

Use of GPS by Marine Pilots

Civil GPS Service Interface Committee

September 8, 2014

Tampa, FL

“What’s a Pilot?”

- * Specialized Mariner
 - * Port Specific
 - * Mandated by State and Federal Statute
 - * Assumes Navigational Control of the vessel
 - * Expert Ship Handler
 - * Traffic Coordination
 - * Moors the Vessel with/without Tug assistance

The Environment we work in



How's your commute?





BRIDGE

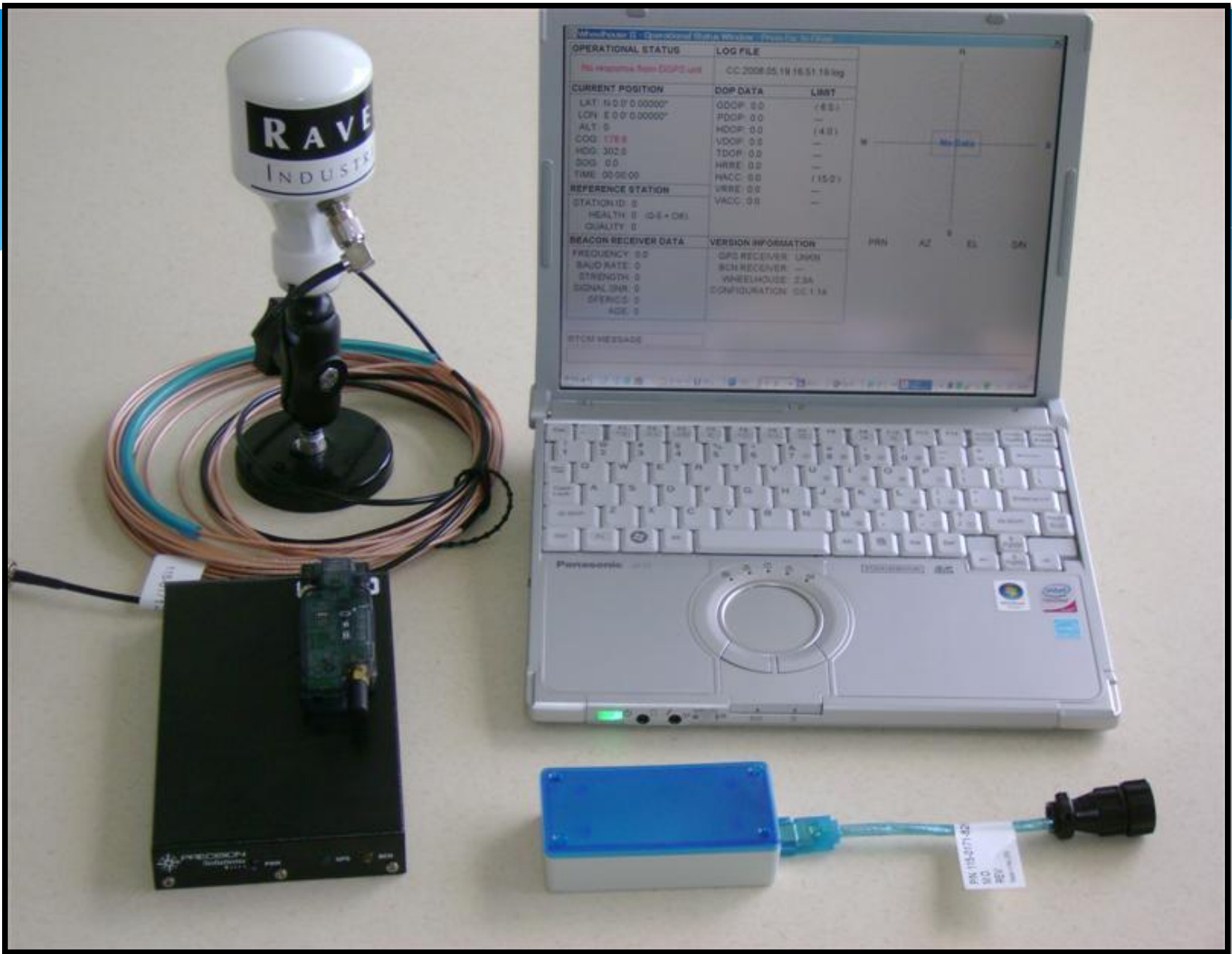


Portable Pilot Unit (PPU)

- * American Pilots' Association
 - * 1,200 State Licensed Harbor Pilots
 - * Over 2/3 of pilots use some form of PPU
 - * Constant revision
 - * User driven

P
L
A
D







NavCruiser Pro - Profile: Default - Jorge 1 - BW HAVFROST

File Edit View Tools Goto Search Layouts Charts Weather ChartUpdater Help

HDG (T)
267.0°

COG **SOG**
088.1° **-1.7 kn**

ROT
-1.1 °/min

ETA WP
N/A

XTE
N/A

Warning: Possible AIS collision suppressed!

1:4,500

Name	MMSI	Distance	COG	SOG	TCPA	Call Sign	CPA	BRG	Age
ATB BETTY	366098000	7.0 nm	068.7°	6.2 kn	1h 13m	WDE2541	4.0 nm	206.3°	< 1m
AURORA	538001356	2.672.6 ft	160.8°	0.1 kn	15m	V7BSS	90.1 ft	086.8°	1m
BAYOU BULL	367456010	7.1 nm	227.2°	0.0 kn	N/A	WDF4801	N/A	249.5°	< 1m
BUCCANEER	36833020	2.0 nm	049.0°	0.0 kn	N/A	WDD7185	N/A	315.9°	< 1m

Planning Quad Weather Jorge 1 Navsim ROT

PORTS Environmental Data

Sensor	TOD	Wind (Gust)	Tide	Current
1 PORT MANATEE	07:30	0 (0)kts@147°	1.0ft--	-.kts@---
2 ST. PETERSBURG	07:30	2 (3)kts@300°	1.1ft--	-.kts@---
3 OLD PORT TAMPA	07:30	5 (6)kts@265°	1.3ft^	-.kts@---
4 MCKAY BAY ENTR	07:30	--(--)kts@---	1.2ft^	-.kts@---
5 BERTH 223	07:24	2 (3)kts@063°	--.ft--	-.kts@---
6 SEABULK	07:24	2 (3)kts@031°	--.ft--	-.kts@---
7 TPA CRUISE TER	07:30	2 (2)kts@018°	--.ft--	-.kts@---
8 SUNSHINE SKYWA	07:26	--(--)kts@---	--.ft--	0.2kts@077°
9 OLD PORT TAMPA	07:30	--(--)kts@---	--.ft--	0.2kts@024°
10 C-CUT	07:30	4 (5)kts@271°	--.ft--	-.kts@---

Exit Time 07:44 Last Update 00:30 Timeout(min) 30



05/12/2009 07:44:13
 POS: GPS DGPS HDG: AIS
 EPE: <1m #Sats: 10

SOG: ^ 9.4kts
COG: 184°T
HDG: 186°T
ROT: 1.8°/M

Route: Alafia River to SB.txt
 Next WPT: Hillsborough Buoy 12

DST: 4629ft
BRG: 186°T
TTG: 5 min
XTD: L 30ft

<<< 500ft >>>

Selected WPT: Hillsborough Buoy

DST: 4629ft
TOA: 07:49

Vessel: Rhone
 User: Viso2day
 Warnings: OFF
 Nav reference: bridge
 Speed Vector: 3 min
 N1: dsbl N2: dsbl N3: dsbl

7:44 AM

Vessel Traffic
 Start PilotMate Display Sof...

SA
 FLE
 MINI-M
 LOA 7
 DEPTH
 TONN

X40

100%
 PrtSc Home & ScrLk Pause Insert Home PgUp
 Delete End PgDn

RAVEN

Wireless – Bluetooth DGPS Pilot Unit





36.9 M | 187.5 M
121 FT | 615 FT

Vessel Shape Editor

LOA 587ft

Bridge to bow 528ft

Beam 89ft

Port Starboard

Vessel Identification

Select Save Notes

Name Pac Dubhe

Shape

Cargo Tanker Barge

Antenna Installation Offsets

Inboard 0ft

Fore/Aft -6ft

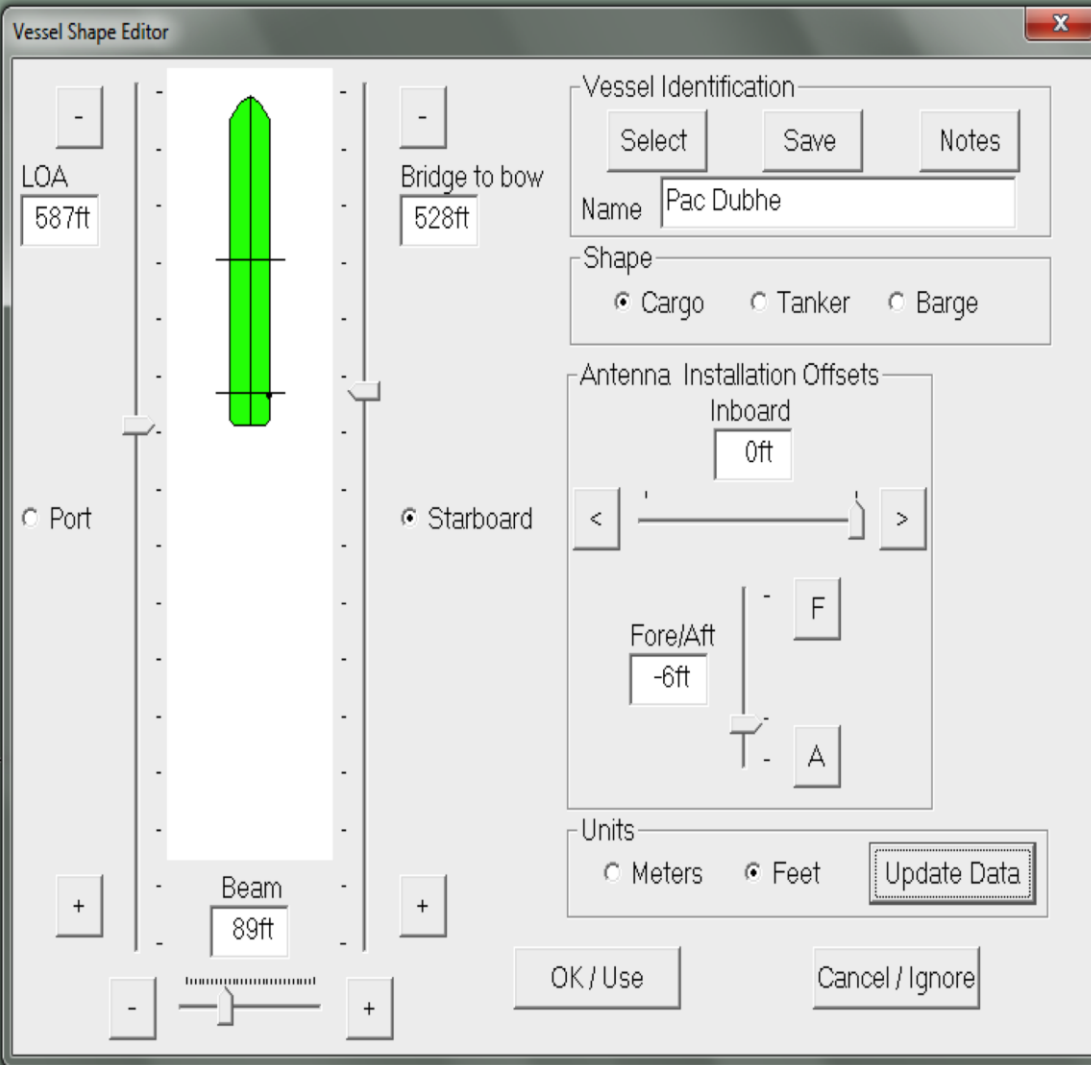
F A

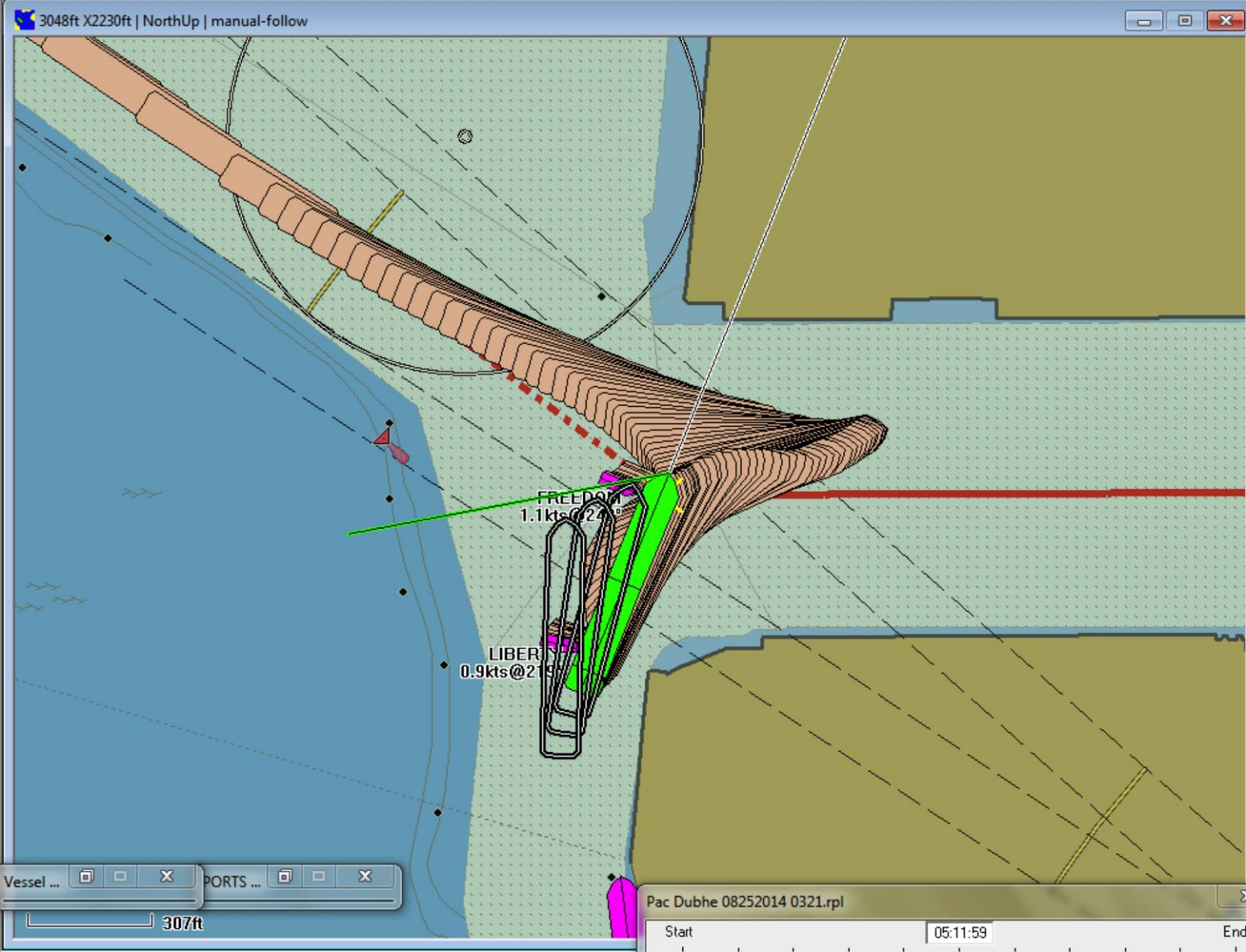
Units

Meters Feet

Update Data

OK / Use Cancel / Ignore





08/25/2014 05:11:59 RPL
 POS: DGPS HDG: HDG
 EPE: <1m #Sats: 8

SOG:v 0.8kts
COG: 217°T
HDG: 022°T
ROT: -10.2°/M

Route: SB to Port Manatee.tx
 Next WPT: Manatee ii

DST: 473ft
BRG: 023°T
TTG: 6 min
XTD: R 458ft



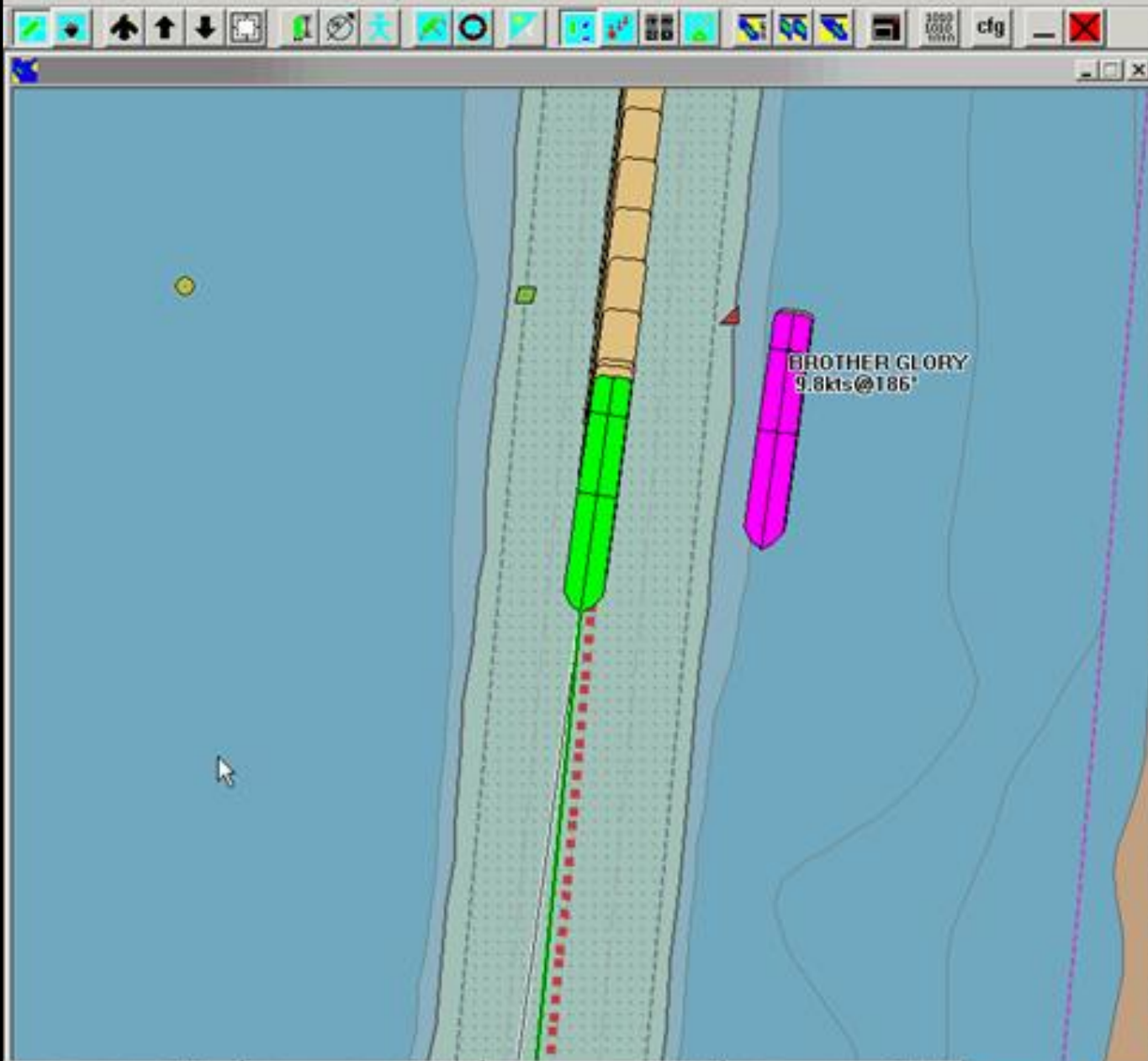
Selected WPT: Manatee i
DST: 1971ft
TOA: 05:38

Vessel: Pac Dubhe
 User: Viso Std
 Warnings: ON
 Nav reference: bridge
 Speed Vector: 6 min

Link Data Status
 GPS ● AIS ● PMServer ●

Issues

- * What do you mean by differential?
- * USCG Differential Beacons
- * WAAS issues
- * GPS Accuracy exceeds that of the chart
- * Crutch
 - * Training
- * No fall back for the commercial seagoing mariner
 - * LORAN C dismantled



10/03/2009 19:32:33 local
 POS: GPS DGPS HDG: AIS
 EPE: <2m #Sats: 10

SOG: ^ 9.8kts
COG: 186°T
HDG: 188°T
ROT: -0.0°/M

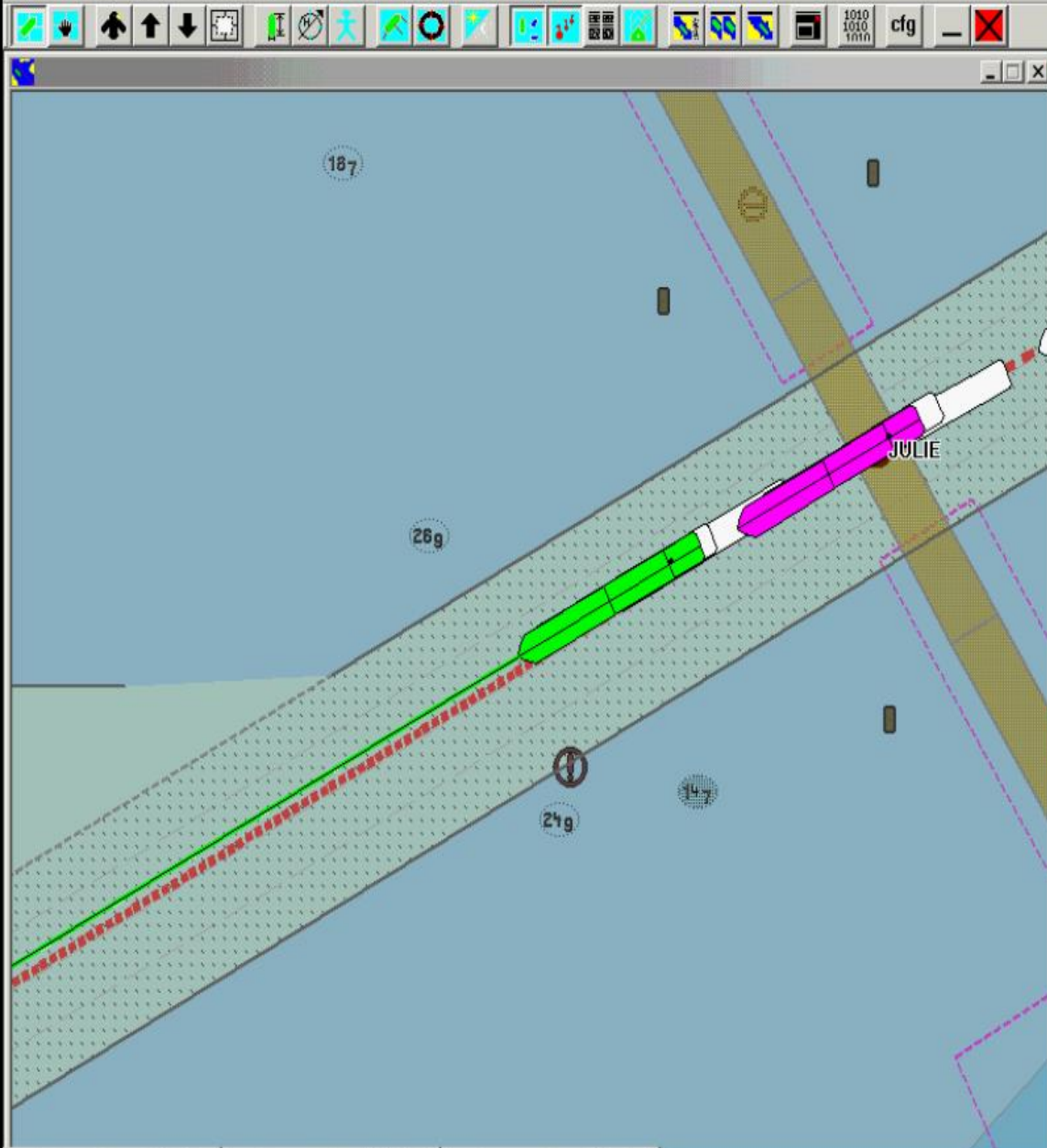
Route: East Bay to SB.txt
 Next WPT: Hillsborough Buoy 12

DST: 4.1nmi
BRG: 185°T
TTG: 25 min
XTD: L 0ft



Selected WPT: Cut C, Buoy 6C
DST: 14.2nmi
TOA: 21:00

Vessel: Brother Glory
 User: Viso2day
 Warnings: OFF
 Nav reference: bridge
 Speed Vector: 3 min



06/03/2008 01:06:29 local
 POS: GPS DGPS HDG: AIS
 EPE: <1m #Sats: 7

SOG: ^12.9kts
COG: 244°T
HDG: 243°T
ROT: 0.0°/M

Route: East Bay to SB.txt
 Next WPT: Mullet Key, Buoy 26

DST: 4843ft
BRG: 242°T
TTG: 4 min
XTD: R 23ft



Selected WPT: Mullet Key, Buoy 26

DST: 4843ft
TOA: 01:10

Vessel: Julie
 User: Viso2
 Warnings: ON
 Nav reference: bridge
 Speed Vector: 3 min

Display



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