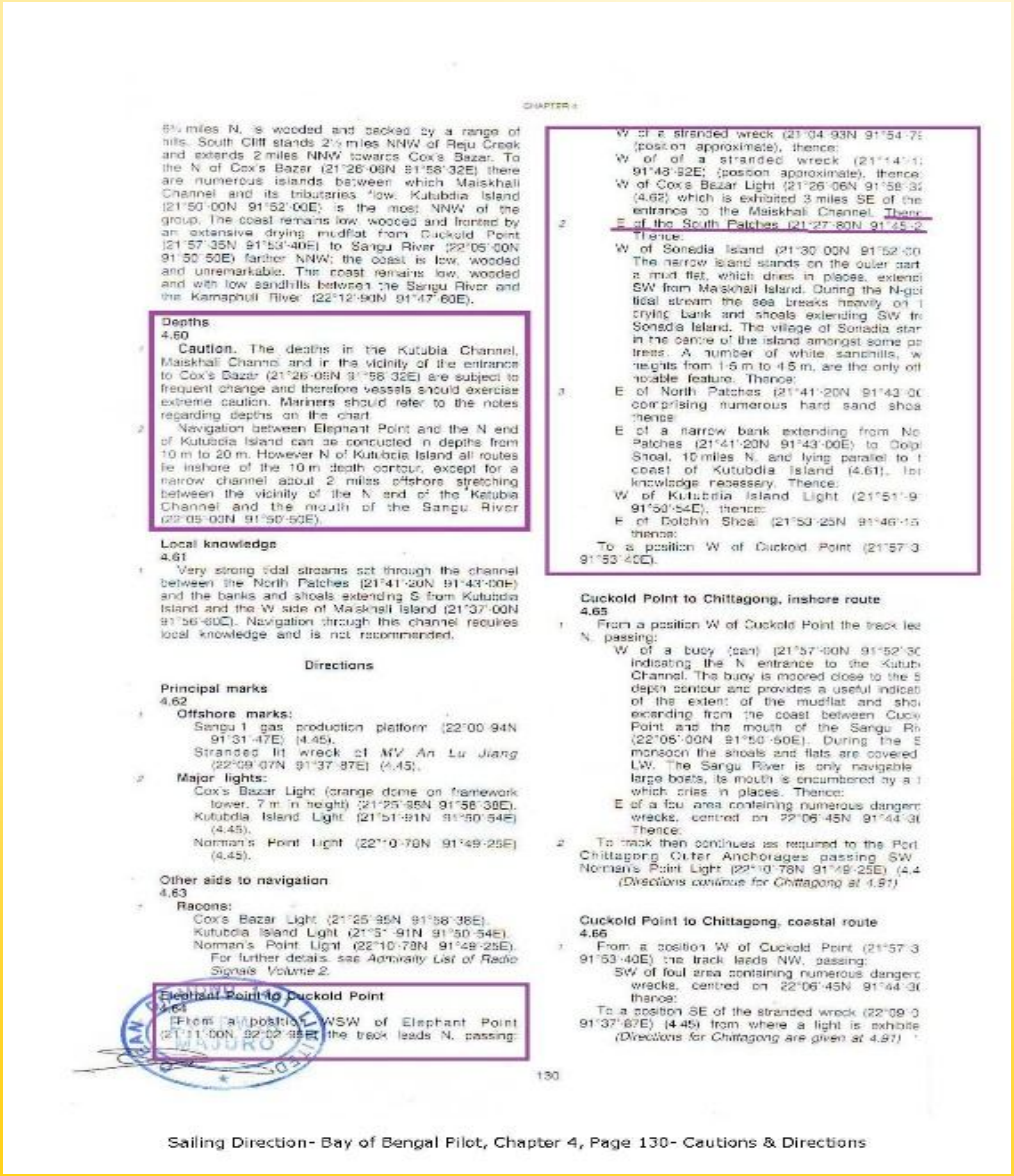
Incidents while approaching Kutubdia

- Most Bulk Carriers drawing between 14 & 11 metres, discharge part of their cargo at Kutubdia Roads to reduce draft prior to shifting to Chittagong Anchorage.
- There are reported incidents of grounding by vessels approaching Kutubdia Roads.

Reasons are for :

1. Not following prescribed directions
2. Not carrying out calculation for tide
3. Using uncorrected chart

Direction to approach Chittagong



6½ miles N, is wooded and backed by a range of hills. South Cliff stands 2¼ miles NNW of Reju Creek and extends 2 miles NNW towards Cox's Bazar. To the N of Cox's Bazar (21°26·08N 91°58·32E) there are numerous islands between which Maishkhali Channel and its tributaries flow. Kutubdia Island (21°50·00N 91°52·00E) is the most NNW of the group. The coast remains low, wooded and fronted by an extensive drying mudflat from Cuckold Point (21°57·35N 91°53·40E) to Sangu River (22°05·00N 91°50·50E) farther NNW; the coast is low, wooded and unremarkable. The coast remains low, wooded and with low sandhills between the Sangu River and the Karnaphuli River (22°12·90N 91°47·60E).

Depths

4.60

Caution. The depths in the Kutubdia Channel, Maishkhali Channel and in the vicinity of the entrance to Cox's Bazar (21°26·08N 91°58·32E) are subject to frequent change and therefore vessels should exercise extreme caution. Mariners should refer to the notes regarding depths on the chart.

2 Navigation between Elephant Point and the N end of Kutubdia Island can be conducted in depths from 10 m to 20 m. However N of Kutubdia Island all routes lie inshore of the 10 m depth contour, except for a narrow channel about 2 miles offshore stretching between the vicinity of the N end of the Kutubdia Channel and the mouth of the Sangu River (22°05·00N 91°50·50E).

Local knowledge

4.61

1 Very strong tidal streams set through the channel between the North Patches (21°41·20N 91°43·00E) and the banks and shoals extending S from Kutubdia Island and the W side of Maishkali Island (21°37·00N 91°56·60E). Navigation through this channel requires local knowledge and is not recommended.

Directions

Principal marks

4.62

1 **Offshore marks:**

Sangu 1 gas production platform (22°00·94N 91°31·47E) (4.45).

Stranded lit wreck of *MV An Lu Jiang* (22°09·07N 91°37·87E) (4.45).

2 **Major lights:**

Cox's Bazar Light (orange dome on framework tower, 7 m in height) (21°25·85N 91°58·38E).

Kutubdia Island Light (21°51·91N 91°50·54E) (4.45).

Norman's Point Light (22°10·78N 91°49·25E) (4.45).

Other aids to navigation

4.63

1 **Racons:**

Cox's Bazar Light (21°25·85N 91°58·38E).

Kutubdia Island Light (21°51·91N 91°50·54E).

Norman's Point Light (22°10·78N 91°49·25E).

For further details, see *Admiralty List of Radio Signals Volume 2*.

Elephant Point to Cuckold Point

4.64

1 From a position 5 WSW of Elephant Point (21°11·00N, 92°02·95E) the track leads N, passing:

W of a stranded wreck (21°04·93N 91°54·7 (position approximate), thence:

W of of a stranded wreck (21°14·1 91°43·92E) (position approximate), thence:

W of Cox's Bazar Light (21°26·08N 91°58·3 (4.62) which is exhibited 3 miles SE of the entrance to the Maishkali Channel. Thence:

2 E of the South Patches (21°27·80N 91°45·2 Thence:

W of Sonadia Island (21°30·00N 91°52·00 The narrow island stands on the outer part a mud flat, which dries in places, extend SW from Maishkali Island. During the N-go tidal stream the sea breaks heavily on t drying bank and shoals extending SW fr Sonadia Island. The village of Sonadia star in the centre of the island amongst some pa trees. A number of white sandhills, w heights from 1·5 m to 4·5 m, are the only ot notable feature. Thence:

3 E of North Patches (21°41·20N 91°43·00 comprising numerous hard sand shoa thence:

E of a narrow bank extending from No Patches (21°41·20N 91°43·00E) to Dolp Shoal, 10 miles N, and lying parallel to t coast of Kutubdia Island (4.61), loc knowledge necessary. Thence:

W of Kutubdia Island Light (21°51·9 91°50·54E), thence:

E of Dolphin Shoal (21°50·25N 91°46·15 thence:

To a position W of Cuckold Point (21°57·3 91°53·40E).

Cuckold Point to Chittagong, inshore route

4.65

1 From a position W of Cuckold Point the track lea N, passing:

W of a buoy (can) (21°57·00N 91°52·30 indicating the N entrance to the Kutub Channel. The buoy is moored close to the 5 depth contour and provides a useful indicat of the extent of the mudflat and shoa extending from the coast between Cuck Point and the mouth of the Sangu Ri (22°05·00N 91°50·50E). During the S monsoon the shoals and flats are covered LW. The Sangu River is only navigable large boats, its mouth is encumbered by a which dries in places. Thence:

E of a foul area containing numerous dangero wrecks, centred on 22°06·45N 91°44·30 Thence:

2 To mark then continues as required to the Port Chittagong Outer Anchorages passing SW Norman's Point Light (22°10·78N 91°49·25E) (4.4

(Directions continue for Chittagong at 4.91)

Cuckold Point to Chittagong, coastal route

4.66

1 From a position W of Cuckold Point (21°57·3 91°53·40E) the track leads NW, passing:

SW of foul area containing numerous dangero wrecks, centred on 22°06·45N 91°44·30 thence:

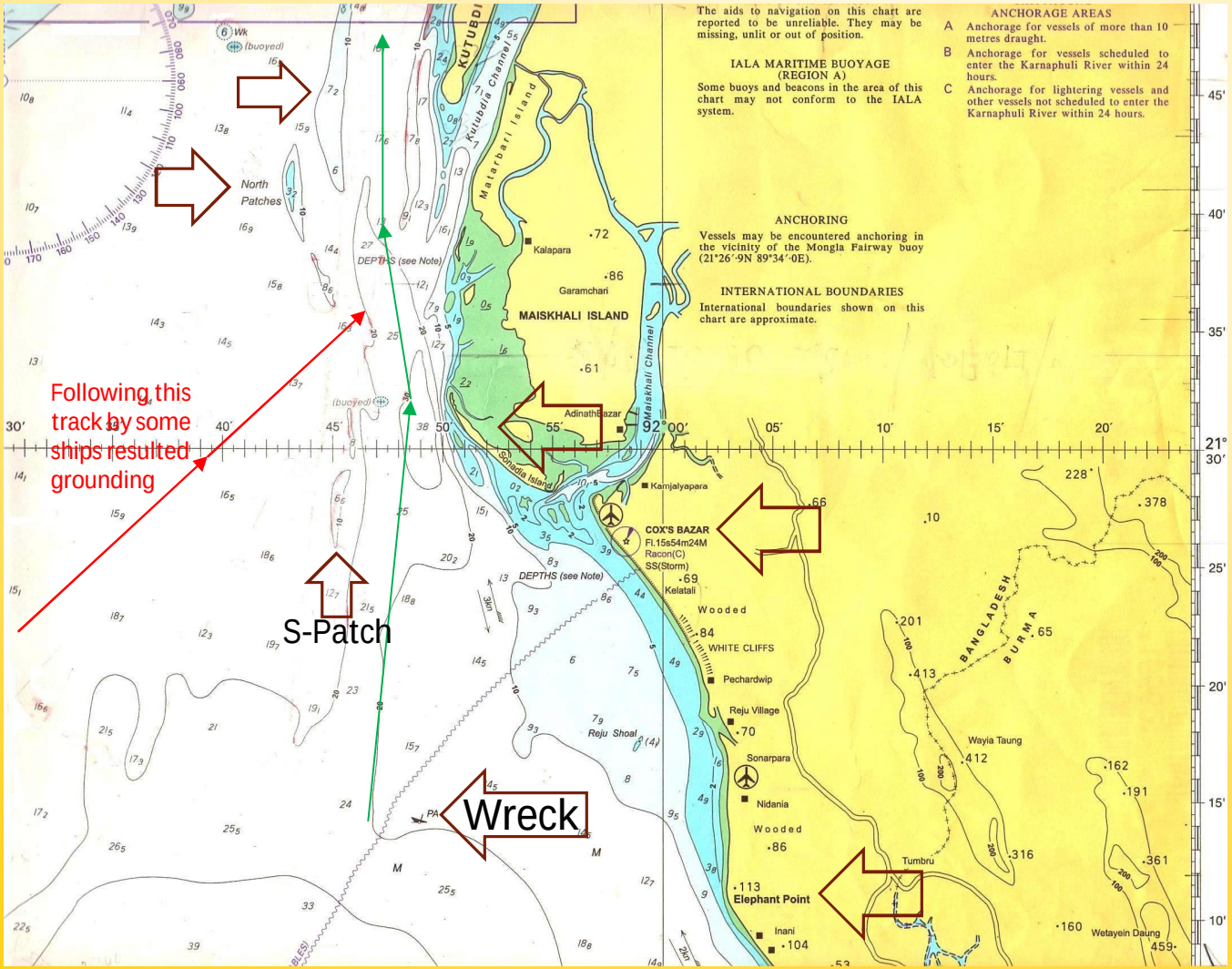
To a position SE of the stranded wreck (22°09·3 91°37·67E) (4.45) from where a light is exhibite

(Directions for Chittagong are given at 4.91)

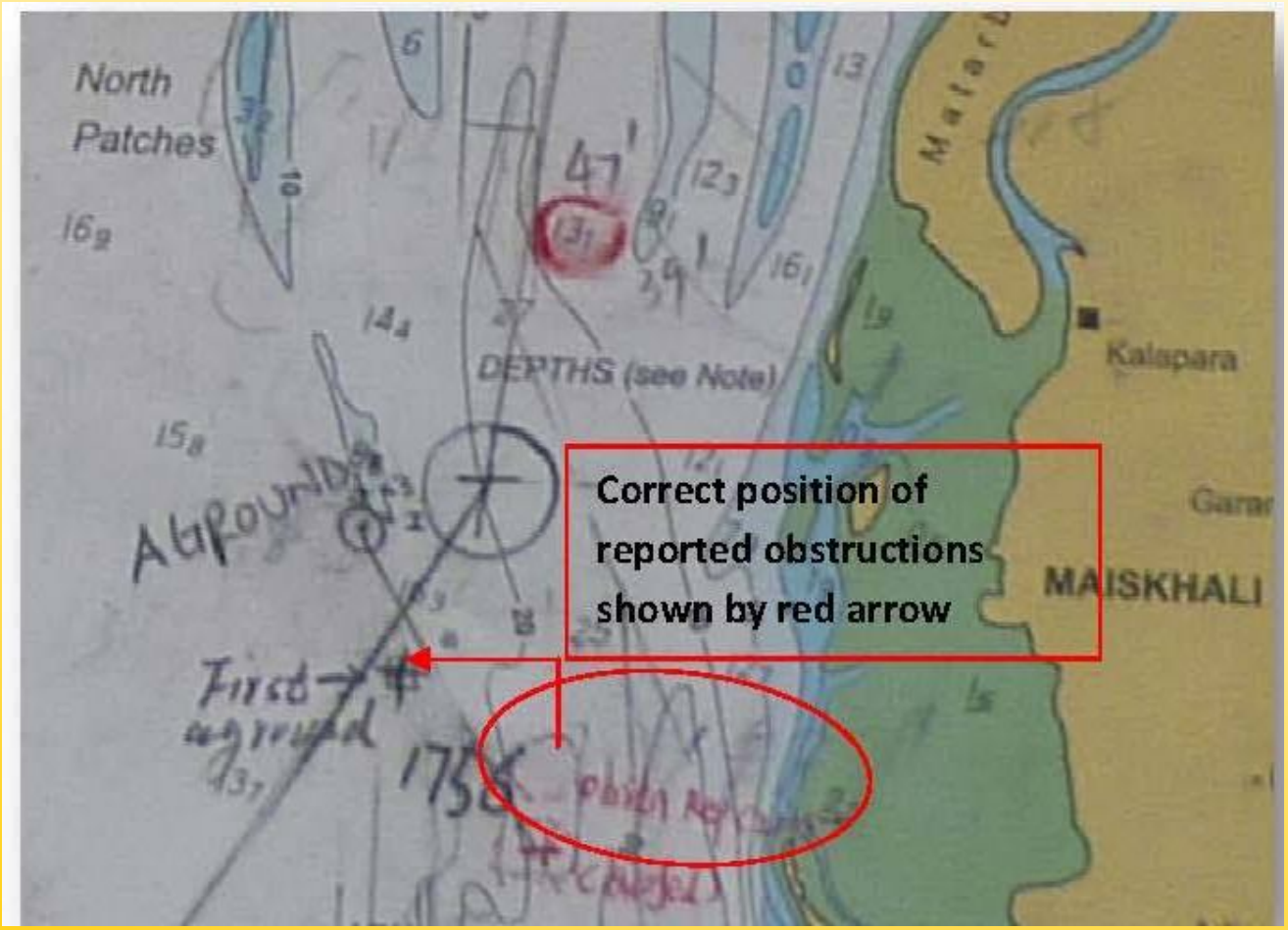
130

Sailing Direction- Bay of Bengal Pilot, Chapter 4, Page 130- Cautions & Directions

Directions plotted on BA Chart 90



Grounding incident



Vessels at Kutubdia

- Incident of anchor dragging is reported at times.
  Cause of anchor dragging may be due to:

Cause	Prevention
Low U.K.C	Look for position with over 3 meters U.K.C. from Chart Datum while anchoring
Not paying out enough anchor chain	As many lengths of chains as is possible is to be paid- over 10 shackles is good
Strong tidal current	High Holding Power (HHP) Anchor minimise risks. Use engine during the period of strong current to keep vessel in position.

Incident while approaching Chittagong

Majority of the incidents occur while loaded vessels approach for anchoring or to pick up pilot. Usual incidents are:

- Collision incidents
- Grounding incidents

Causes:

1. Error in passage planning
2. Error in Manoeuvring
3. Excessive draft- low Under Keel Clearance (UKC)

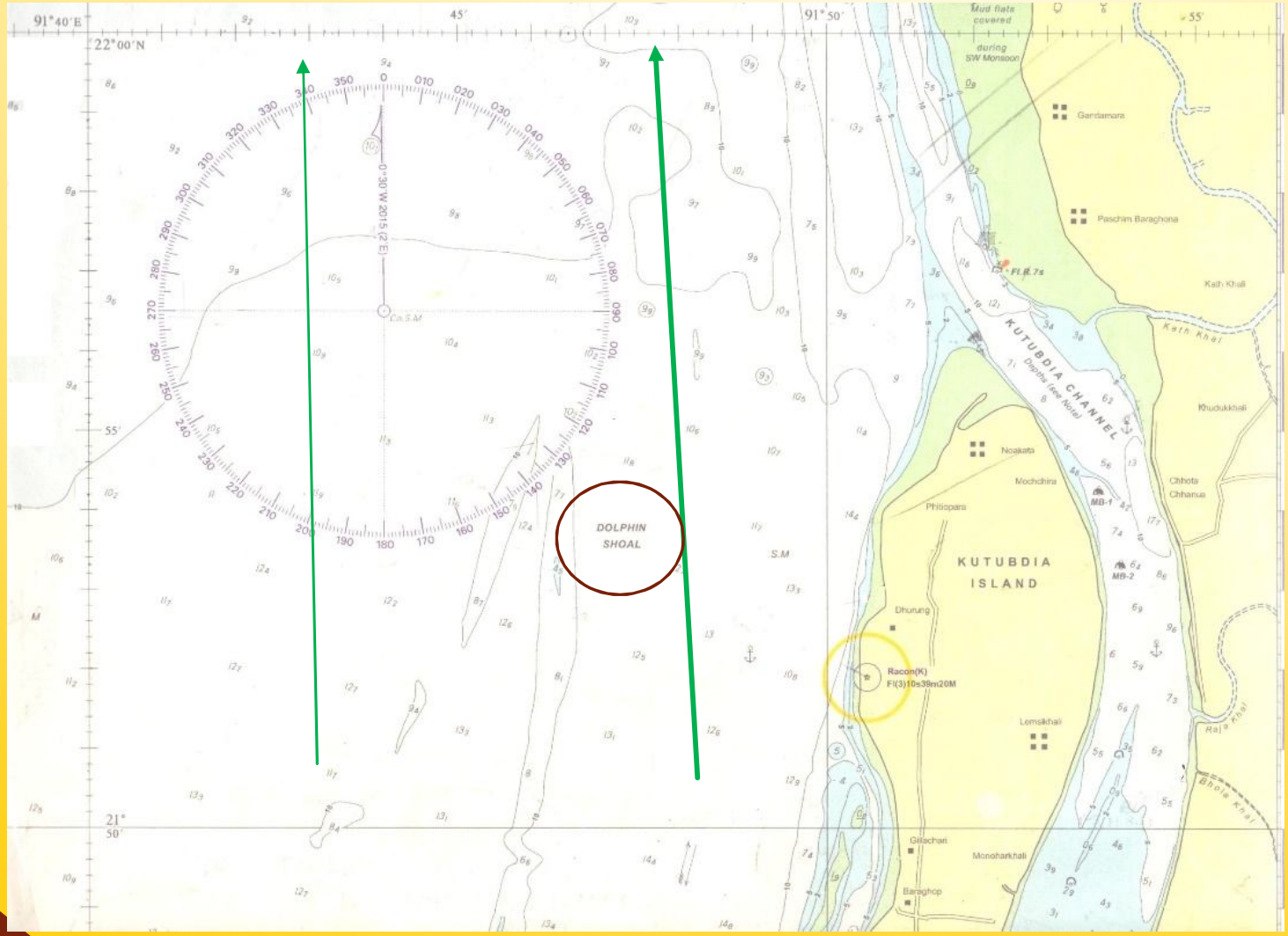
Approaching

Approaching Chittagong Anchorage and/or approaching Pilot Ground need careful planning, monitoring and execution. Vessels need to cross the Outer Bar having Charted Depth (CD) of water between 7 to 8.2m as can be seen from the scanned copies of the Chart. Range of tide at Chittagong is quite high and generally height of tide at High Water time ranges between 4 to 5.5 m depending on phases of the moon and the seasons. Height of tide is more during rainy season between June & August and less during dry seasons between November & February. Tidal current at Anchorage area & approaches is also very strong and can reach 6 o 7 Knots at times during spring tide.

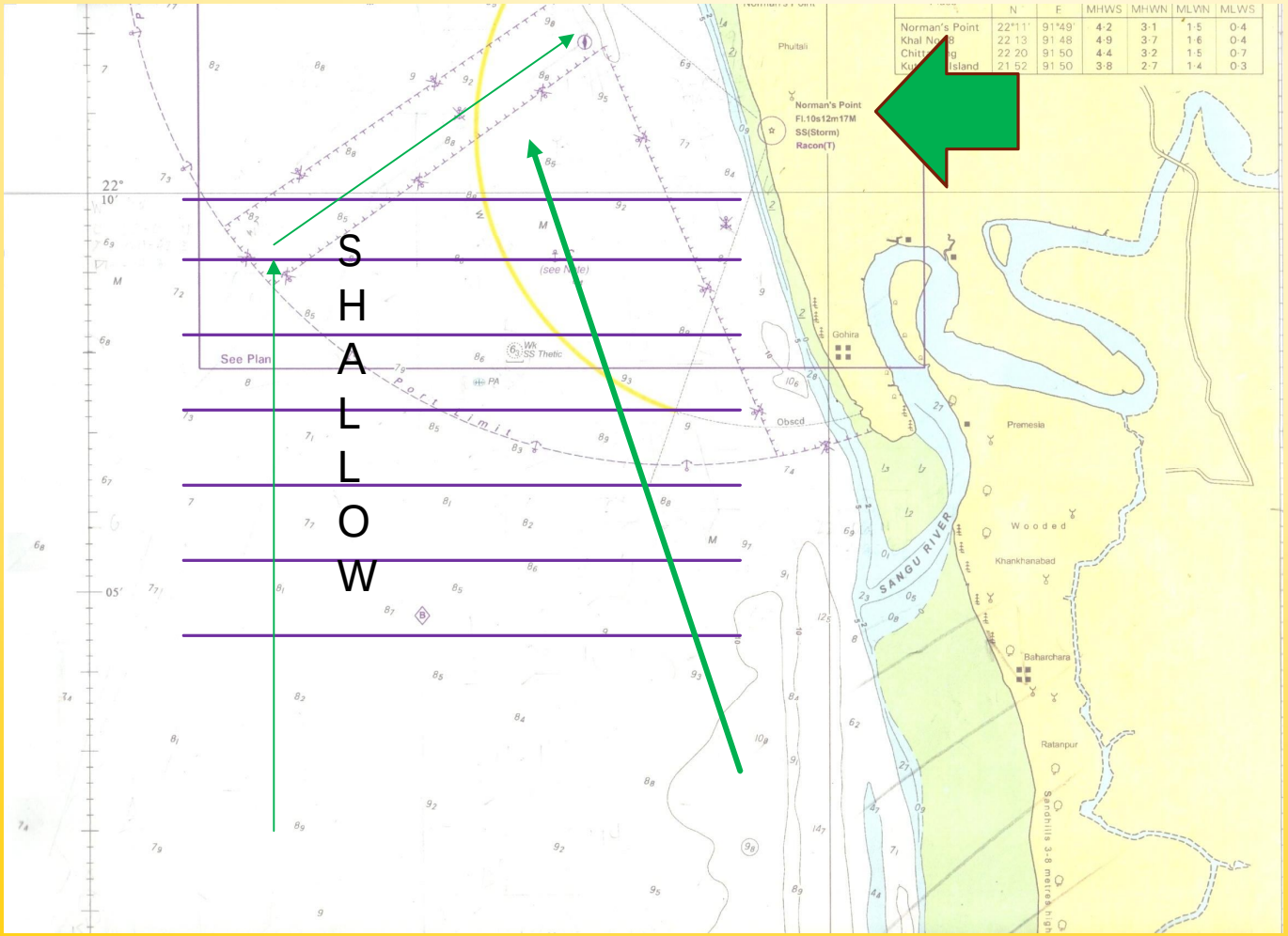
Naturally, the Outer Bar area has to be passed during flooding / High Water. Usually deeper draft vessels pass to the east of Dolphin Shoal and shallower draft vessels pass to the west of the Dolphin Shoal as the later area has less traffic.

Prudent navigators plan their passage to pass the Norman's Point during high water and the time of High Water at Norman's Pt. is about 50 minutes before High Water at Chittagong Port (Sadar Ghat) as mentioned in the British Admiralty Tide Table or can be found in approved relevant software for tide.

British Admiralty Chart-84



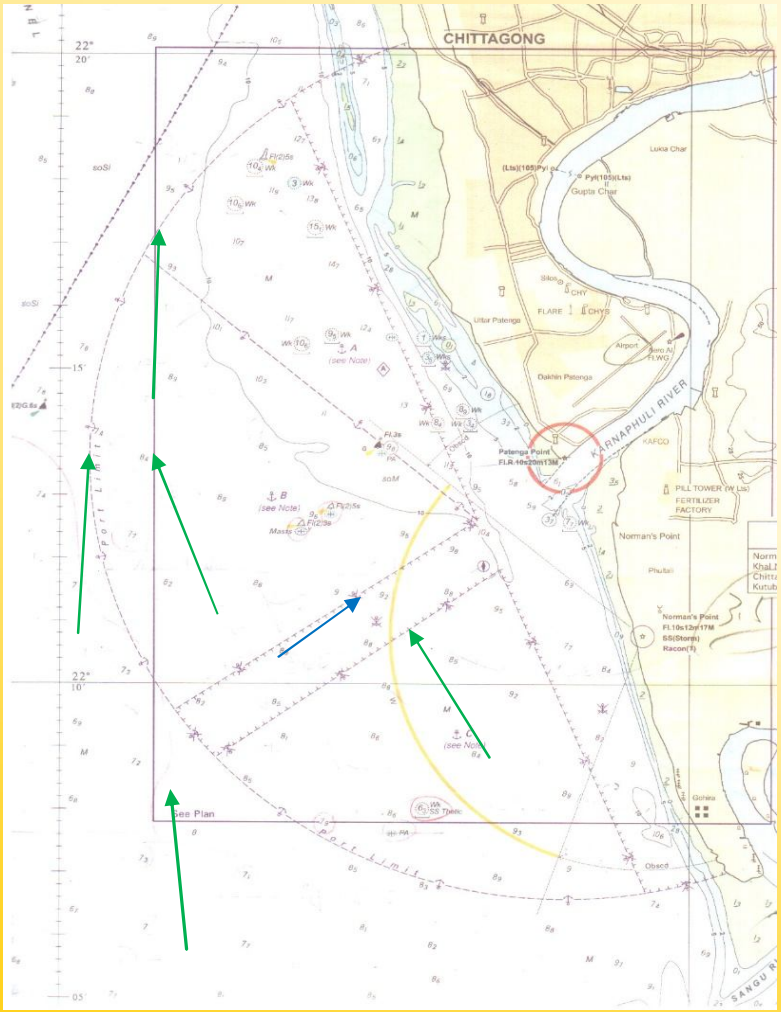
BA Chart 84


Norman's Point
Fl.10s12m17M
SS(Storm)
Racon(T)
Phultali
Gohira
Premesia
Wooded
Khankhanabad
Baharchara
Ratanpur
SANGU RIVER
See Plan
Obscd
22°
10'
05'
S
H
A
L
L
O
W

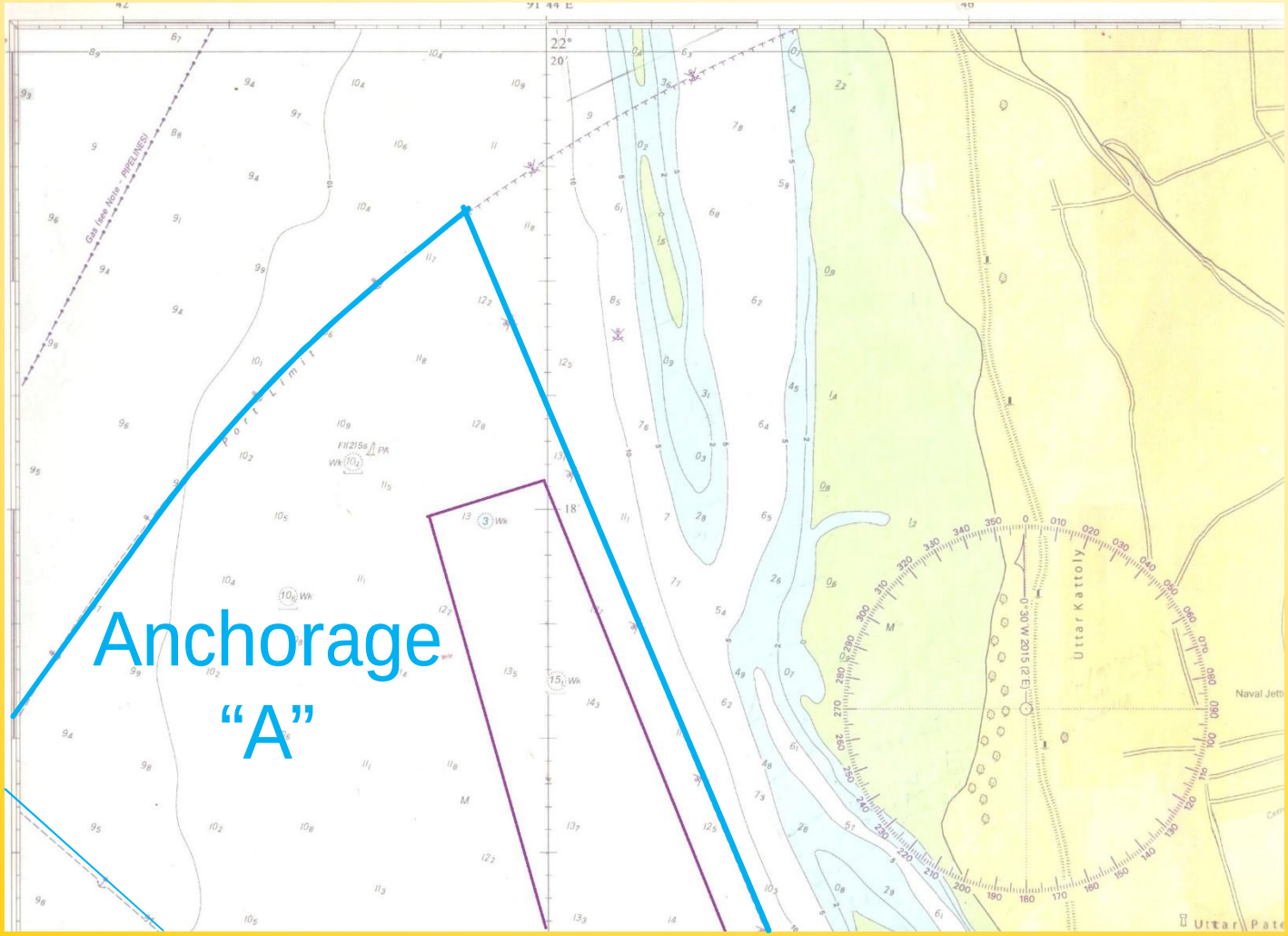
Anchorage A, B & C

- There are three designated Anchorage at Chittagong namely Alpha, Bravo & Charlie Anchorage.
- Anchorage “A” is suitable for vessels up to 10.5m draft although there are a few areas where vessels over 11m draft can also anchor.
- Anchorage “B” is suitable for vessels up to 8.5m draft and
- Anchorage “C” is suitable for vessels up to 8.0m draft

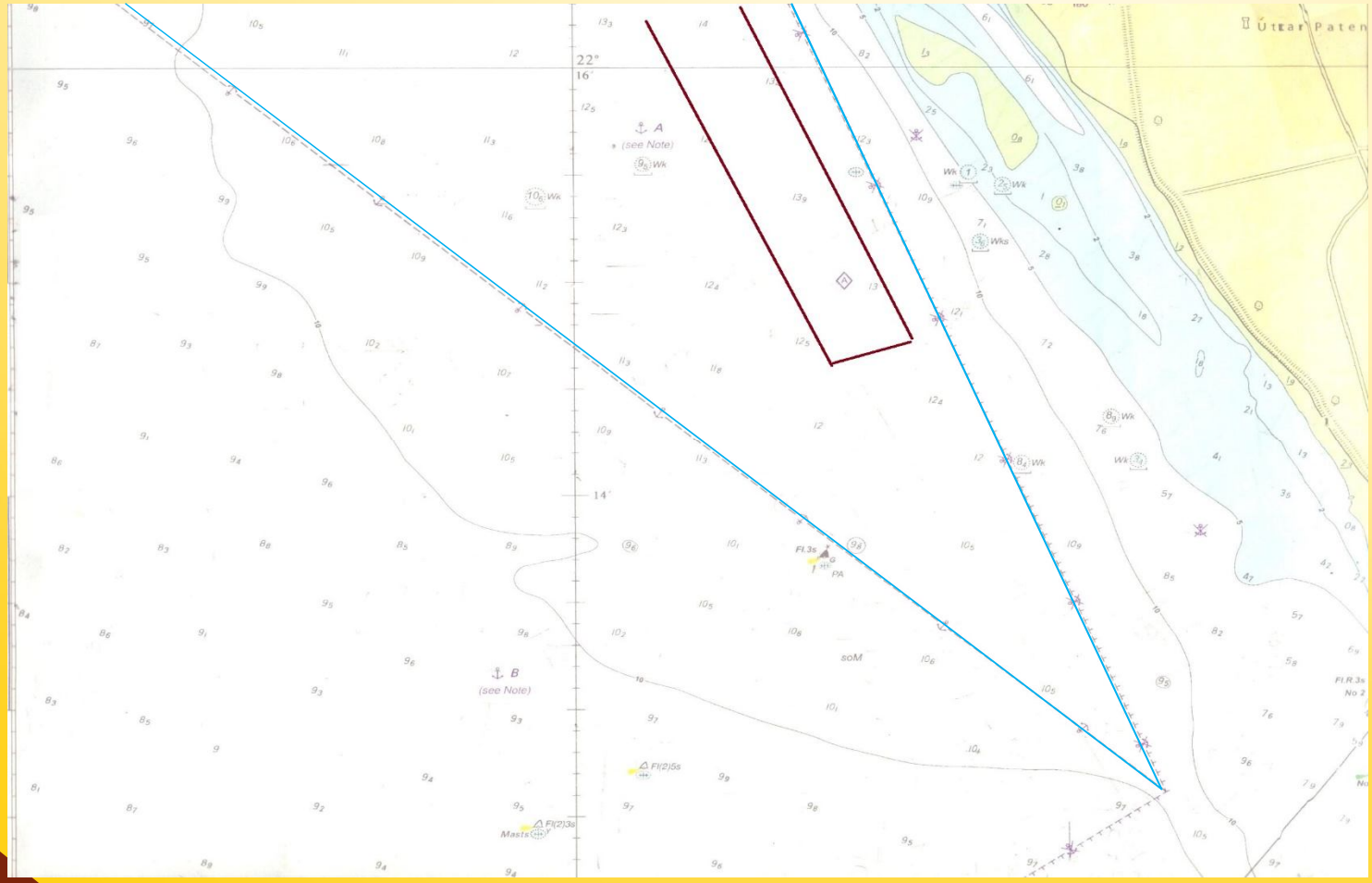
Anchorage A, B & C



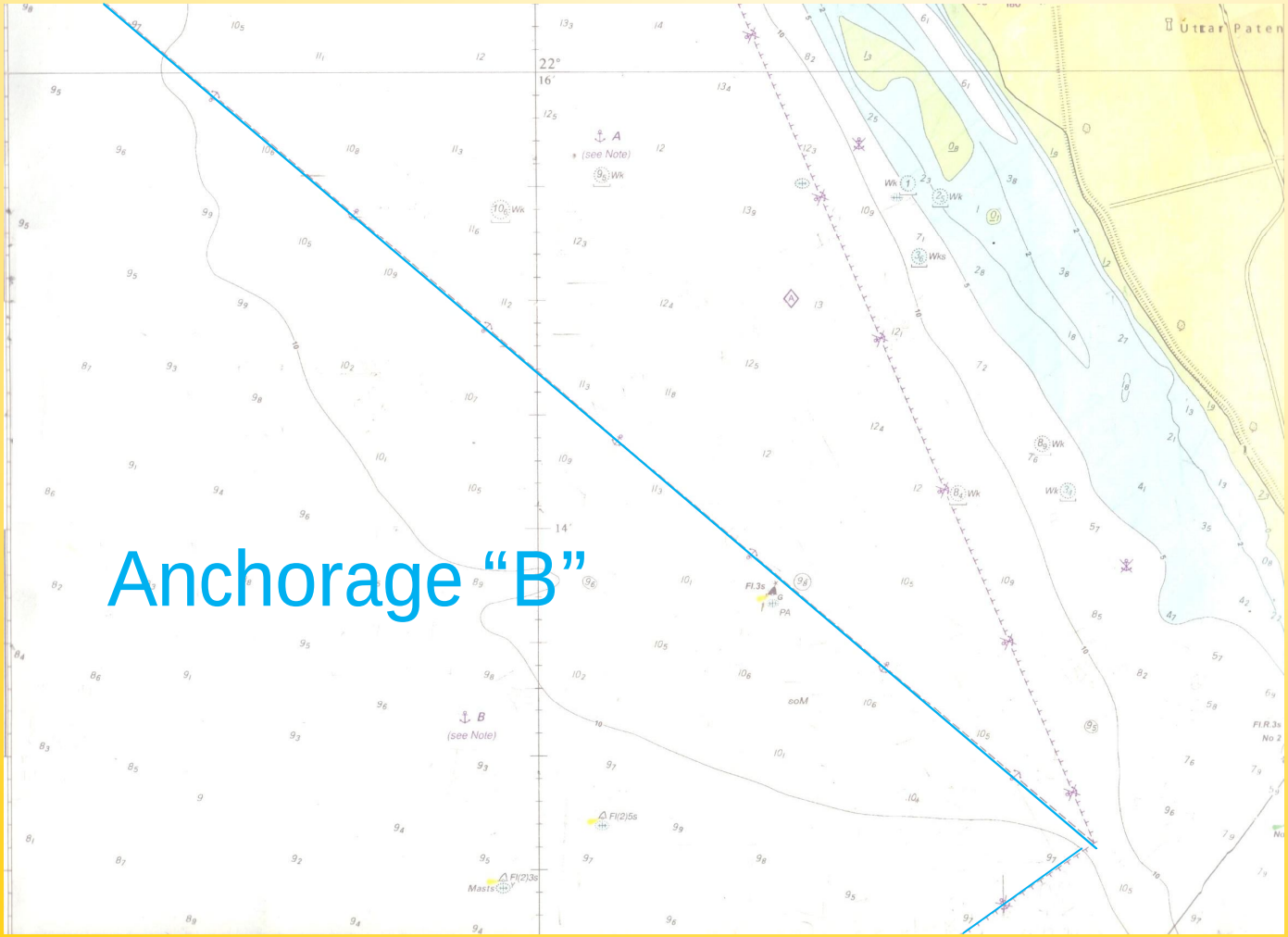
Anchorage “A”



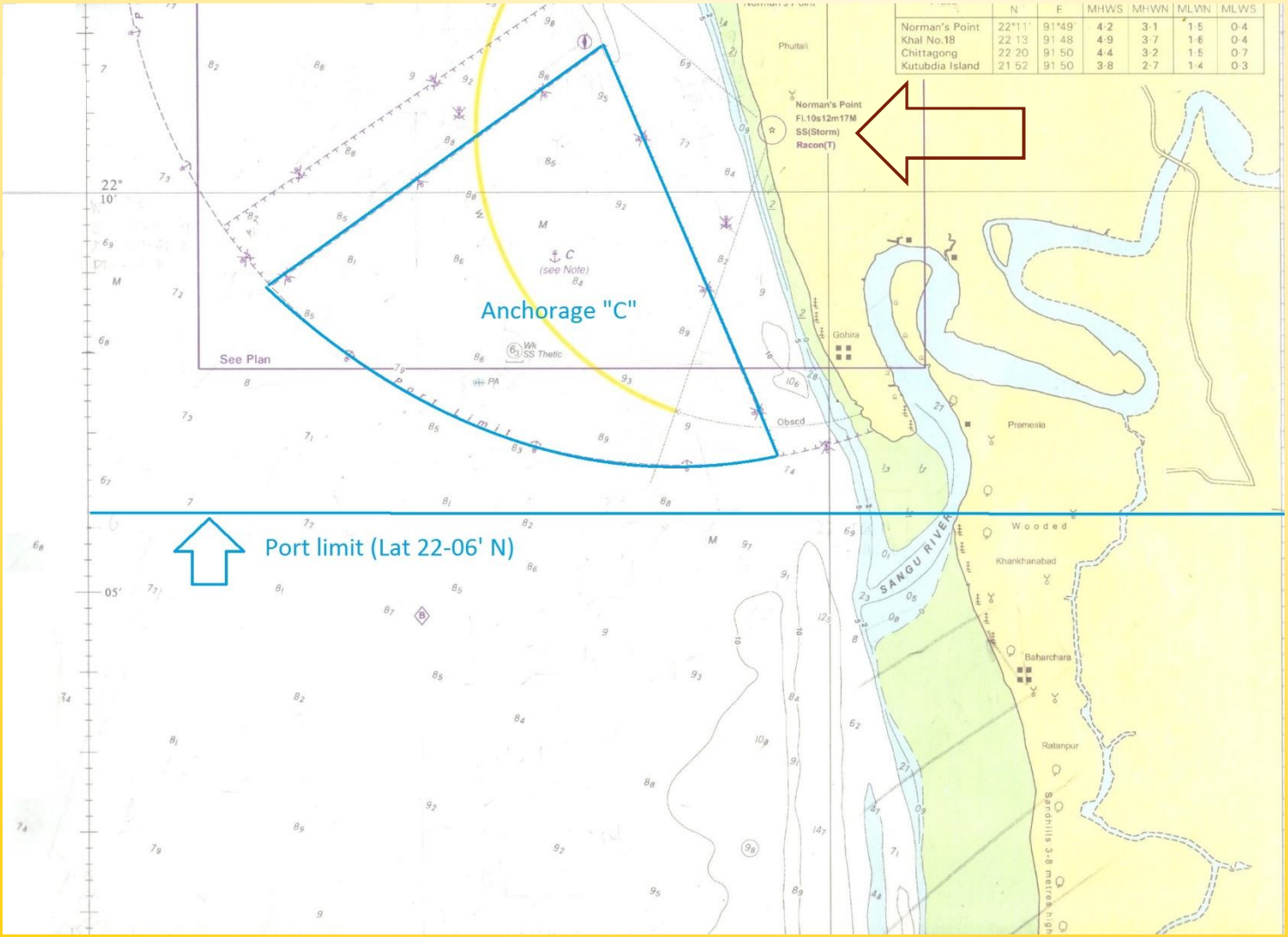
Anchorage “A”


22°
16'
14'
A
(see Note)
B
(see Note)
Fl.3s
PA
soM
Fl(2)5s
Fl(2)3s
Masts
Fl.R.3s
No 2

Anchorage “B”


Anchorage “B”
22°
16'
14'
A
(see Note)
B
(see Note)
Fl.3s
PA
Fl(2)5s
Fl(2)3s
Masts
Fl.R.3s
No 2

Anchorage “C”



	N	E	MHWS	MHWN	MLWN	MLWS
Norman's Point	22°11'	91°49'	4·2	3·1	1·5	0·4
Khal No.18	22 13	91 48	4·9	3·7	1·6	0·4
Chittagong	22 20	91 50	4·4	3·2	1·5	0·7
Kutubdia Island	21 52	91 50	3·8	2·7	1·4	0·3

Error in passage planning

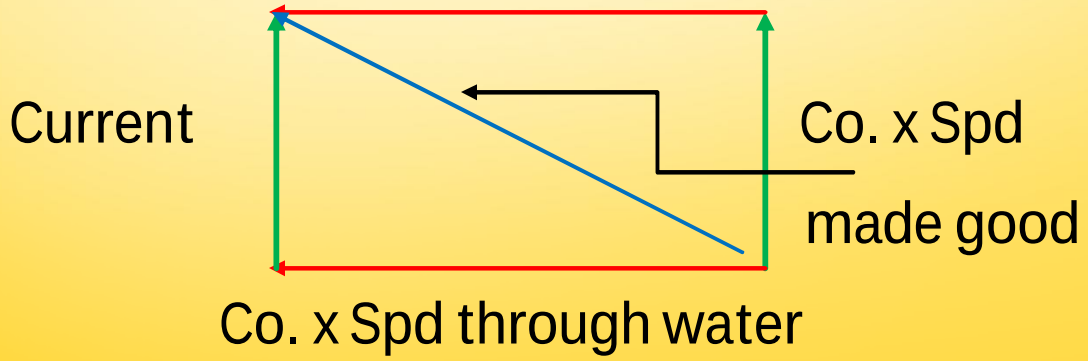
Ideally vessels should arrive at the anchorage at the time of high water when the tide is slack so that vessels do not drift on to anchored vessels during maneuvering. This can be achieved by passing Norman's Pt. at the time of High Water as mentioned earlier. Vessel should start from Kutubdia at about 3 hours before HW at Norman's Pt. and maintain 6-7 Knots speed with a following flooding tide.

But in many cases it is not done and vessels find themselves arriving at the Anchorage too early when the tidal current is strong and height of tide is inadequate which makes maneuvering difficult for the deeper draft vessels causing collision or grounding.

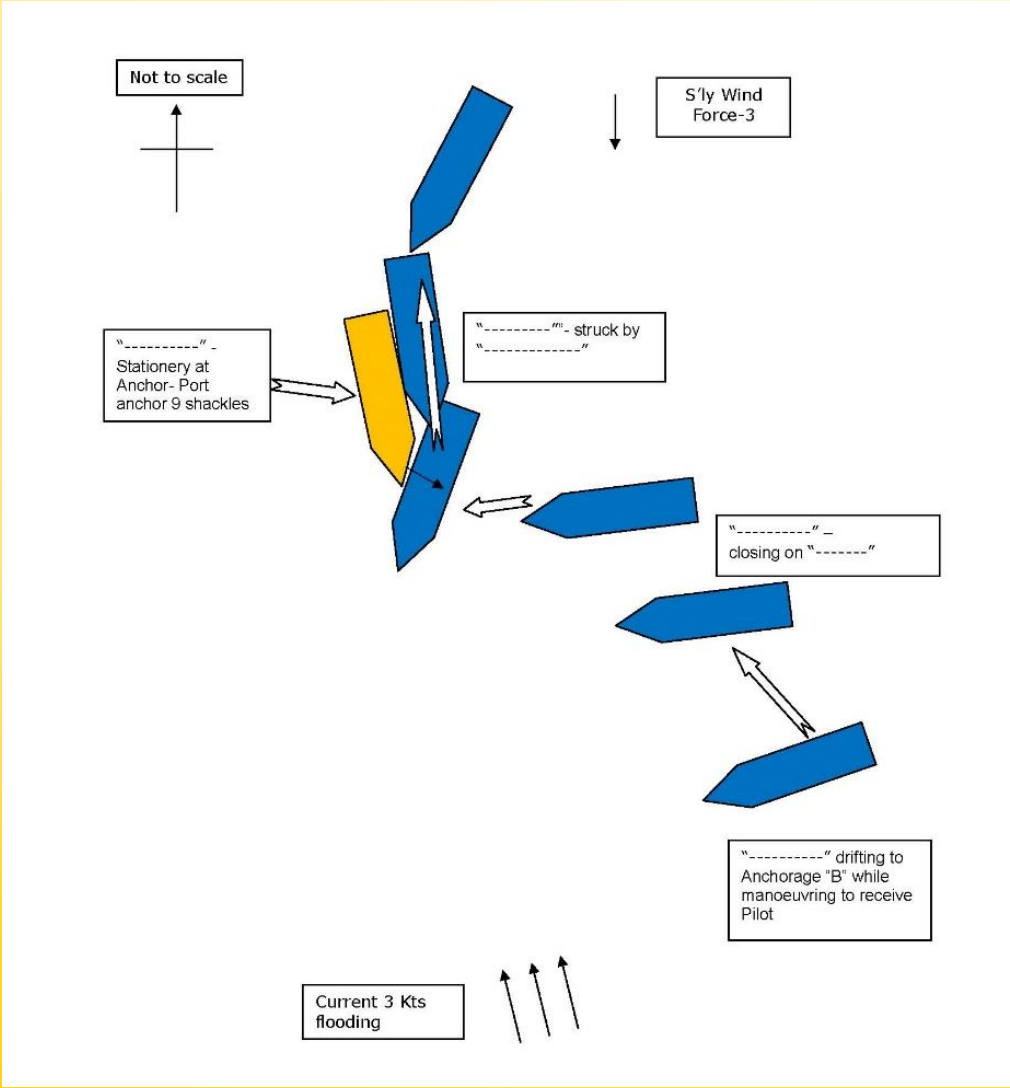
Maneuvering error

Several accident at Chittagong Anchorage occurs due to maneuvering errors by ships. Errors are mostly as follows:

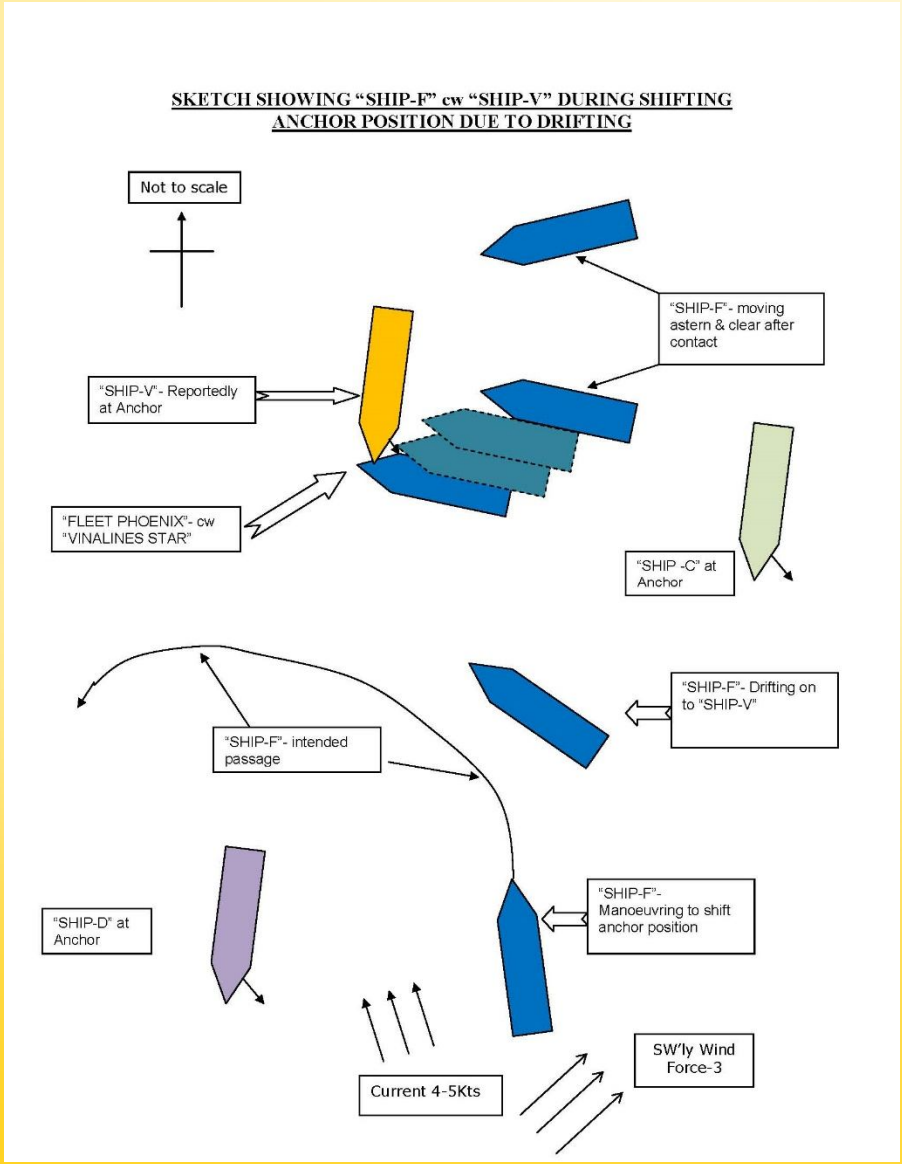
1. Crossing the bow of an anchored vessel
2. Misconception of drift resulting from strong tidal current
3. Misinterpretation of ECDIS



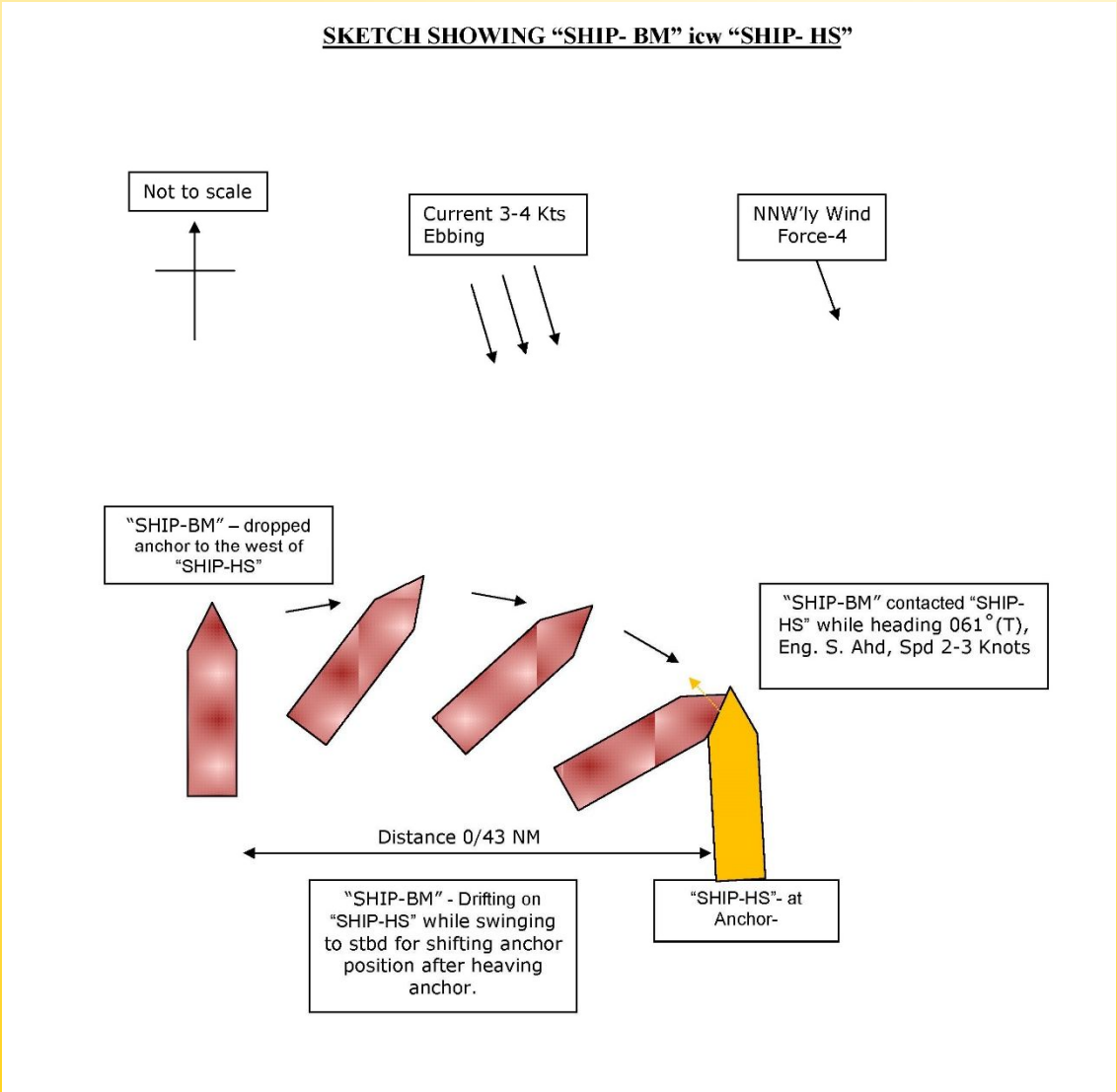
Sketches of few typical incidents



Sketches of few typical incidents



Sketches of few typical incidents



ECDIS misinterpretation

Video of few typical incidents

Video of few typical incidents

Video of few typical incidents

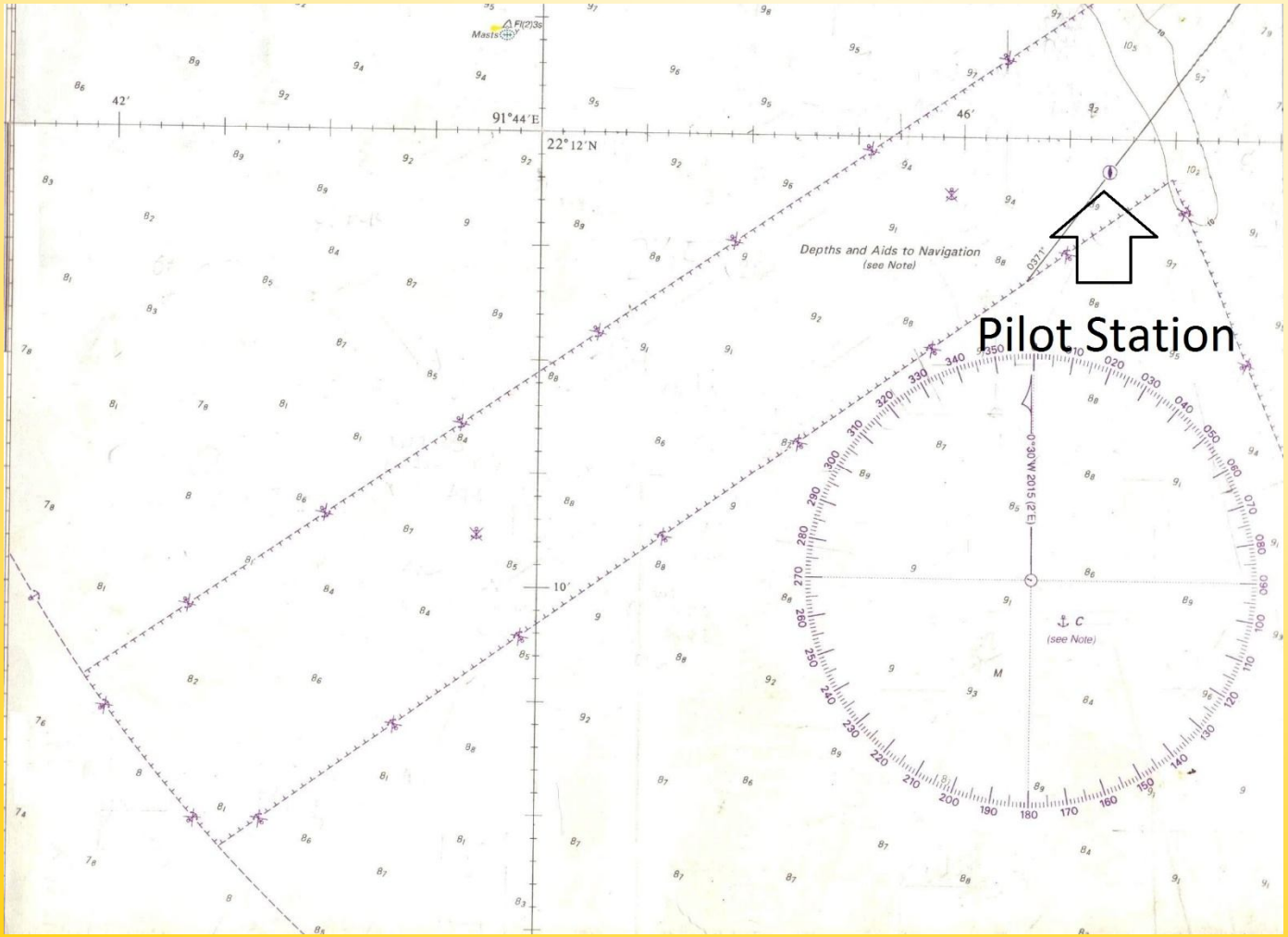
Collision while approaching for Pilot

Chittagong is a tidal port and pilotage in an out of the harbor is always done during flooding while the tide is rising. The outgoing ships are piloted first and then the incoming ships receives pilot and the vessels are instructed to come to the pilot ground at a particular time usually about 3 to 1 hour before High Water when the tide is quite strong.

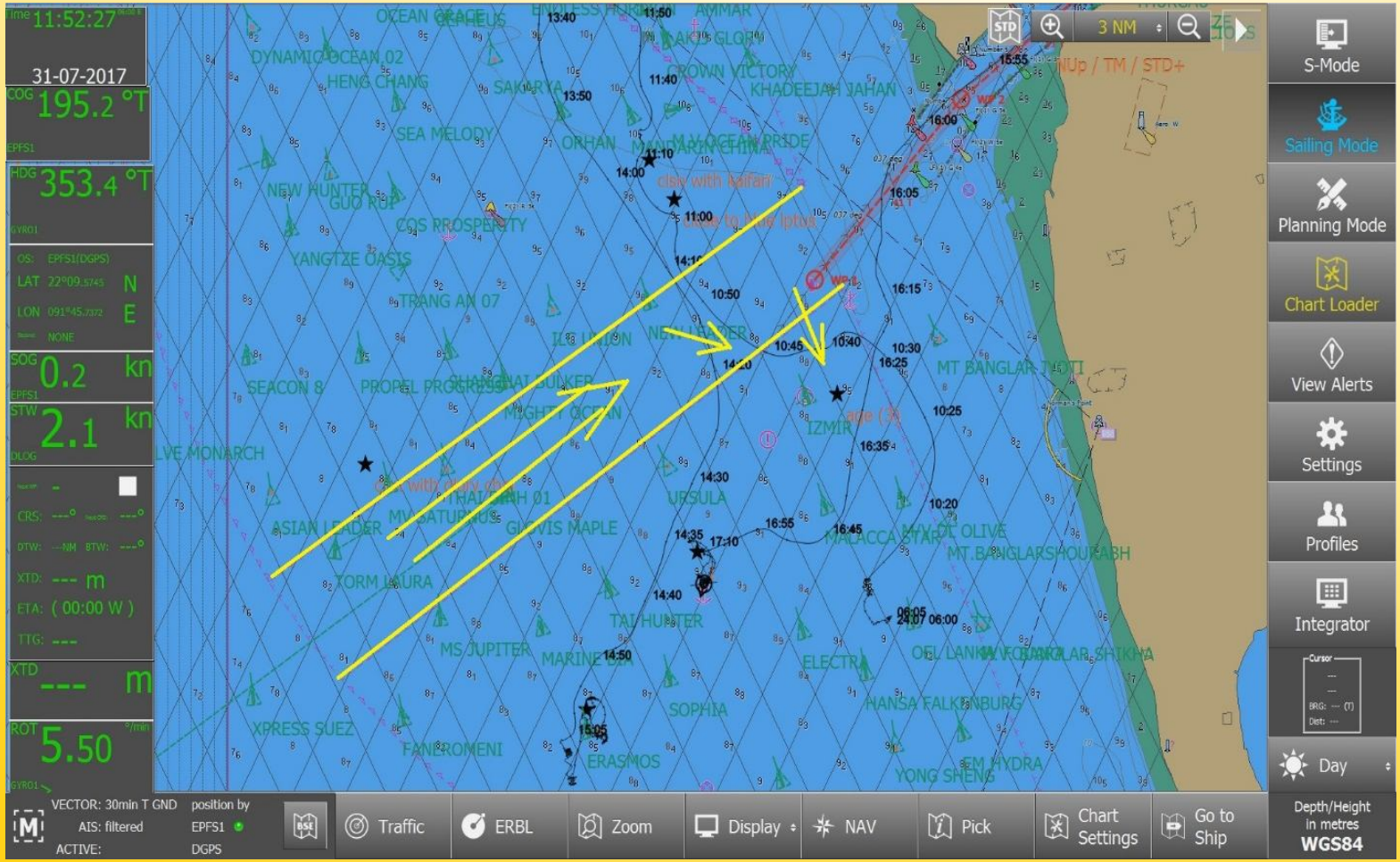
Ideally vessels should approach for pilot along the approach channel free from anchored vessel adjusting for drift and then turn to head the flooding tide while waiting for pilot.

Sometimes vessels directly approaches for pilot from the south / from Anchorage “C” and fails to stop or turn due to strong tidal current and involve in collision with vessels at anchor at Anchorage “B” close to the approach channel.

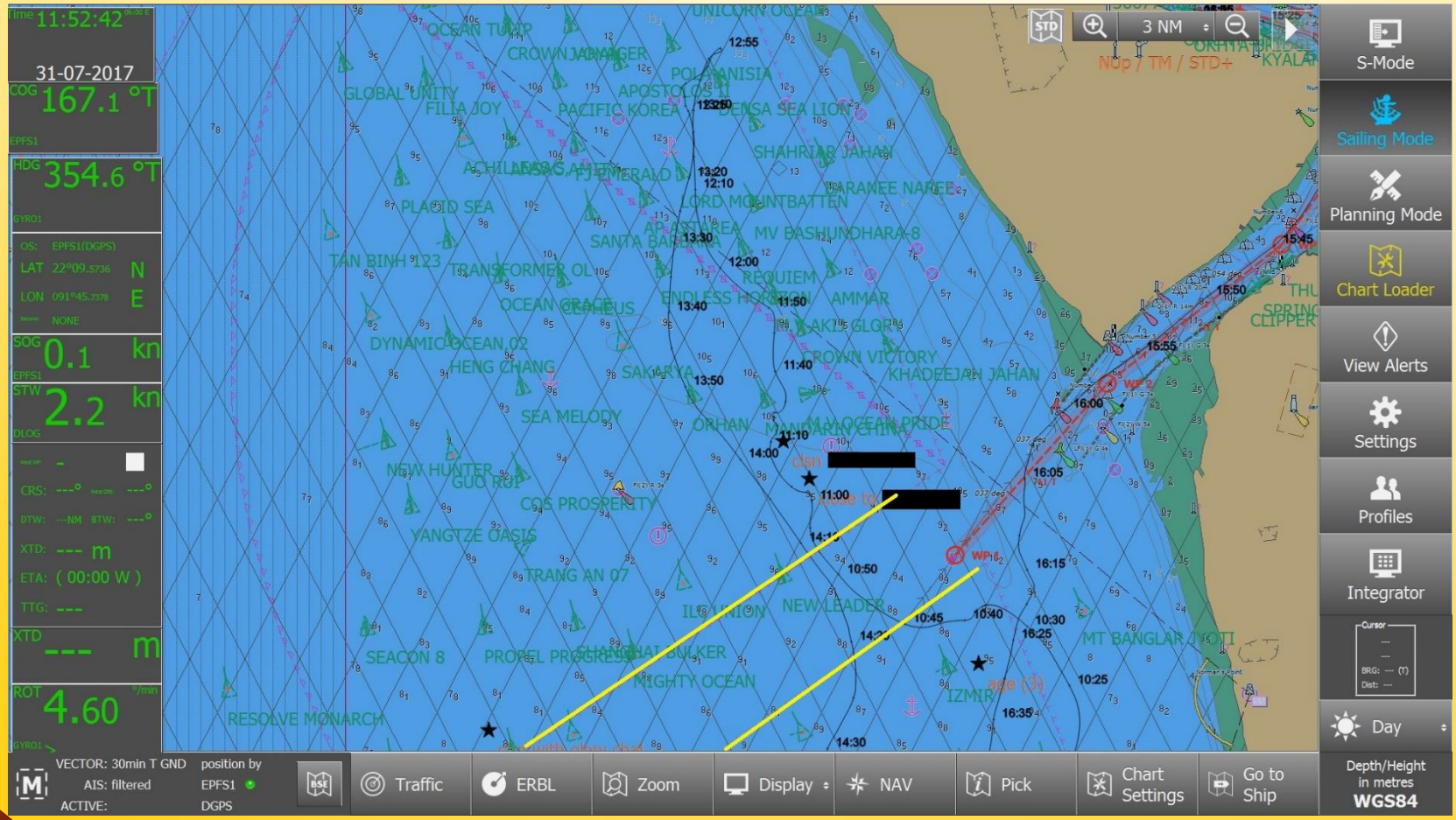
Pilot station & approach channel



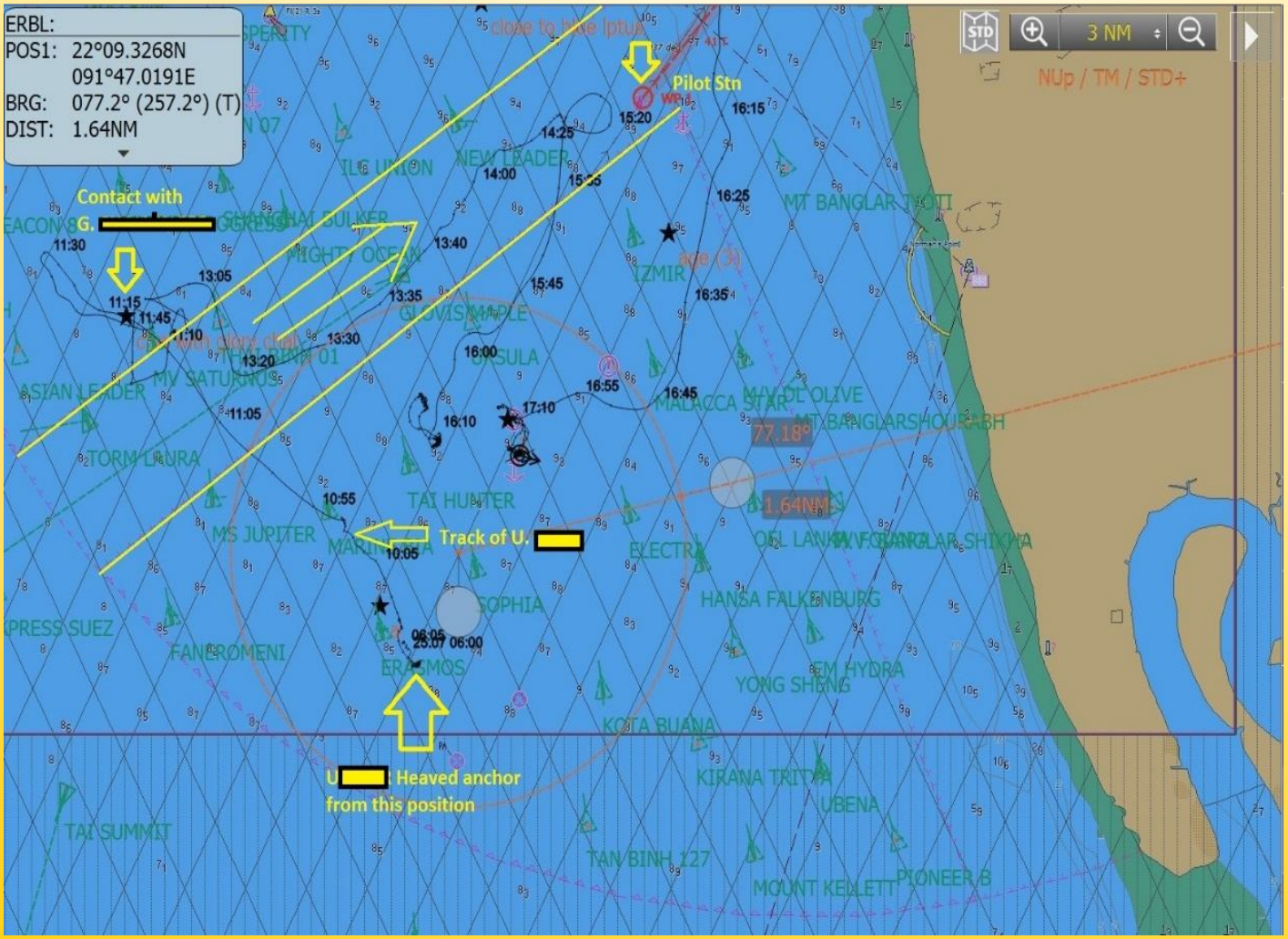
ECDIS image of incidents while picking pilot



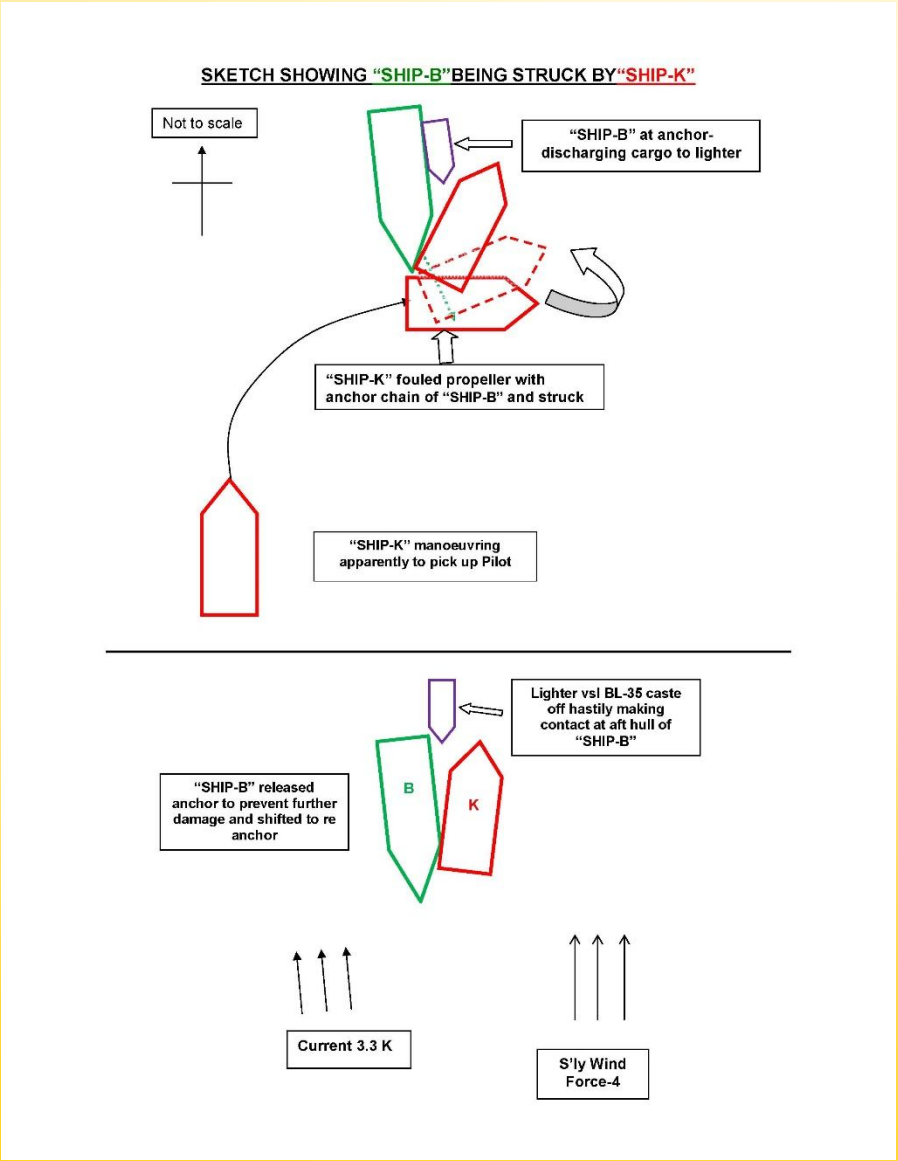
ECDIS image of incidents while picking pilot



ECDIS image of incidents while picking pilot



Sketch of incident while picking pilot



Instructions to Mariners by Port

THE CHITTAGONG PORT AUTHORITY
(MARINE DEPARTMENT)

GENERAL :

(a) The maximum permissible draft for entering and leaving Chittagong Port is 9.50 Metre.
(b) The maximum permissible length for entering Chittagong Port is 190.00* Metre.
(c) The maximum permissible entry length for night navigation is 170.00 Metre.
(d) The maximum permissible draft for Main Jetty areas i.e. Jetty no.2 to 4 is upto 7.5Metre & Jetty No. 5 to Jetty no. 13 is 8.55 Metre &
(e) The entry permissible draft would however depend on the day's maximum permissible draft.

For Master anchoring at Chittagong anchorage & entering harbour : -

(1) Anchor at a safe distance from other vessels at anchor.
(2) If the under keel clearance is less than two metres there is a possibility that you will drag your anchor. This is more prominent during spring tides and during monsoons. The tide can be as strong as 6 to 7 knots per hour.
(3) If you are lightering with other vessels alongside the chances of dragging anchor is even more.
(4) As a precaution use more chains, keep your engine standby all the times and keep the nos. of lighter vessel alongside to minimum.
(5) Keep a good anti theft lookout and employ watchmen onboard.
(6) when maneuvering for anchoring or picking pilot never attempt to cross other vessel Bow at close range. Please remember the current here is very very strong. You may ride on others cable.
(7) Deep draught vessels lightering at Alpha anchorage shall shift to Bravo or Charlie when they attain required draughts to make room for safe anchoring of newly arrived deep draft vessels.
(8) Complete reliance on ECDIS is discouraged. Cross check against upto date paper chart is advised.
(9) Vessel must have at least 12 rope for safe berthing. Tanker vessel having wire rope must have at least 4 polypropylene rope.
(10) To facilitate smooth operation, At berth master of mother vessel must allow lighter tanker/fresh water barge to stay along side as required by Harbour Master office.
(11) Vessel should have atleast 0.20M by stern trim for channel navigation to get good steering effect.
(12) While at anchor never keep any loose mooring Rope/gear on deck.

The details of berthwise permissible length and draft and details of Night Navigations and other navigational information's are given below: -

1. Vessels upto 170.00M LOA with minimum speed 10 knots, vessels LOA exceeding 170.00M and upto 190.00M with speed 12 knots may be berthed at jetties 2 to 13 draught not exceeding 8.55 Metre.

2. Vessels having maximum LOA upto 190.00M can be berthed at CCT, GSJ, NCT-1-4, DOJ-5-7 & KAFCO (A &U). Vessel having LOA 186.00M to 190.00M will be berthed at CCT, GSJ,NCT-1-4, DOJ-5-7 & K(A &U) with draught 0.50M less than the days permissible draught and LOA upto 170.00M with draught 0.50M less than the days permissible draught will be allowed to take berth at NCT-5. LOA upto 160.00M draught 9.50M at DOJ/4. LOA upto 186.00M draught 8.0M at RM/8. LOA upto 186.00M draught 6.0M at RM/9 & LOA upto 145.00M draught 7.5M at RM/10. Vessels having LOA upto 143.40M draught 8.25M and vessels having LOA more than 143.40M and upto 175.25M draught 7.90M can be berthed at TSP. Vessels having LOA upto 190.00M can be berthed at CUFLJ jetty and Vessel having LOA 186.0M to 190.00M will be allowed to take berth with draught 0.50M less than the days permissible draught not exceeding 8.50m.
* LOA upto 190.00m can be berthed at NCT-5 for interim period due to repair work at NCT-4.
***Condition apply.**

3. Vessels having LOA upto 161.00M with maximum draught 9.14M and LOA upto 170.00M with maximum draught 8.60M will be allowed to take berth at CCJ respectively subject to day's permissible draught.

4. LOA upto 190.0M and having draught not more than 7.5M may be berthed at DRY DOCK JETTY.

5. The master of all vessels should declare correct fresh water draught to the pilot before entering the Harbour. This must be done in writing if the vessels is drawing the day's maximum permissible draught or a draught within 0.15M of permissible draught. In such cases, on taking berth the draught may be checked by the Harbour Master and if the vessels draught is found more than the permissible draught, the Master will be held responsible for misdeclaration. However vessels draft in excess upto 15cm should not be denied entry.

6. INWARD ship must present themselves at Pilot ground at least 3 hours before the day light high water at outer anchorage to enter on a particular day, the entry, however, will be subject to availability of berth, permissible draught, day light, rise of tide etc. However, priority vessels such as 24/48 hrs., RORO/CONTAINER, EXPORT LOADER etc. involving another vessels to be moved out from inside the Harbour for accommodating a Quota vessel should report to Pilotage ground at least 6(six) hours before the day's predicted high water time.

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Instructions to Mariners by Port

7. OUTWARD ship of light draught will leave with first day light flood & ship with maximum draught for a particular day will leave about 2 hours before the high water.

8. SHIP MOVEMENT generally commences about 4/5 hrs. before the day's High water Time.

9. MOVEMENT OF VESSELS on the day's marked AM & PM depend upon draught, rise of tide, availability of berth & available day light. All concerned are to consult the Harbour Master 24hrs. before the movement. In such cases Ship's with day's maximum draught will be handled during AM or PM depending on the availability of day light hours.

10. DURING the spring tide/freshets/foul weather vessels under 7 knots will not be normally handled and all such vessels will be classed as GRADE-II for operational purposes and shall be handled conveniently. Agents of such vessels are required to consult the undersigned well in advance.

11. The port will not be responsible if the declared draughts are reduced due to conditions arising out of freshet effect or other causes which cannot be forecast. Owners & Owners agent are advised to consult the undersigned regarding deep draught vessels in advance.

12. Vessels entering or leaving port must have full power on main engine & deck machinery's, both anchors with full length of chain must be available for use at all time.

13. All vessels entering/leaving port shall display their signal letters.

14. (a) **Arrived/Departed Ship** : Line drawing **22°06.0′** N from land towards sea, Vessel Crossing line will be treated arrived ship (North Bound) at Chittagong Port & allocation of berth will be on first come first serve basis.
(b) VTMIS has been installed by CPA, system is running and operational round the clock.
(c) Ship Masters are required to anchor clear of the "PROHIBITED ANCHOREAGE".
(d) Ship Masters must not anchor their vessels near the River entrance.
(e) Ship Masters must manoeuvre with great care while embarking/disembarking pilots.
(f) Pilot ladder as per regulation must be provided.
(g) Ship Masters must note that the strong tidal conditions prevail at outer anchorage and utmost. care must be taken while manoeuvering anchoring or heaving up anchors.
(h) Crossing of bow at close range shall never be attempted.
(i) Vessels proceeding to anchor at Chittagong Roadsteads with more than 8.0m draft and specially vessels to be engaged in lightering operation must use at least 9 shackles of chain in water.
(j) Keep the second anchor and engines standby for immediate use. This is particularly important in monsoon season.
(k) While anchoring master should keep minimum 5 shackle distance from other vessel, and avoid Fore and Aft line of another vessel.
(l) Vessel should anchor in designated anchor berth with the approval of VTMS control room. Scrap vessel should anchor in the designated area for them.

15. Ship master are advised in their own interest to maintain watch on the Fo'castle and poop deck while the vessels are at outer anchorage.

16. Ship master must sent their ETA, DRAUGHT and other particulars to the undersigned well in advance.

17. All ships in port to provide requisite "RAT GUARDS" in the mooring ropes.

18. Ship master on arrival and prior to departure, are required to ensure that the vessels draught marks are clearly visible for pilots to read the draught correctly.

19. Ship master are required to ensure that no major chipping of ships side is carried out while their vessels are in port.

20. UNDUE "SMOKING" from the vessels funnel within the port area is strictly prohibited.

21. DICHARGING of water on the jetty and listing of vessels while alongside is strictly prohibited.

22. Karnafulli being tidal river, it is essential for vessels entering port to have six good ropes (HAWSER & WIRE) forward and similar six ropes aft. for mooring purpose.

(CONTD.....P/3)

Thank you all