COLUMBIA
RIVER
PILOTS
COLUMBIA RIVER
PILOTS

PROTECTING THE GREAT RIVER OF THE WEST SINCE 1846

WHO ARE THE COLUMBIA RIVER PILOTS?

COLUMBIA RIVER PILOTS

ASSOCIATION OF PROFESSIONAL MARINERS

46 TOTAL PILOTS

STATE

FEDERAL

Pilots & the Columbia / Willamette River System

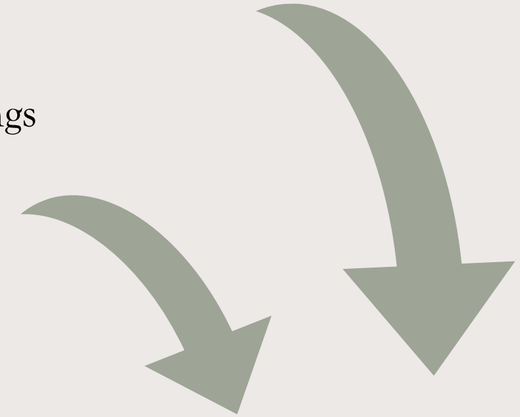
Two separate Pilotage Grounds - Two different skill sets

Columbia River Bar Pilots

Sea to Astoria - Approximately 17 miles
Experts in Heavy Weather Navigation and Bar Crossings

Columbia River Pilots

Astoria to Portland/Vancouver Area -105 miles
Astoria to Lewiston/Clarkston Area - 465 miles
Experts in River Navigation & Ship Handling



OBMP

- **Service Coverage:** Lower 7 ports on the Columbia
- **Astoria to Vancouver/ Portland:** 85-95 Miles
- **Astoria to Longview/ Kalama:** 55-65 miles

SERVICE SHIPS
24 HOURS A DAY
365 DAYS A YEAR

CLOSELY COORDINATE WITH COLUMBIA RIVER BAR PILOTS

SAFETY IS OUR #1 PRIORITY

COLUMBIA RIVER PILOTS

WHAT IS A PILOT'S JOB?

SAFE & EFFICIENT NAVIGATION & SHIP HANDLING

INBOUND TRANSITS

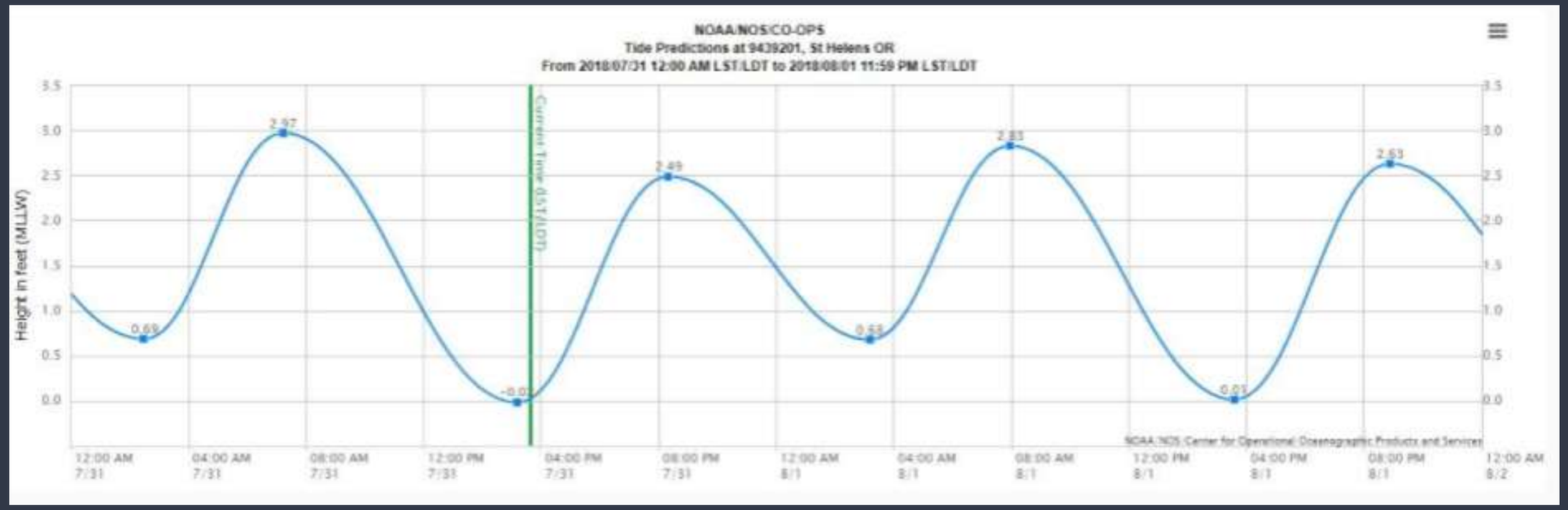
POOR HANDLING AGAINST A STRONG DOWNSTREAM CURRENT

Must arrive on a flood tide:

- >660’ and >36’ draft
- <660 whose draft is 32’ or greater
- <660’ LOA whose draft is less than 32’ but greater than or equal to 80% of its maximum draft.
- Heavy ships handle better in these conditions

OUTBOUND TRANSITS:

Deep Ship = Sailing Windows
Bar Pilot Window + River Pilot UKC Requirements

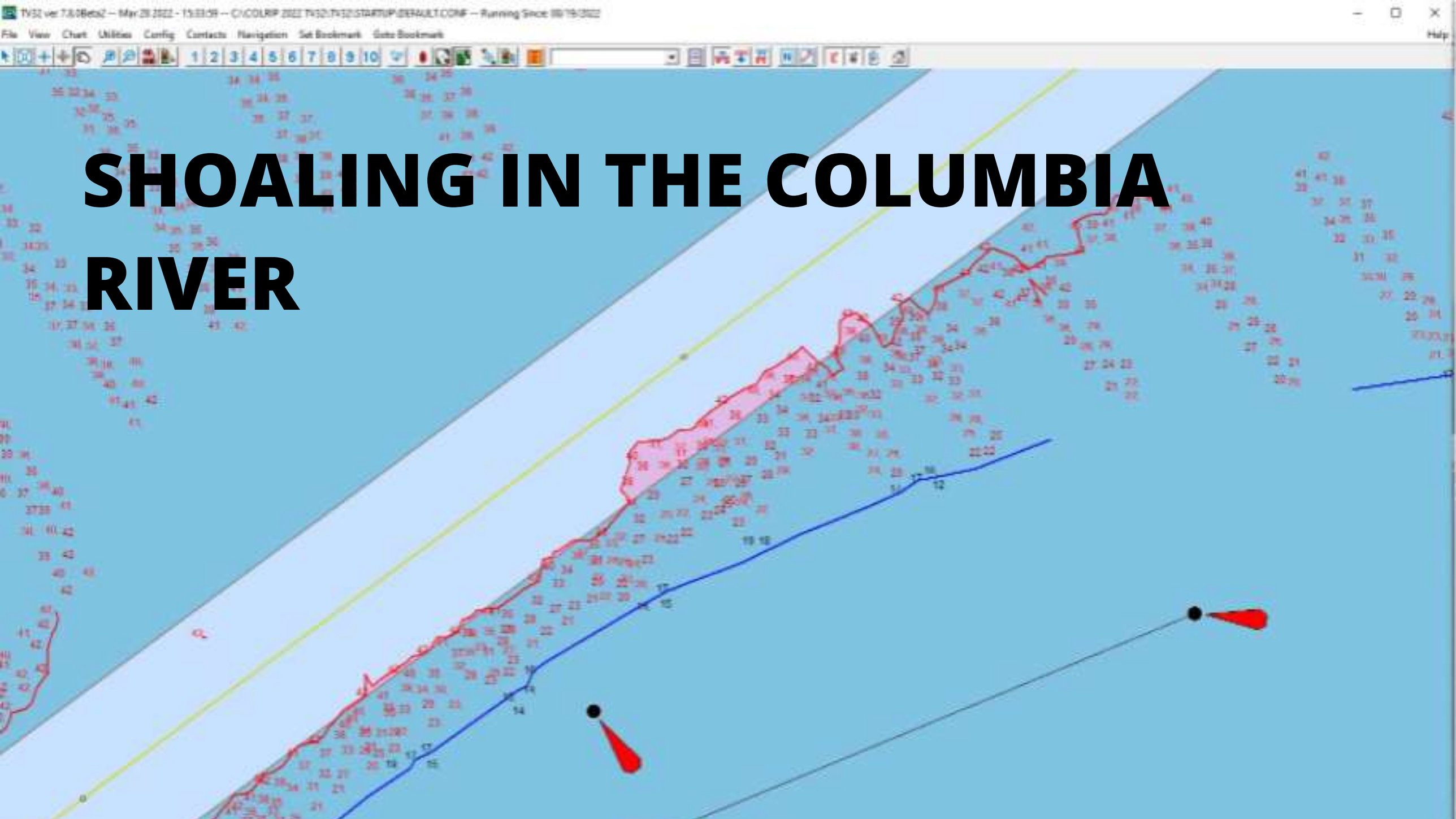


Departing Portland/Vancouver, we will encounter three tide changes. This presents a challenge when river levels are low and shoaling is present

UNDER KEEL CLEARANCE (UKC)

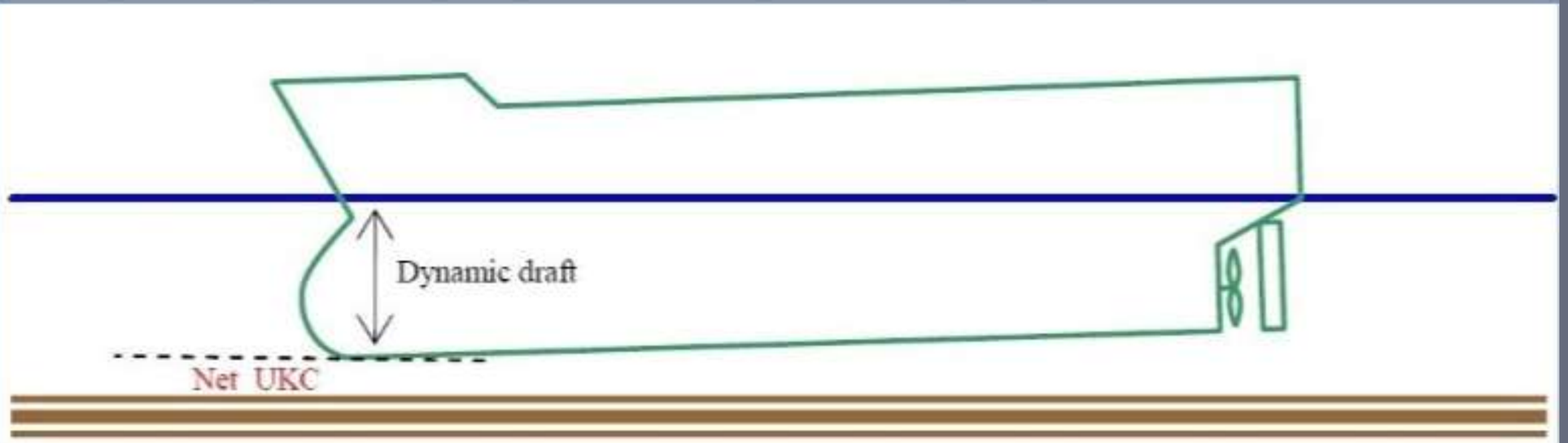
SAFETY REQUIRES 2 FEET OF UKC

- SHOALING AND RIVER LEVELS MAY NOT ALLOW FOR 2 FEET UKC IN CERTAIN AREAS AT CERTAIN TIMES
- WE MUST STRATEGICALLY USE TIDES AND RIVER LEVELS TO OUR ADVANTAGE
- SHIPS SOMETIMES HAVE TO WAIT UNTIL A HIGH TIDE TO TRANSIT SHALLOW AREAS IN THE RIVER


SHOALING IN THE COLUMBIA RIVER

REAL SCALE
IN CALM WATER
2 Feet

SQUAT / SINKAGE



PORT OF PORTLAND
Possibility. In every direction.

Service of NOAA sponsored by the Port of Portland

LOADMAX

Predicting River Levels

Eight sensors strategically placed along the river that record and broadcast river levels

Loadmax predicts river levels at these locations for several days in advance using

Considers discharge at Bonneville Dam
Tides
Flow from tributaries
Recent precipitation

PORT OF PORTLAND
In cooperation with the
Northwest River Forecast Center - Portland, OR

LOADMAX™

Columbia River Shipping Channel
Reporting and Forecasting

Printed: 7/21/2009 page: 3 of 11

		RIVER MILE						
		17	35	45	55	65 75	85	95 105
Date	Hour	ASTORIA	HENRICKSON, WASHA		BEAVER	LONGVIEW	ST. HELENS	VANCOUVER
		Gauge Reading in Feet / Flow Velocity in Feet per Second						
09/24/2009	15	3.72	3.05	3.10	2.83	3.01	2.16	2.16
09/24/2009	16	3.55	2.72	2.78	2.55	2.97	1.89	1.79
09/24/2009	17	3.96	2.76	2.79	2.46	2.82	1.66	1.27
09/24/2009	18	4.97	3.41	3.09	2.87	2.62	1.39	1.04
09/24/2009	19	6.25	4.64	4.19	3.19	2.65	1.30	0.89
09/24/2009	20	7.28	5.90	5.61	4.46	3.13	1.22	0.73
09/24/2009	21	7.47	6.79	6.60	5.41	4.30	1.63	0.85
09/24/2009	22	7.38	6.92	7.01	6.02	5.06	2.42	1.38
09/24/2009	23	6.45	6.21	6.62	6.01	5.30	3.14	2.22
09/25/2009	00	5.17	5.06	5.58	5.00	5.24	3.54	3.14
09/25/2009	01	3.62	3.87	4.41	4.06	4.68	3.58	3.47
09/25/2009	02	2.07	2.77	3.35	3.27	4.17	3.29	3.26
09/25/2009	03	0.76	1.75	2.62	2.58	3.74	2.82	2.93
09/25/2009	04	-0.13	0.79	1.86	1.98	3.10	2.37	2.33
09/25/2009	05	-0.43	0.03	1.15	1.24	2.41	1.90	1.82
09/25/2009	06	0.05	0.20	0.42	0.65	1.70	1.40	1.26
09/25/2009	07	1.04	-0.04	0.12	0.17	1.10	0.92	0.94
09/25/2009	08	3.11	1.17	0.62	0.27	0.69	0.48	0.55
09/25/2009	09	4.85	2.95	2.06	1.26	0.74	0.13	0.17
09/25/2009	10	6.17	4.50	3.50	2.78	1.40	-0.02	-0.16
09/25/2009	11	6.84	5.70	5.26	4.20	2.59	0.30	-0.27
09/25/2009	12	6.39	6.02	6.07	4.98	3.71	1.15	0.08
09/25/2009	13	5.48	5.41	5.81	5.09	4.19	2.02	0.92
09/25/2009	14	4.71	4.35	4.73	4.24	4.16	2.58	1.94
09/25/2009	15	3.74	3.46	3.70	3.35	3.57	2.65	2.54
09/25/2009	16	3.03	2.65	2.92	2.74	3.09	2.44	2.54
09/25/2009	17	2.77	2.16	2.46	2.26	2.99	2.06	2.10
09/25/2009	18	3.13	2.07	2.24	2.12	2.68	1.71	1.55
09/25/2009	19	4.06	2.61	2.56	2.09	2.29	1.36	1.11
09/25/2009	20	5.34	3.74	3.07	2.46	2.19	1.04	0.80
09/25/2009	21	6.63	5.05	4.65	3.55	2.50	0.91	0.55
09/25/2009	22	7.37	6.29	5.97	4.50	3.36	1.15	0.59
09/25/2009	23	7.91	7.05	6.87	5.66	4.52	1.81	0.89
09/26/2009	00	7.45	7.07	7.15	6.10	5.16	2.67	1.62
09/26/2009	01	6.27	6.15	6.66	6.07	5.39	3.32	2.66
09/26/2009	02	4.53	4.62	5.46	4.93	5.27	3.65	3.34
09/26/2009	03	2.55	3.42	4.10	3.59	4.65	3.65	3.60
09/26/2009	04	0.84	2.14	3.00	2.95	4.07	3.29	3.41
09/26/2009	05	-0.27	0.91	2.21	2.25	3.49	2.77	2.91
09/26/2009	06	-0.81	-0.03	1.22	1.54	2.79	2.25	2.25
09/26/2009	07	-0.26	-0.53	0.48	0.77	2.04	1.77	1.75
09/26/2009	08	1.23	-0.21	0.07	0.17	1.35	1.25	1.26
09/26/2009	09	3.26	1.13	0.54	0.30	0.87	0.76	0.83
09/26/2009	10	5.29	3.10	2.12	1.35	0.64	0.35	0.43
09/26/2009	11	6.75	4.94	4.13	3.01	1.54	0.16	0.05
09/26/2009	12	7.50	6.29	5.59	4.65	2.95	0.48	-0.07
09/26/2009	13	6.96	6.65	6.67	5.57	4.26	1.45	0.25
09/26/2009	14	5.95	5.59	6.36	5.55	4.83	2.45	1.26
09/26/2009	15	4.67	4.55	5.14	4.64	4.72	3.00	2.41
09/26/2009	16	3.80	3.35	3.58	3.55	4.01	3.10	3.04
09/26/2009	17	3.19	2.96	2.54	2.74	3.37	2.82	3.04
09/26/2009	18	1.62	1.59	2.24	2.23	3.09	2.37	2.54
09/26/2009	19	2.25	1.36	1.82	1.79	2.62	1.94	1.91
09/26/2009	20	3.44	1.87	1.74	1.59	2.14	1.62	1.40
09/26/2009	21	5.07	3.19	2.46	1.97	1.88	1.12	1.02
09/26/2009	22	6.68	4.84	4.21	3.10	2.15	0.88	0.75

Caution: Unverified National Ocean Service Data

The Columbia River Level Reporting and Forecasting System ("system") is experimental and based upon data generated by the National Oceanic and Atmospheric Administration ("NOAA"). The forecast provided by the system is an estimate and must be used by a prudent navigator only after evaluation of the actual state of the river. Only recipients authorized by the Port of Portland ("Port") may use the data generated by the system and then only in accordance with other more timely information gathered by a Columbia River Pilot on the scene. The recipient agrees that it shall not sell, republish, or redistribute any system data. In the event that an agent provides a copy of this report to its principle, the agent shall ensure that this disclaimer appears on the report.

LOADMAX EXAMPLE

When these components don’t come together, we end up with…

DRAFT RESTRICTIONS

This can virtually be eliminated by:

- A properly funded channel maintenance program

- Close coordination between COLRIP, USACE, CRSOA

OUR CHANNEL PARTNERS

Port of Portland Dredge OREGON

Corps of Engineers Hopper Dredge ESSAYONS

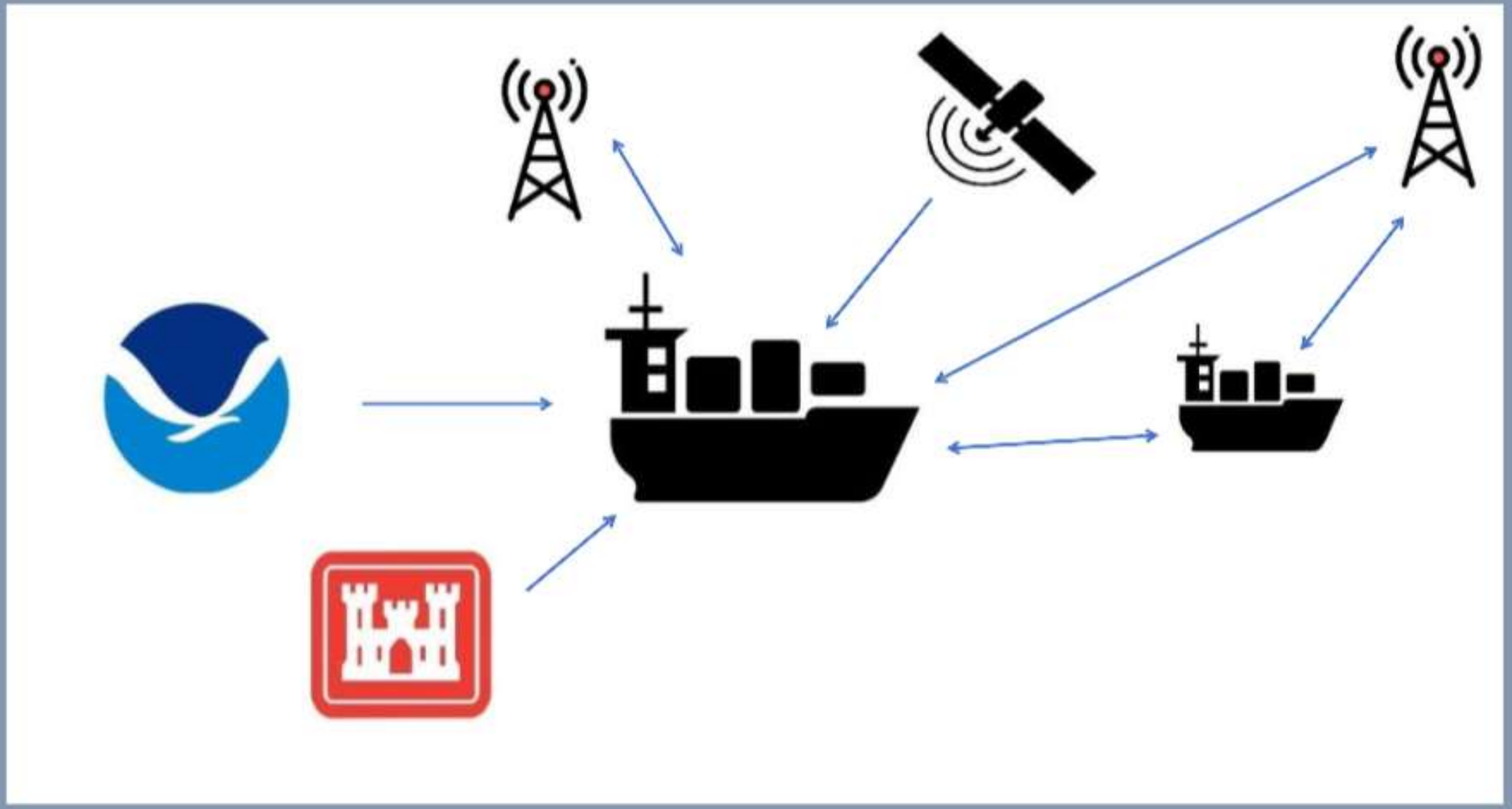
COLRIP Partners with the Port of Portland and the Army Corps ofEngineers to evaluate river conditions for maintenance dredging

The USACE completes surveys every 30-60 days

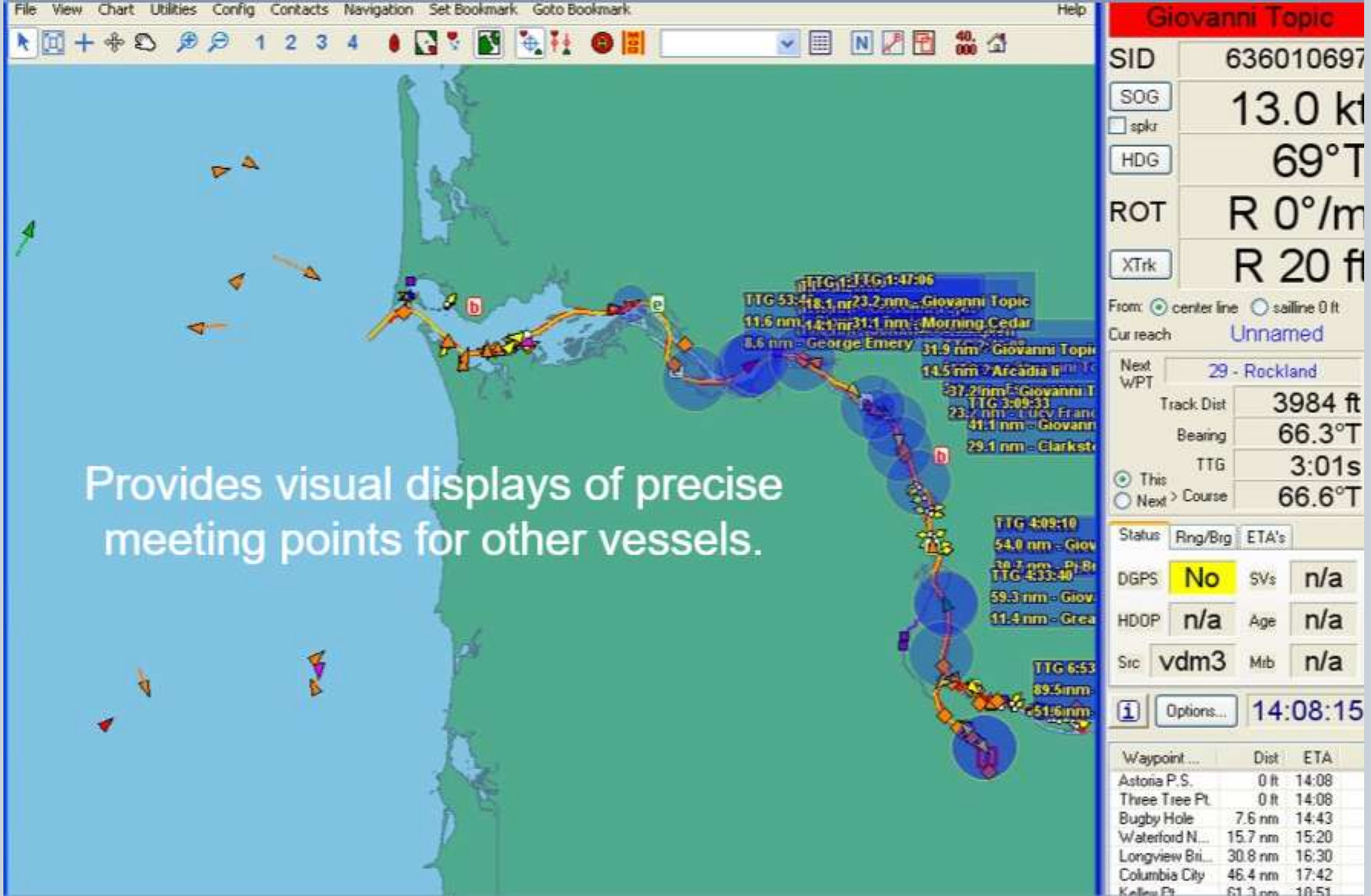
VESSEL TRAFFIC INFORMATION SYSTEM (VTIS)

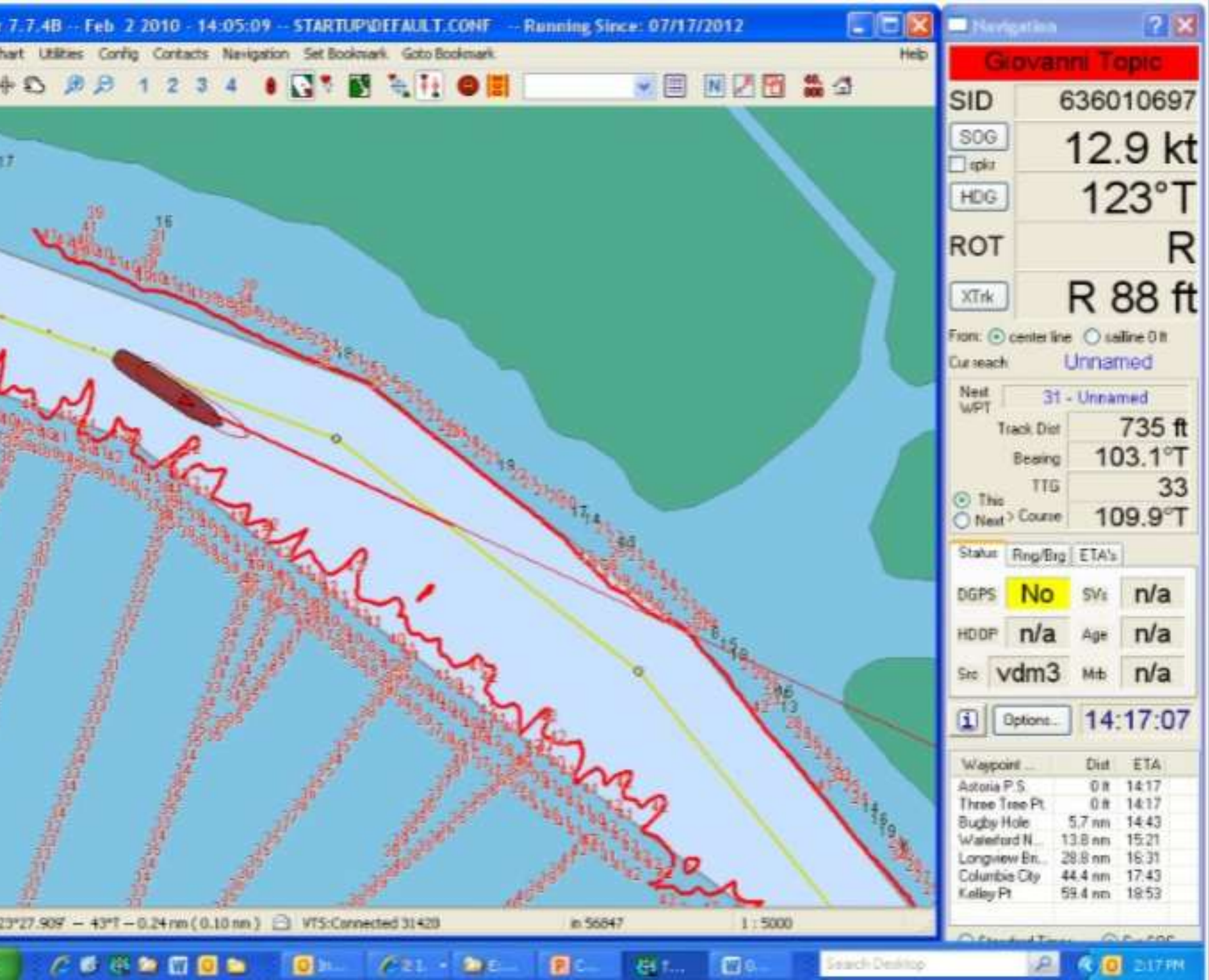
1	• Manned center is not required
2	• 2 relay towers cover entire route
3	• Real-time environmental data
4	• Most recent survey data
5	• Continual broadcasting using AIS

VTIS VESSEL TRAFFIC INFORMATION SYSTEM



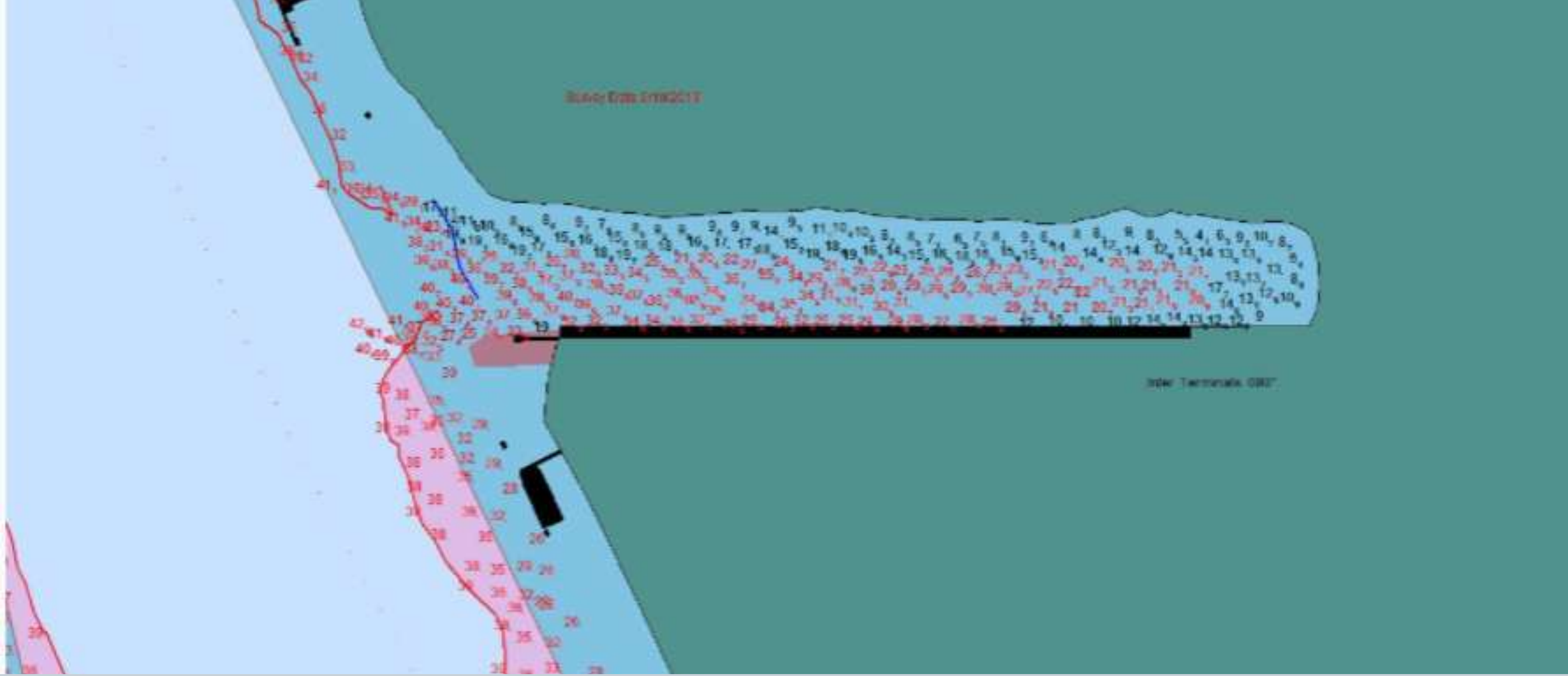
b
e
c
e
b
Two towers allow us to see the
entire river at a glance


File View Chart Utilities Config Contacts Navigation Set Bookmark Goto Bookmark Help
Giovanni Topic
SID 636010697
SOG 13.0 kt
spkr
HDG 69°T
ROT R 0°/m
XTrk R 20 ft
From: center line sailline 0 ft
Cur reach Unnamed
Next WPT 29 - Rockland
Track Dist 3984 ft
Bearing 66.3°T
TTG 3:01s
This Next > Course 66.6°T
Status Rng/Brg ETA's
DGPS No SVs n/a
HDOP n/a Age n/a
Src vdm3 Mrb n/a
Options... 14:08:15
Waypoint ... Dist ETA
Astoria P.S. 0 ft 14:08
Three Tree Pt. 0 ft 14:08
Bugby Hole 7.6 nm 14:43
Waterford N... 15.7 nm 15:20
Longview Bri... 30.8 nm 16:30
Columbia City 46.4 nm 17:42
Provides visual displays of precise meeting points for other vessels.



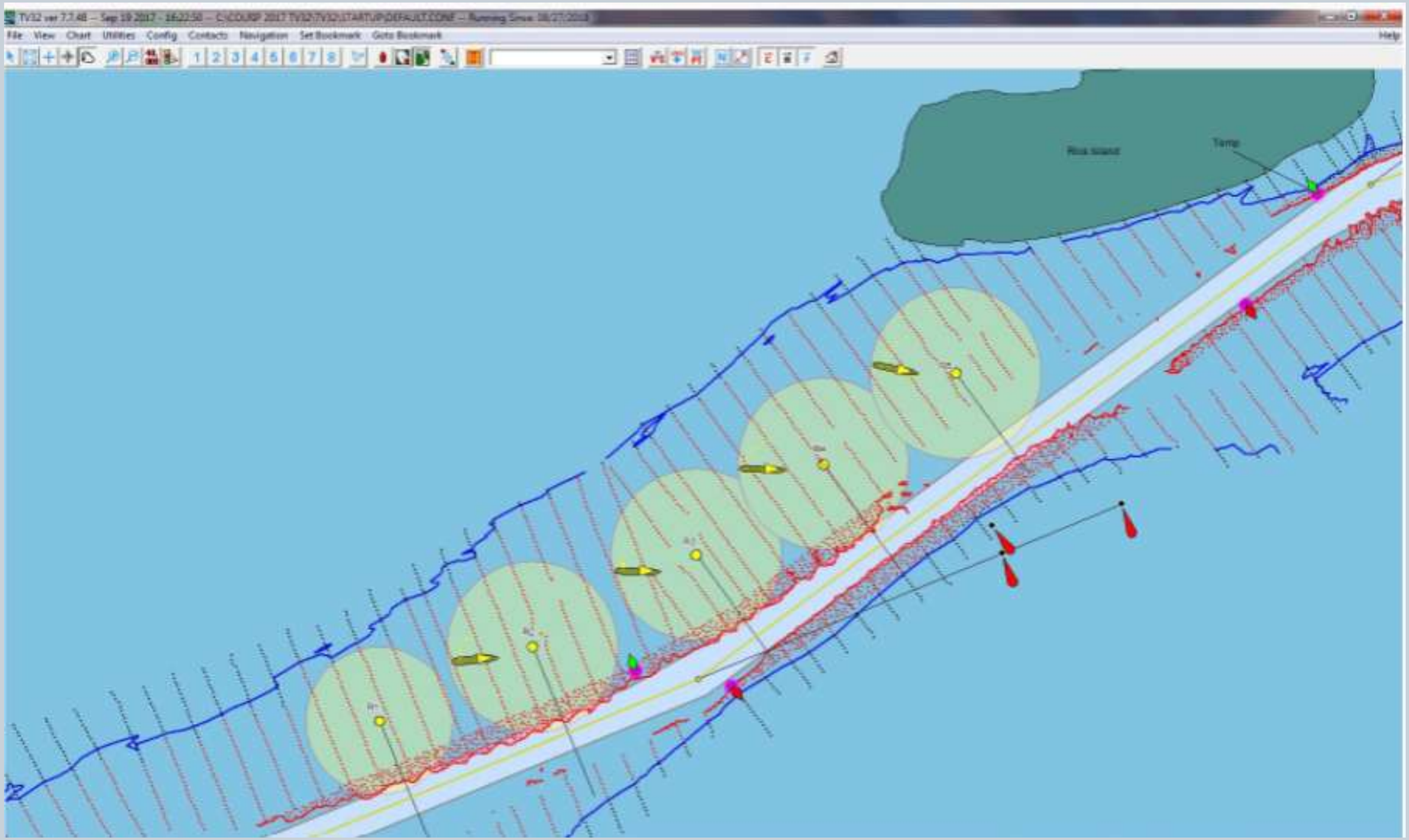
The first system in the United States able to display COE survey data; technology we pioneered

COLUMBIA RIVER PILOTS



DEPTH SURVEYS FOR PRIVATE FACILITIES

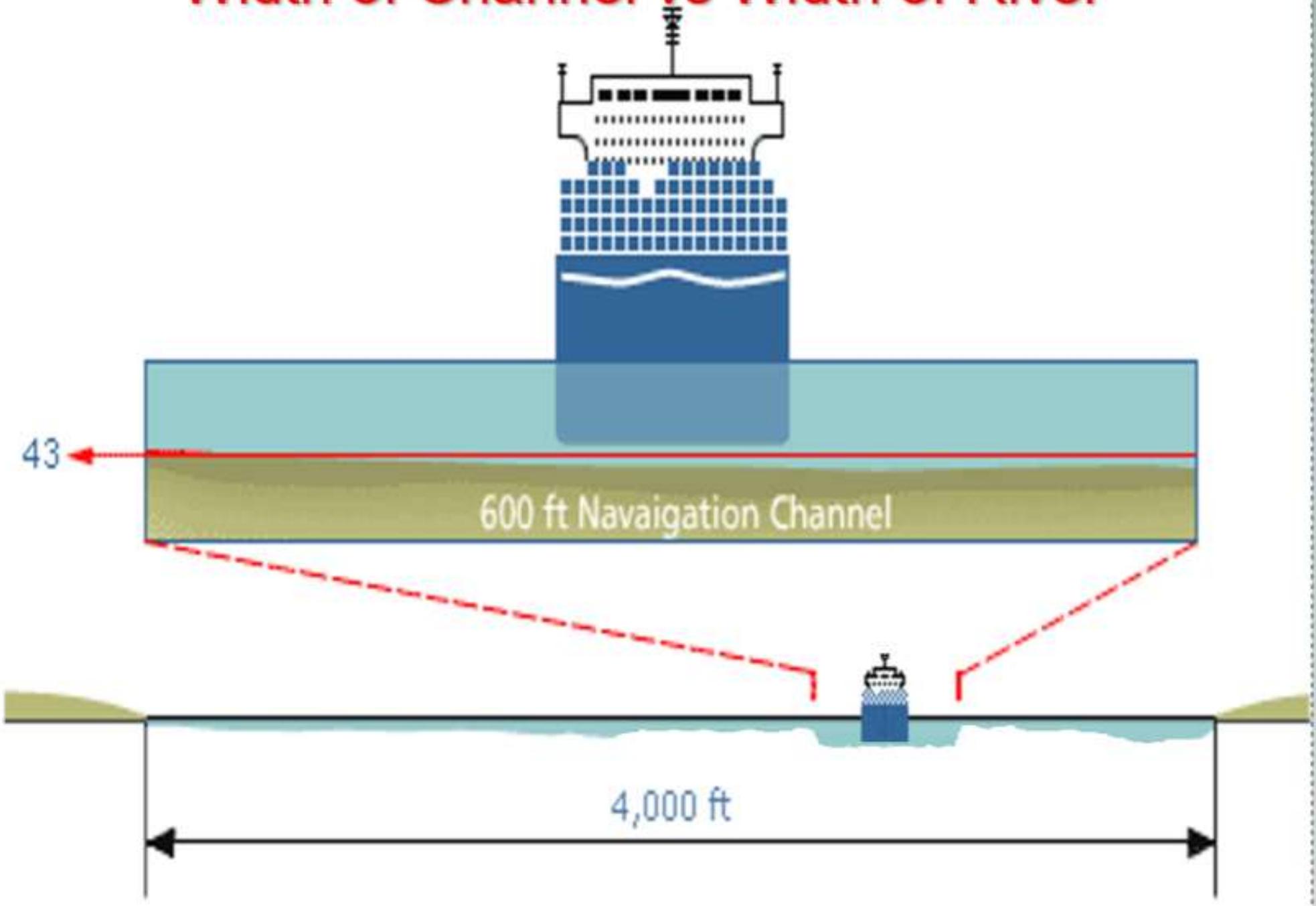
ANCHORAGE LOCATION & MONITORING



A FEW CHALLENGES...

GOING TO WORK

Width of Channel vs Width of River



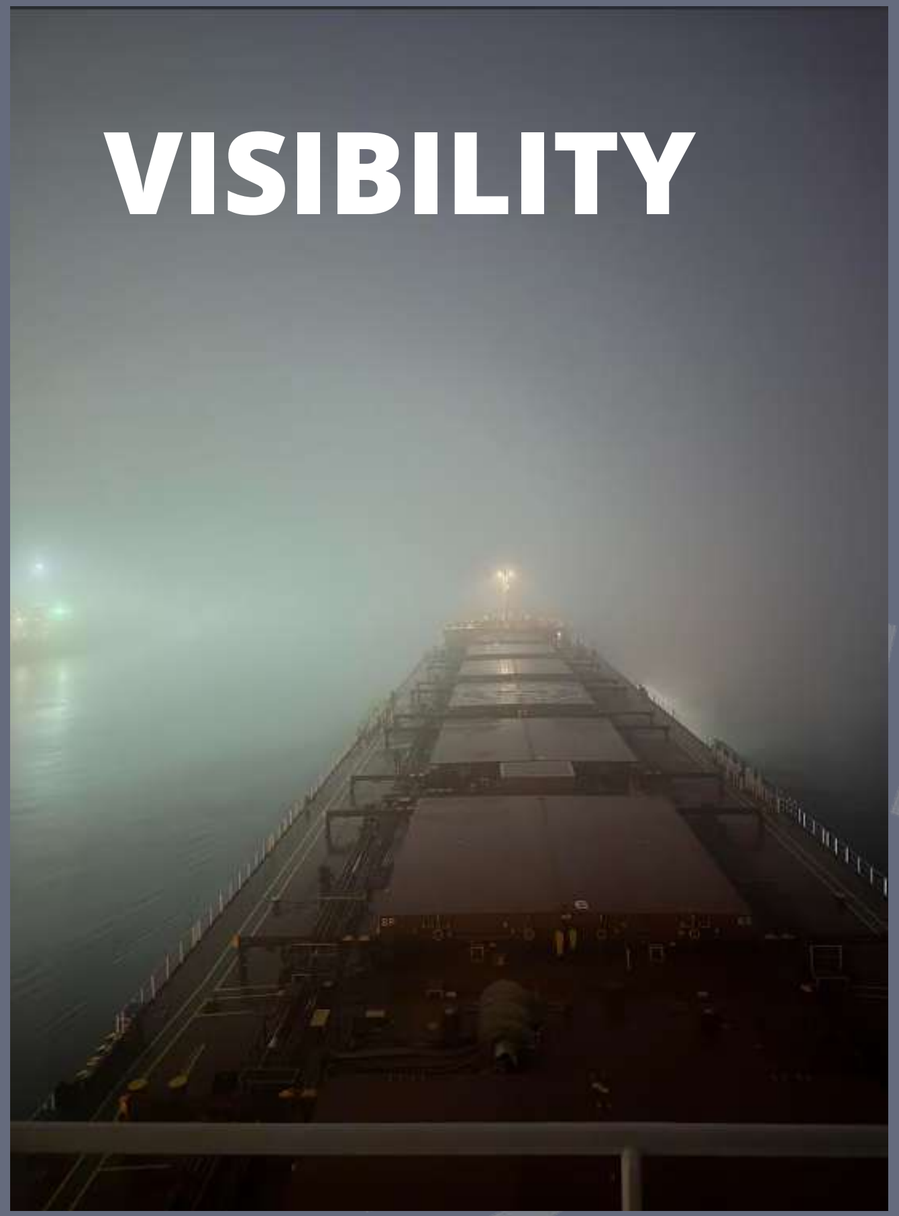
MSC Katie – 1200’, 120 stories
Wells Fargo Tower - 546', 40 stories
US Bancorp Tower - 536', 40 stories
KOIN Tower - 509', 35 stories
MSC

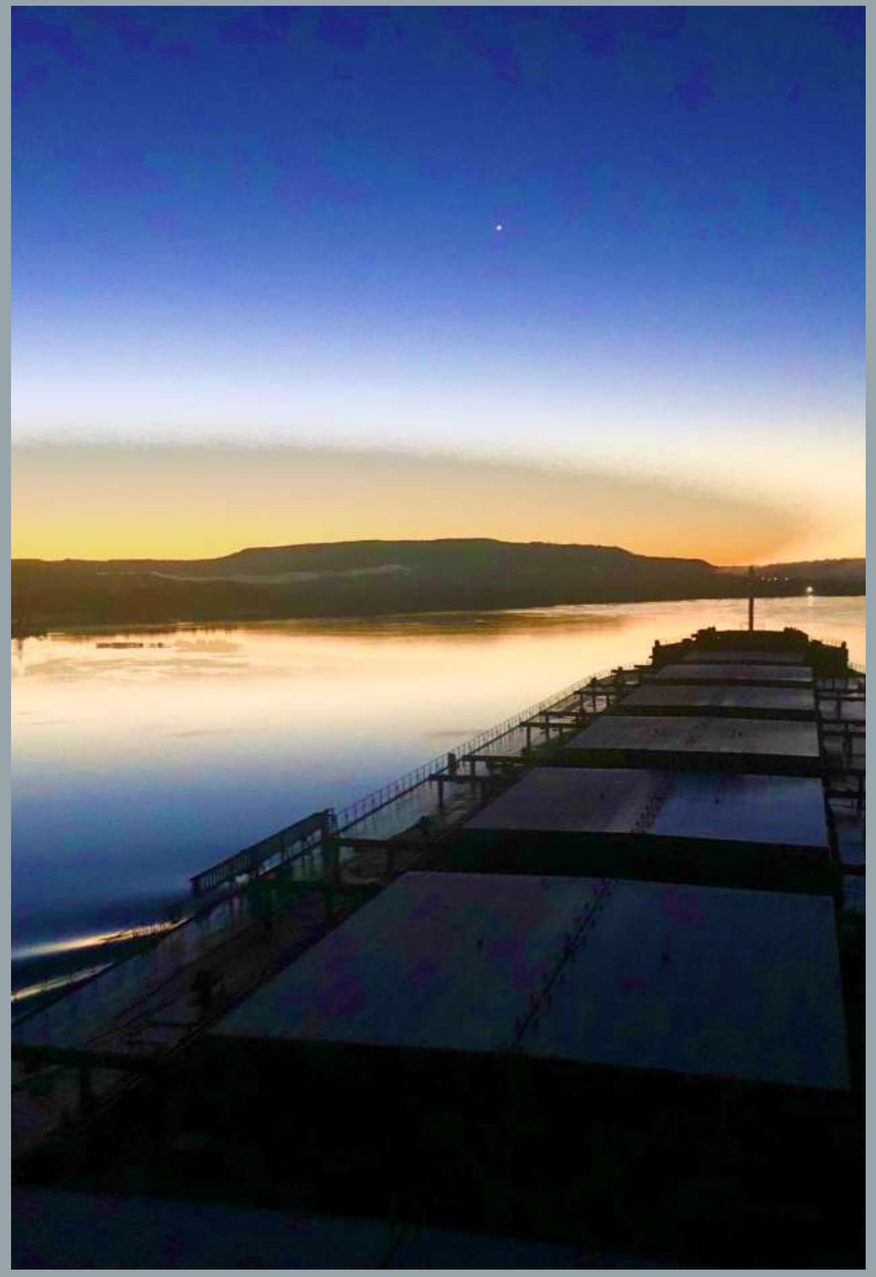
AIR DRAFT

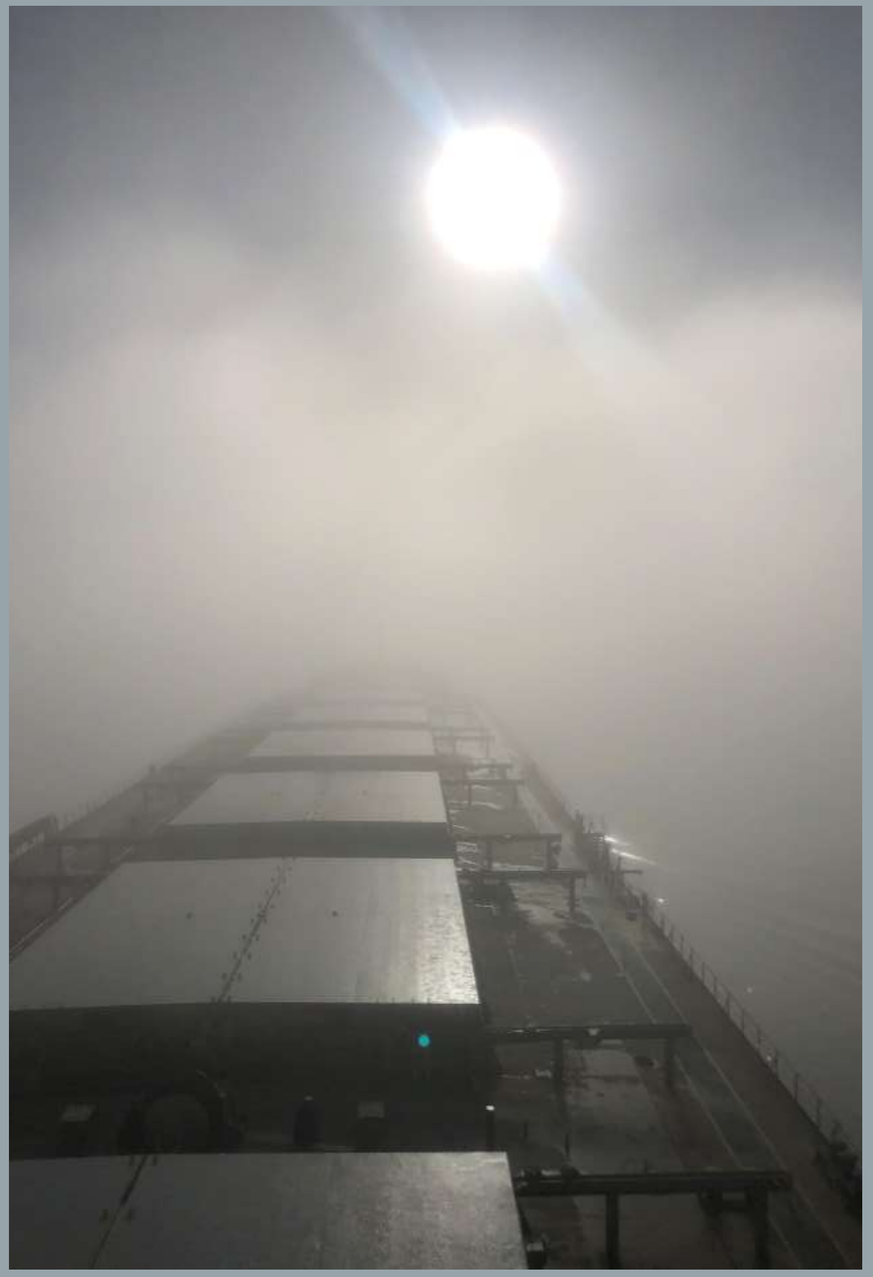
Medallion Net
Medallion Net

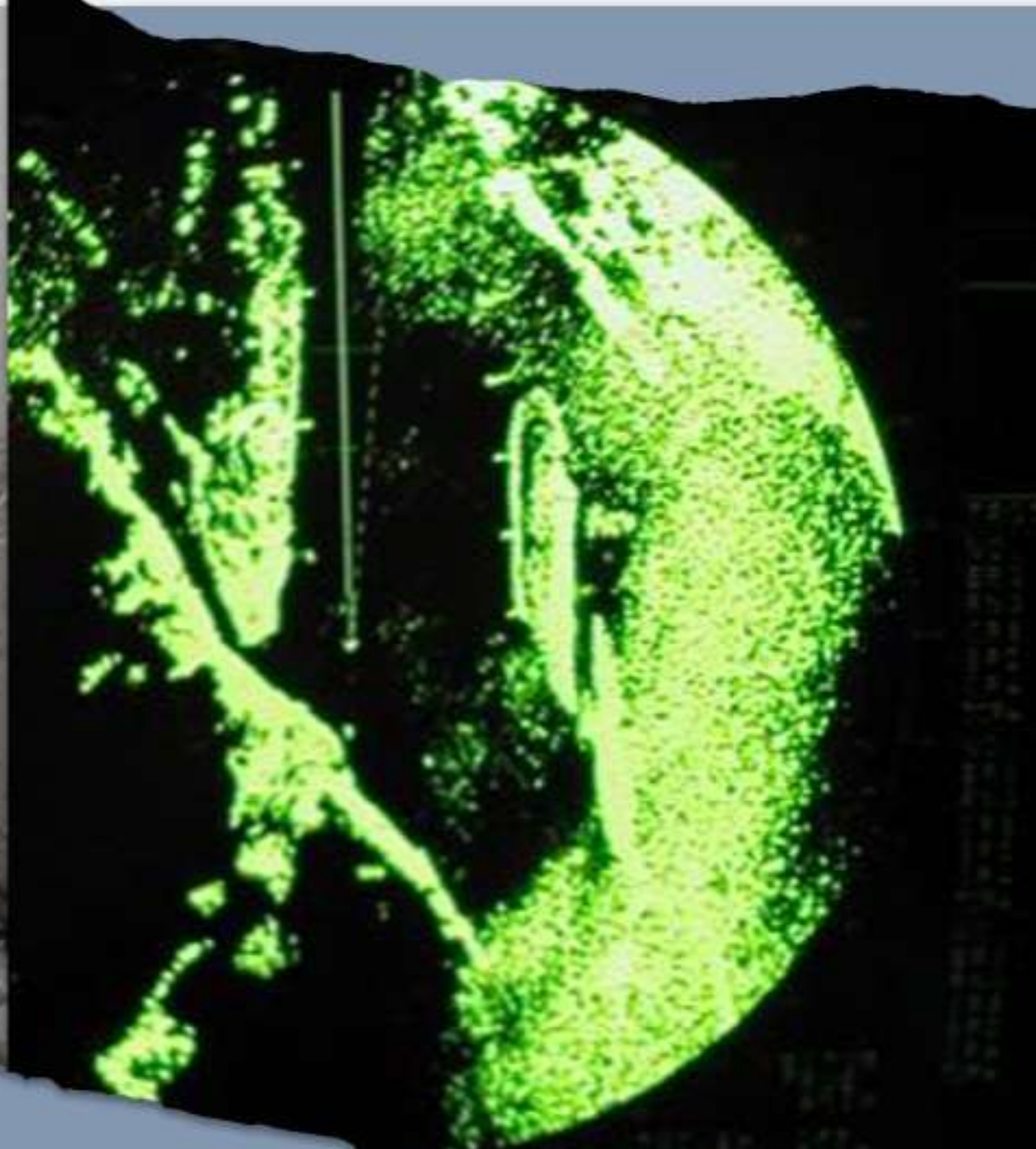
Celebrity ECLIPSE

VISIBILITY









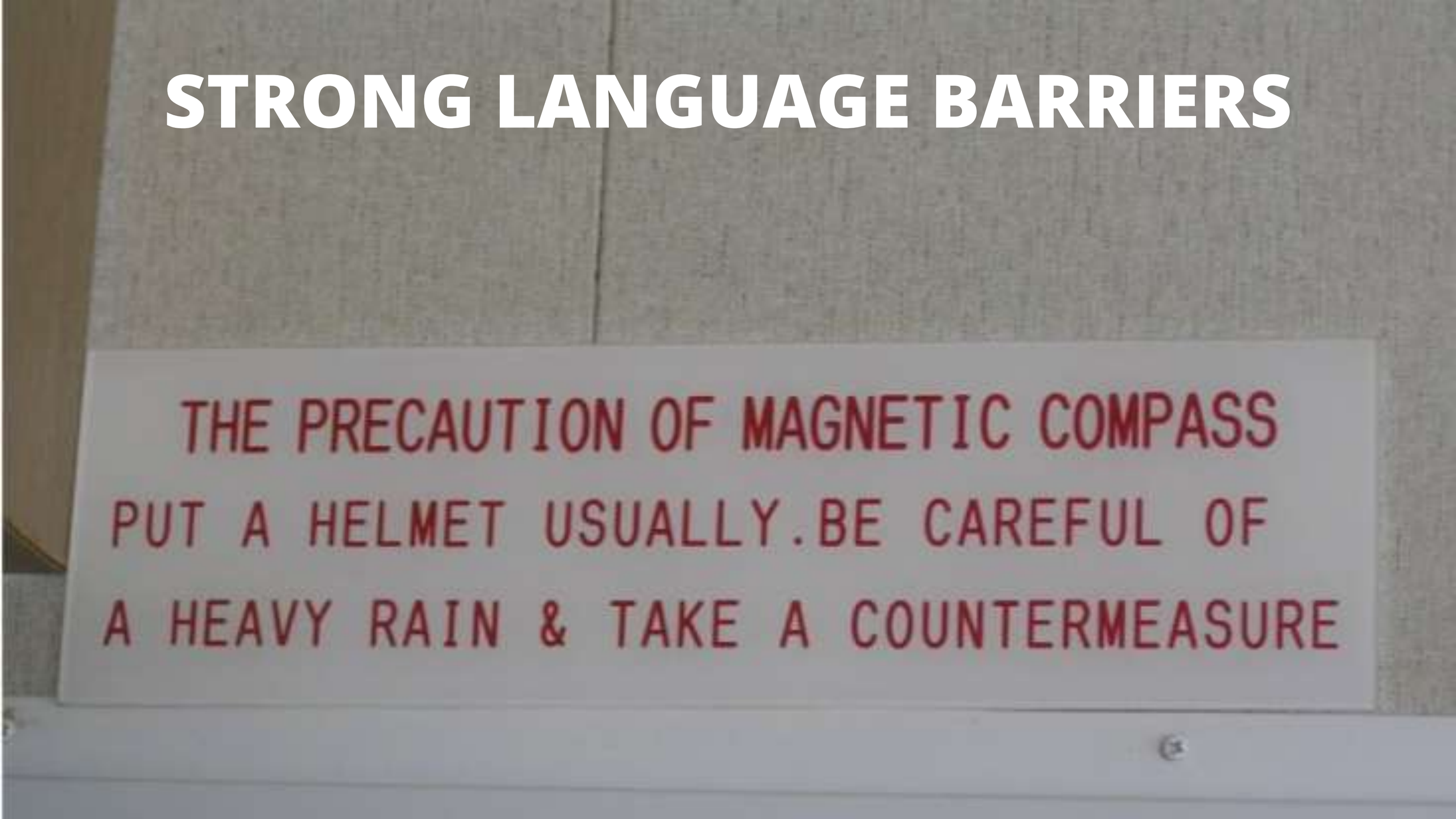
WEATHER

POORLY MAINTAINED EQUIPMENT

INTERESTING FOOD

That wasn't chicken.

STRONG LANGUAGE BARRIERS



6P
6
6S

NEEDS TO IMPROVE SAFETY & EFFICIENCY:

- ANCHOR BUOYS
- RIVER LEVEL SENSORS
- AIR DRAFT CLEARANCE SENSORS
- RECREATIONAL USER EDUCATION & ENFORCEMENT

COLUMBIA RIVER PILOTS

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