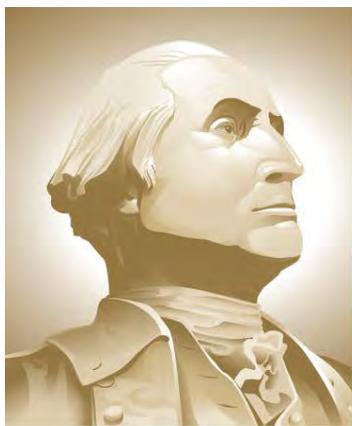


# VTRA 2010 POTENTIAL GROUNDING OIL FUEL AND CARGO LOSSES BY ALL FV, CARGO – FV and TANK- FV

Presentation by: J. Rene van Dorp



THE GEORGE  
WASHINGTON  
UNIVERSITY

WASHINGTON, DC

VCU

## 2010 BASE CASE

**GWU Personnel:** Dr. J. Rene van Dorp

**VCU Personnel:** Dr. Jason R. W. Merrick

## AUGUST 20, 2013

PRELIMINARY

# Table. Focus Vessel (FV) Classification for the 26 VTOSS vessel type classification used in the GW/VCU MTS simulation model.

**NON – FV** : Those vessels that are only considered as Interacting Vessels (IV) with Focus Vessels (FV) in this study

**CARGO – FV** : Bulk Carriers, Container Vessels, Other Cargo Vessels

**TANK – FV** : Oil Barge, Oil Tankers, Chem-Carrier, ATB

**Note:** Focus Vessels (FV's) are also considered as Interacting Vessels (IV's) when interacting with another Focus Vessel.

#	VESSEL TYPE	FOCUS VESSEL?	#	VESSEL TYPE	FOCUS VESSEL?
1	BULKCARRIER	<b>CARGO - FV</b>	14	PASSENGERSHIP	NO
2	CHEMICALCARRIER	<b>TANK - FV</b>	15	REFRIGERATEDCARGO	<b>CARGO-FV</b>
3	CONTAINERSHIP	<b>CARGO - FV</b>	16	RESEARCHSHIP	NO
4	DECKSHIPCARGO	<b>CARGO - FV</b>	17	ROROCARGOSHIP	<b>CARGO-FV</b>
5	FERRY	NO	18	ROROCARGOCONTSHIP	<b>CARGO-FV</b>
6	FERRYNONLOCAL	NO	19	SUPPLYOFFSHORE	NO
7	FISHINGFACTORY	NO	20	TUGTOWBARGE	NO
8	FISHINGVESSEL	NO	21	UNKNOWN	NO
9	LIQGASCARRIER	<b>TANK - FV</b>	22	USCOASTGUARD	NO
10	NAVYVESSEL	NO	23	VEHICLECARRIER	<b>CARGO-FV</b>
11	OILTANKER	<b>TANK - FV</b>	24	YACHT	NO
12	OTHERSPECIALCARGO	<b>CARGO - FV</b>	25	ATB	<b>TANK - FV</b>
13	OTHERSPECIFICSERV	NO	26	OIL BARGE	<b>TANK - FV</b>

# IMPORTANT:

THE OPERATIVE WORD IN PRESENTING THESE ANALYSIS RESULTS IS THE USE OF THE WORD

# POTENTIAL

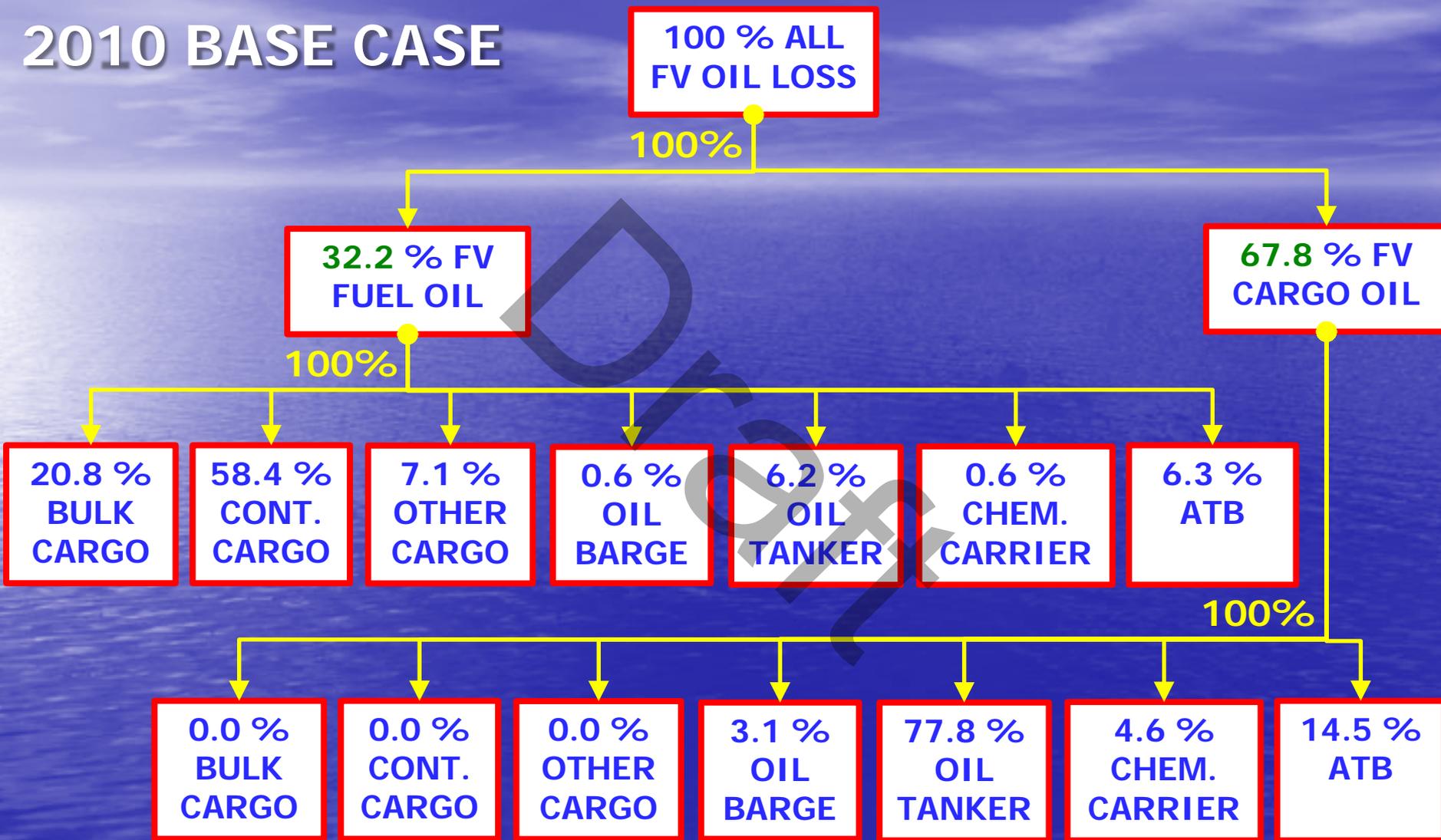
TO INDICATE THAT THESE ANALYSIS RESULTS DO NOT FOLLOW FROM AN HISTORICAL DATA ANALYSIS, BUT THROUGH THE USE OF AN ANALYSIS TOOL THAT EVALUATES SUCH **POTENTIAL**.

THE 2010 YEAR IS CONSIDERED **THE BASE CASE YEAR** AND A BASE CASE YEAR POTENTIAL IS EVALUATED.

NEXT, **WHAT-IF SCENARIOS** ARE DEVELOPED FROM THE BASE CASE BY ADDING ADDITIONAL HYPOTHETICAL TRAFFIC AND A WHAT-IF POTENTIAL IS EVALUATED AND COMPARED **RELATIVE TO THE BASE CASE** TO INFORM **RISK MANAGEMENT**.

# A TAXONOMY OF 2010 FOCUS VESSEL POTENTIAL ANNUAL GROUNDING OIL LOSS – POWER, DRIFT, ALLISSIONS

## 2010 BASE CASE

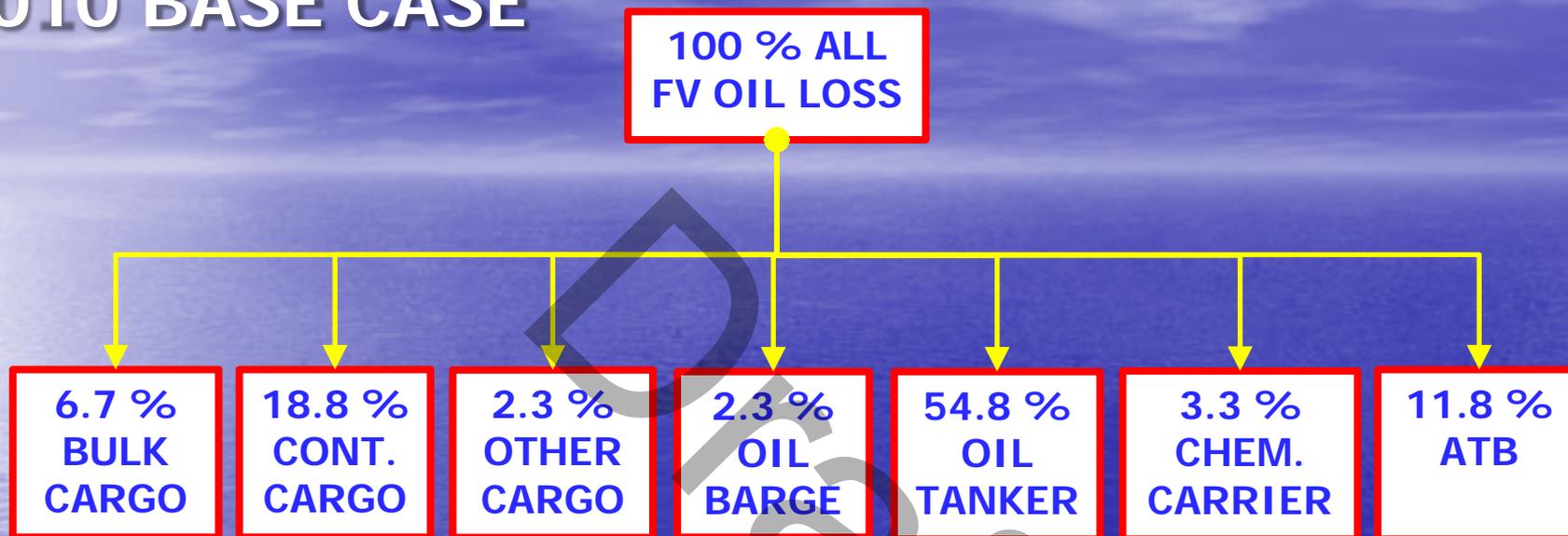


PGO : POTENTIAL GROUNDING OIL LOSSES - PER YEAR

# A TAXONOMY OF 2010 FOCUS VESSEL

## POTENTIAL ANNUAL GROUNDING OIL LOSS – POWER, DRIFT, ALLISSIONS

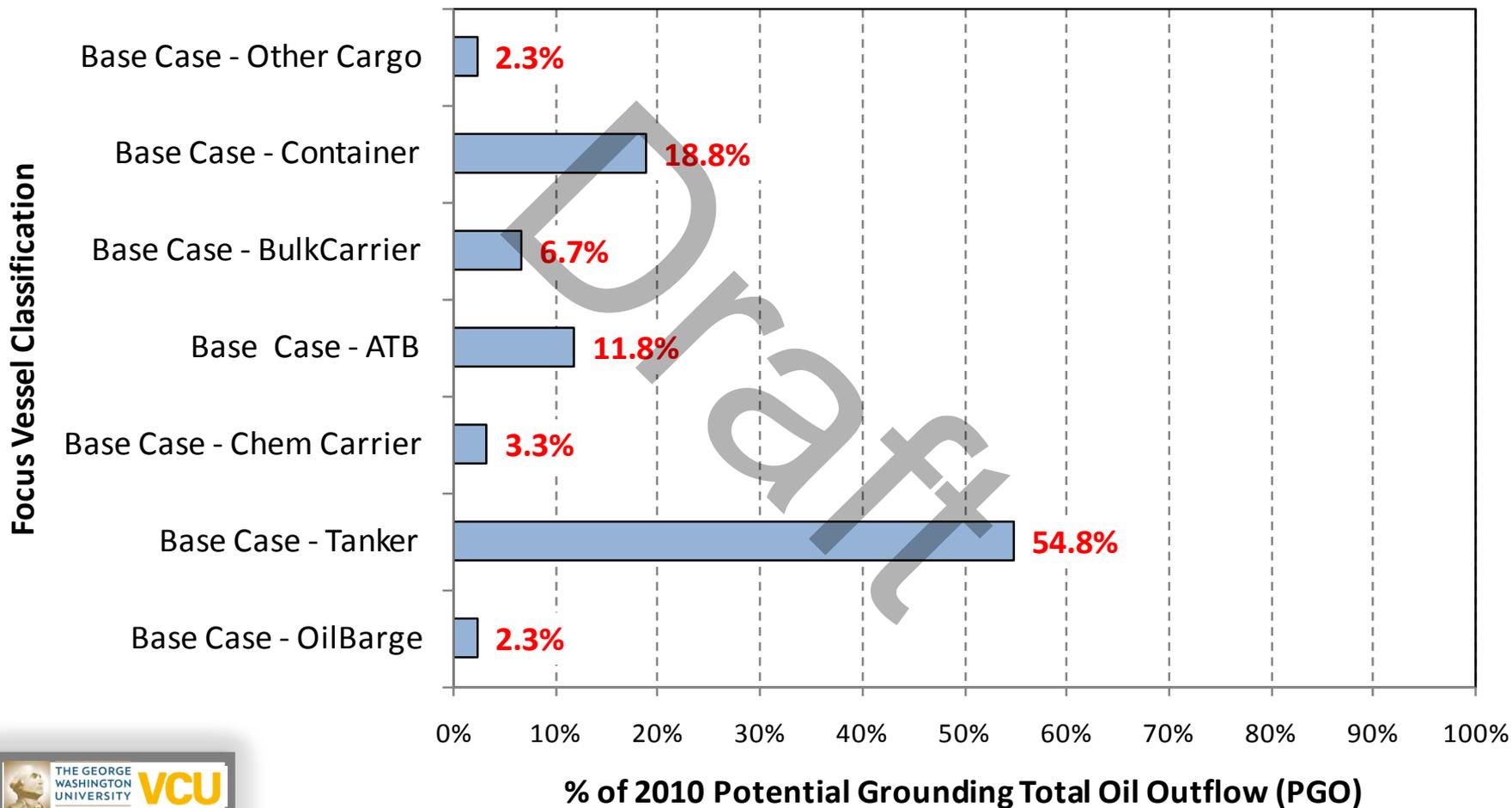
### 2010 BASE CASE



PGO : POTENTIAL GROUNDING OIL LOSSES - PER YEAR

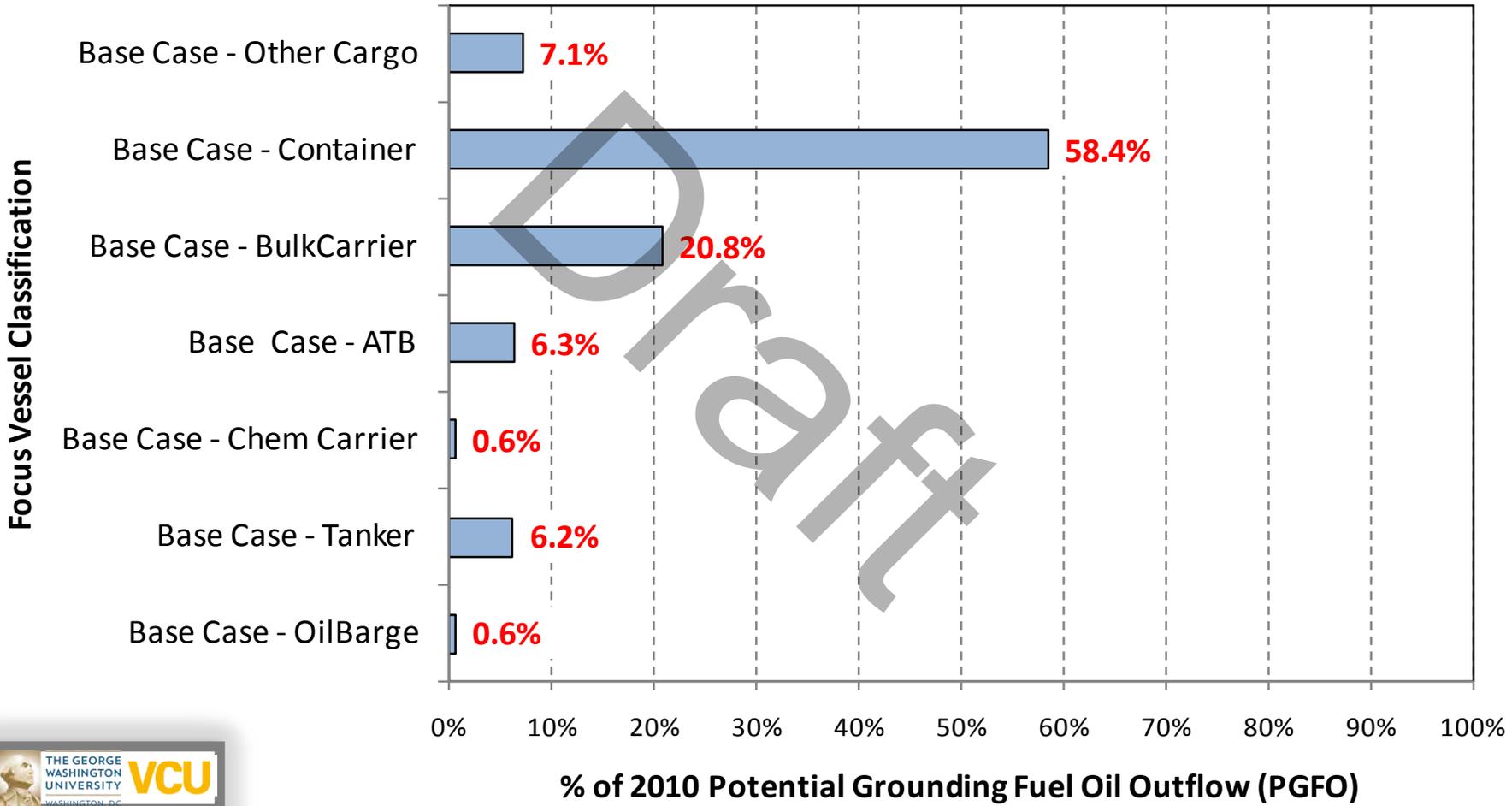
# 2010 BASE CASE

## VTRA 2010 - GROUNDING OIL LOSS (CARGO + FUEL)



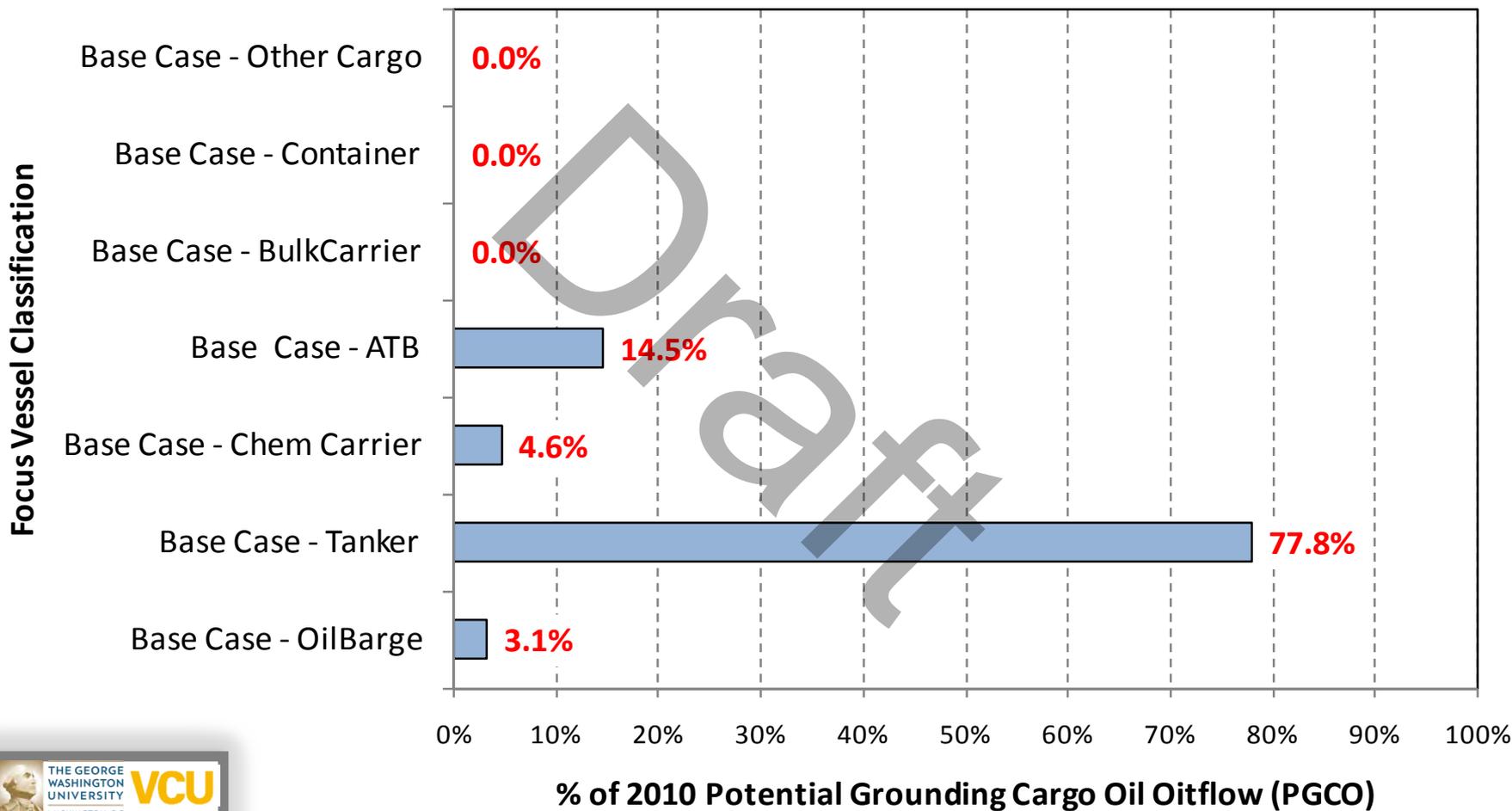
# 2010 BASE CASE

## VTRA 2010 - GROUNDING FUEL OIL LOSS



# 2010 BASE CASE

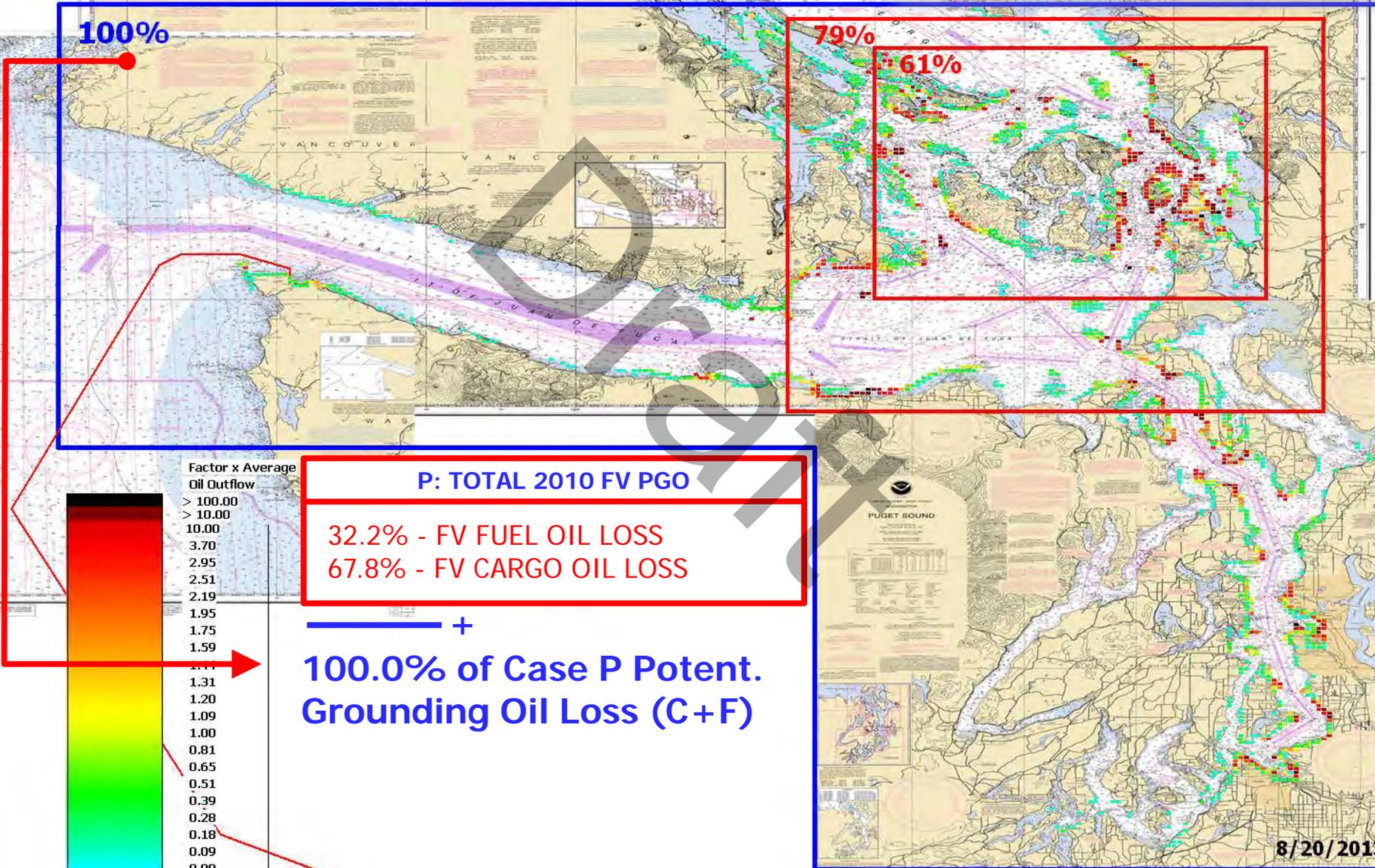
## VTRA 2010 - GROUNDING CARGO OIL LOSS



# P: ALL FV POTENTIAL GROUND. OIL LOSS (PGO)



## P: VTRA 2010 - BASE CASE



100%

79%

61%



**P: TOTAL 2010 FV PGO**

32.2% - FV FUEL OIL LOSS  
67.8% - FV CARGO OIL LOSS

— +  
**100.0% of Case P Potent. Grounding Oil Loss (C+F)**

# P: ALL FV POT. GROUND. FUEL OIL LOSS (PGFO)

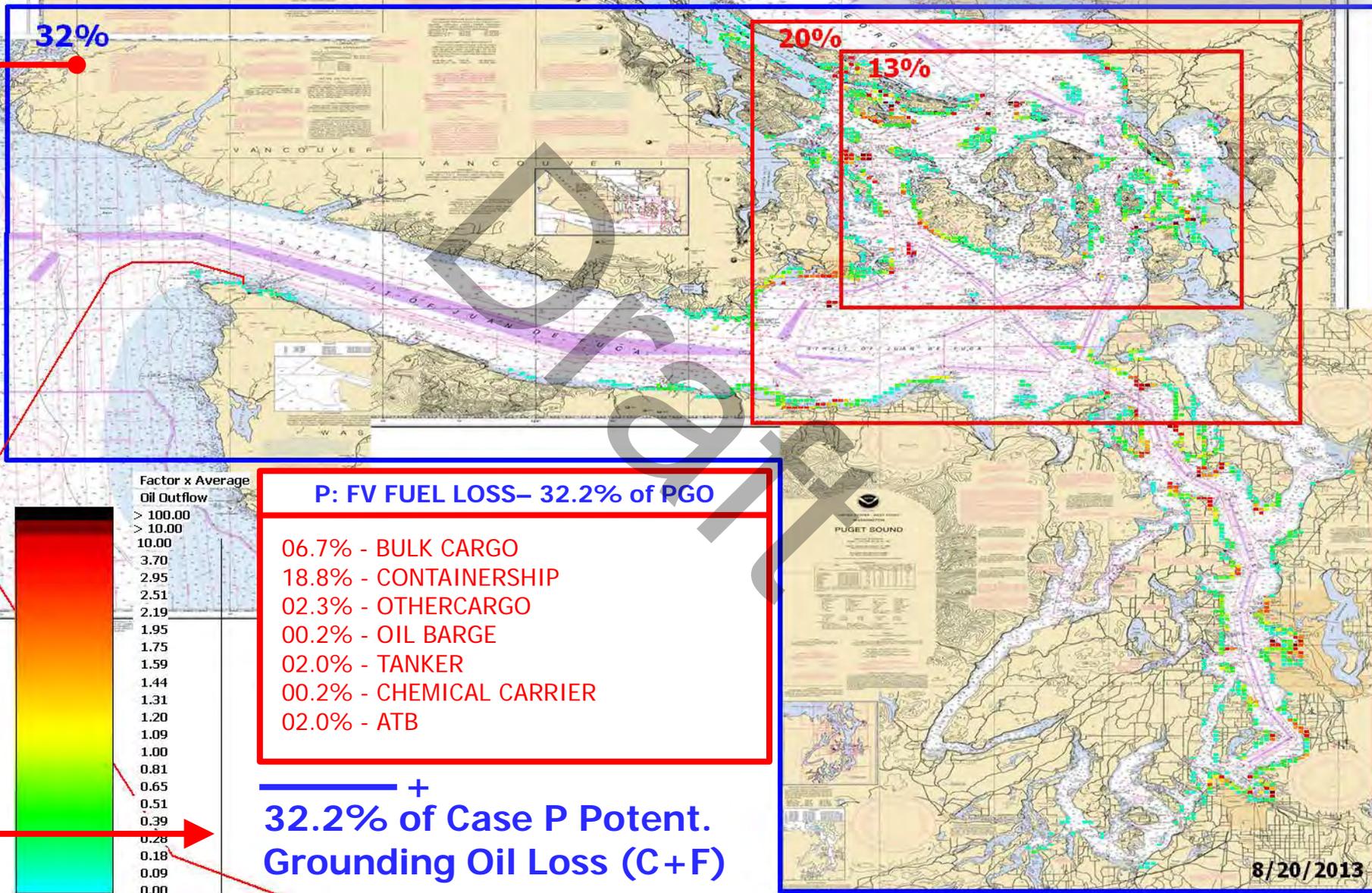


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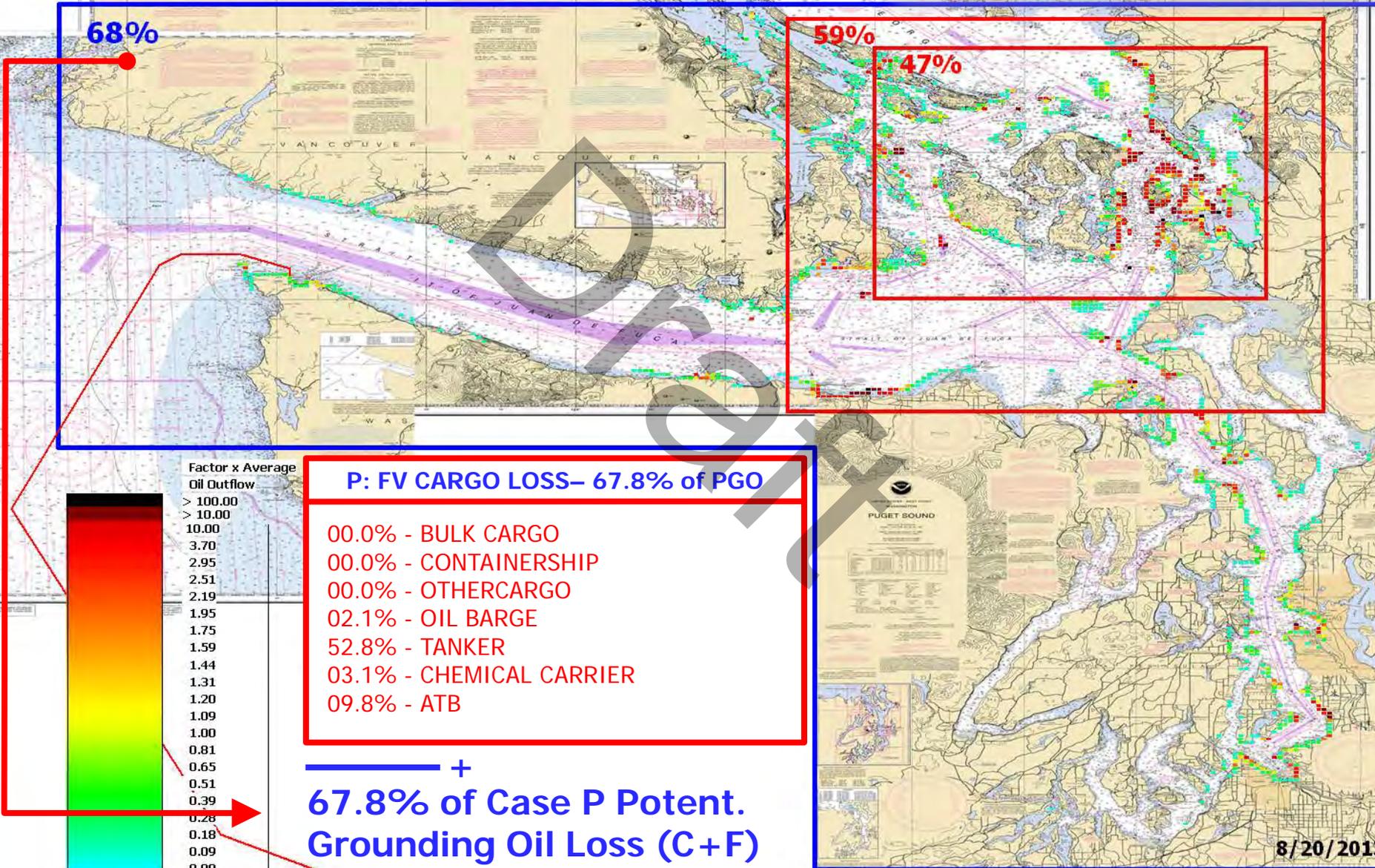
## P: VTRA 2010 - BASE CASE



# P: ALL FV POT. GROUND. CARGO OIL (PGCO)

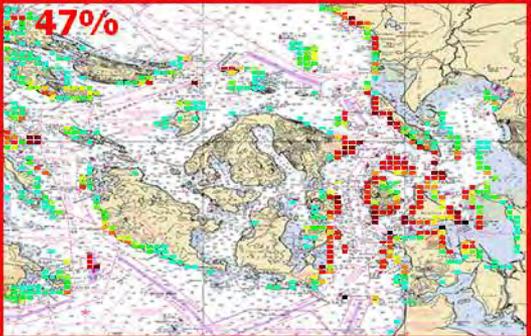


## P: VTRA 2010 - BASE CASE



68%

59%



47%

Factor x Average Oil Outflow

> 100.00
> 10.00
10.00
3.70
2.95
2.51
2.19
1.95
1.75
1.59
1.44
1.31
1.20
1.09
1.00
0.81
0.65
0.51
0.39
0.28
0.18
0.09
0.00

**P: FV CARGO LOSS- 67.8% of PGO**

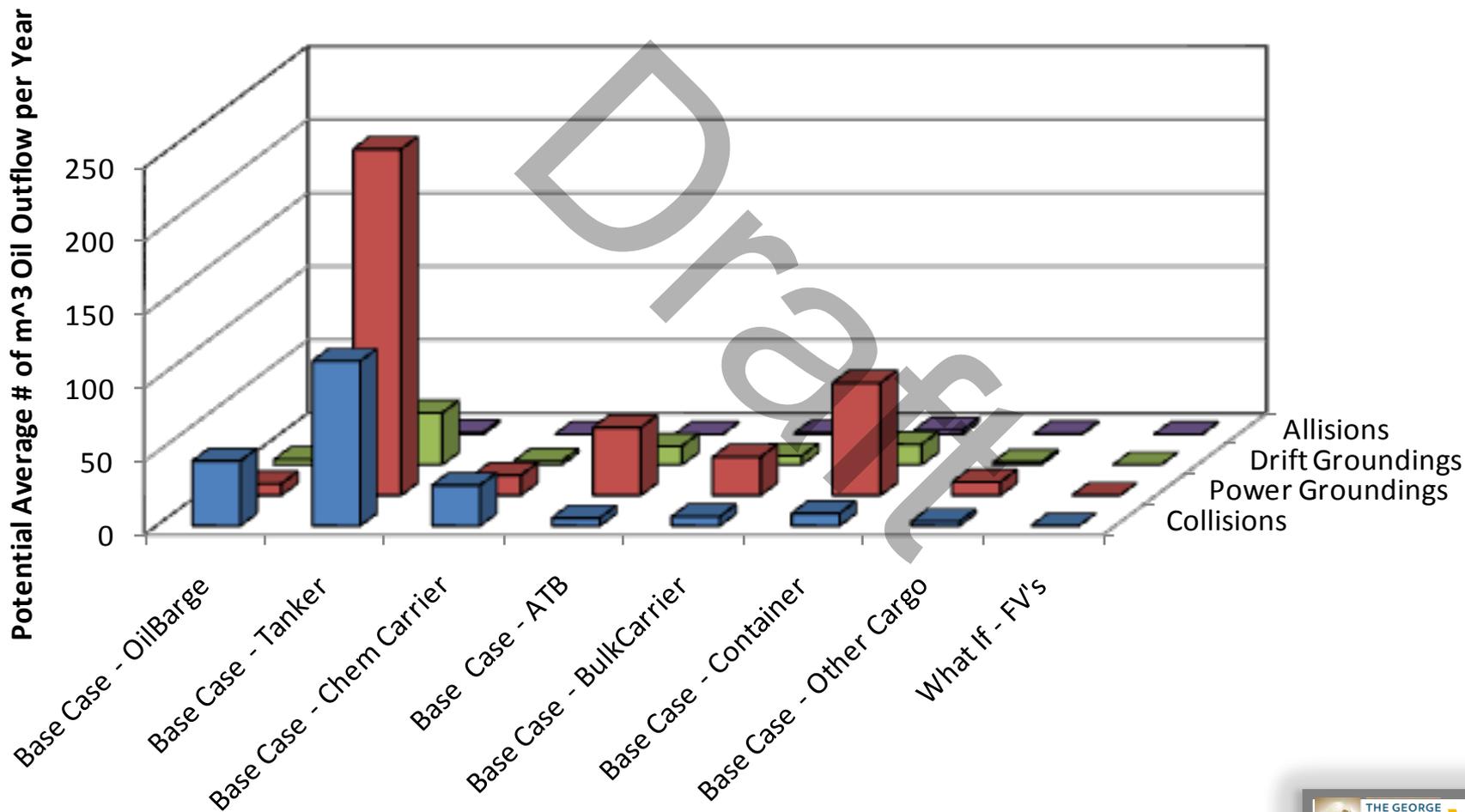
- 00.0% - BULK CARGO
- 00.0% - CONTAINERSHIP
- 00.0% - OTHERCARGO
- 02.1% - OIL BARGE
- 52.8% - TANKER
- 03.1% - CHEMICAL CARRIER
- 09.8% - ATB

— +  
**67.8% of Case P Potent.  
 Grounding Oil Loss (C+F)**

# A TAXONOMY OF 2010 FOCUS VESSEL POTENTIAL OIL LOSSES BY FOCUS VESSEL AND ACCIDENT TYPE

## 2010 BASE CASE

**P - VTRA 2010 : Potential Average # of m<sup>3</sup> Oil Outflow per Year**



# 2010 BASE CASE

## P - VTRA 2010 : Potential Average # of m<sup>3</sup> Oil Outflow per Year

Focus Vessel	Collisions	Power Groundings	Drift Groundings	Allisions	Total
Base Case - OilBarge	21.4%	1.9%	4.9%	0.0%	7.9%
Base Case - Tanker	54.2%	56.8%	46.3%	22.8%	54.6%
Base Case - Chem Carrier	13.3%	3.3%	3.4%	0.0%	6.2%
Base Case - ATB	2.6%	11.1%	16.7%	0.0%	9.1%
Base Case - All Tank FV's	91.4%	73.1%	71.3%	22.8%	77.9%
Base Case - BulkCarrier	3.0%	6.3%	8.0%	16.8%	5.6%
Base Case - Container	4.1%	18.4%	18.3%	51.2%	14.5%
Base Case - Other Cargo	1.4%	2.2%	2.4%	9.2%	2.0%
Base Case - All Cargo FV's	8.6%	26.9%	28.7%	77.2%	22.1%
Base Case - All FV's	100.0%	100.0%	100.0%	100.0%	100.0%

## P - VTRA 2010 : Potential Average # of m<sup>3</sup> Oil Outflow per Year

Focus Vessel	Collisions	Power Groundings	Drift Groundings	Allisions	Total
Base Case - OilBarge	44.2	7.8	3.7	0.0	55.8
Base Case - Tanker	112.1	235.9	35.4	1.3	384.7
Base Case - Chem Carrier	27.6	13.7	2.6	0.0	43.9
Base Case - ATB	5.3	46.1	12.8	0.0	64.2
Base Case - All Tank FV's	189.3	303.5	54.5	1.3	548.6
Base Case - BulkCarrier	6.3	26.2	6.1	1.0	39.5
Base Case - Container	8.5	76.5	14.0	2.9	102.0
Base Case - Other Cargo	3.0	9.1	1.9	0.5	14.4
Base Case - All Cargo FV's	17.7	111.8	21.9	4.4	155.8
Base Case - All FV's	207.1	415.3	76.4	5.7	704.4