

VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

3D Relative Risk Profile Comparison
Potential Collision Accident Frequency

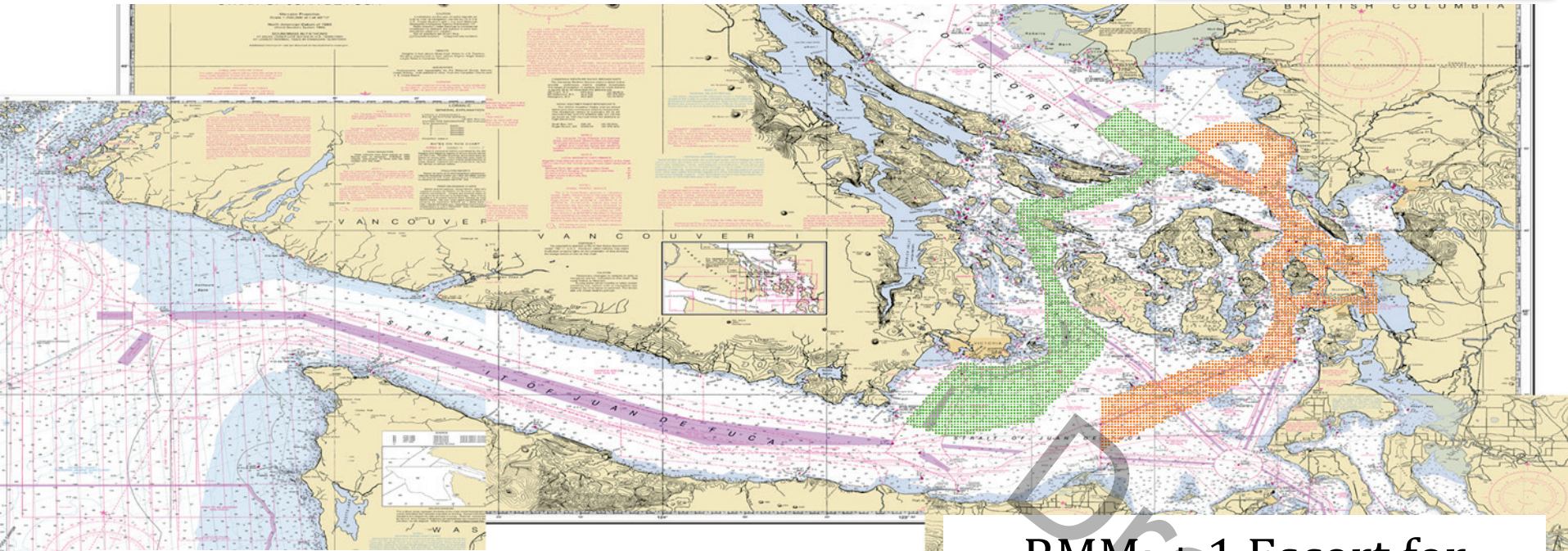
**CASE T: GW – KM – DP & +1 Escort Rosario – Laden
Tankers, Chem. Carrier, ATB & Cape Size Bulker**

Dr. J. Rene van Dorp and Dr. Jason R.W Merrick

November 2013



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

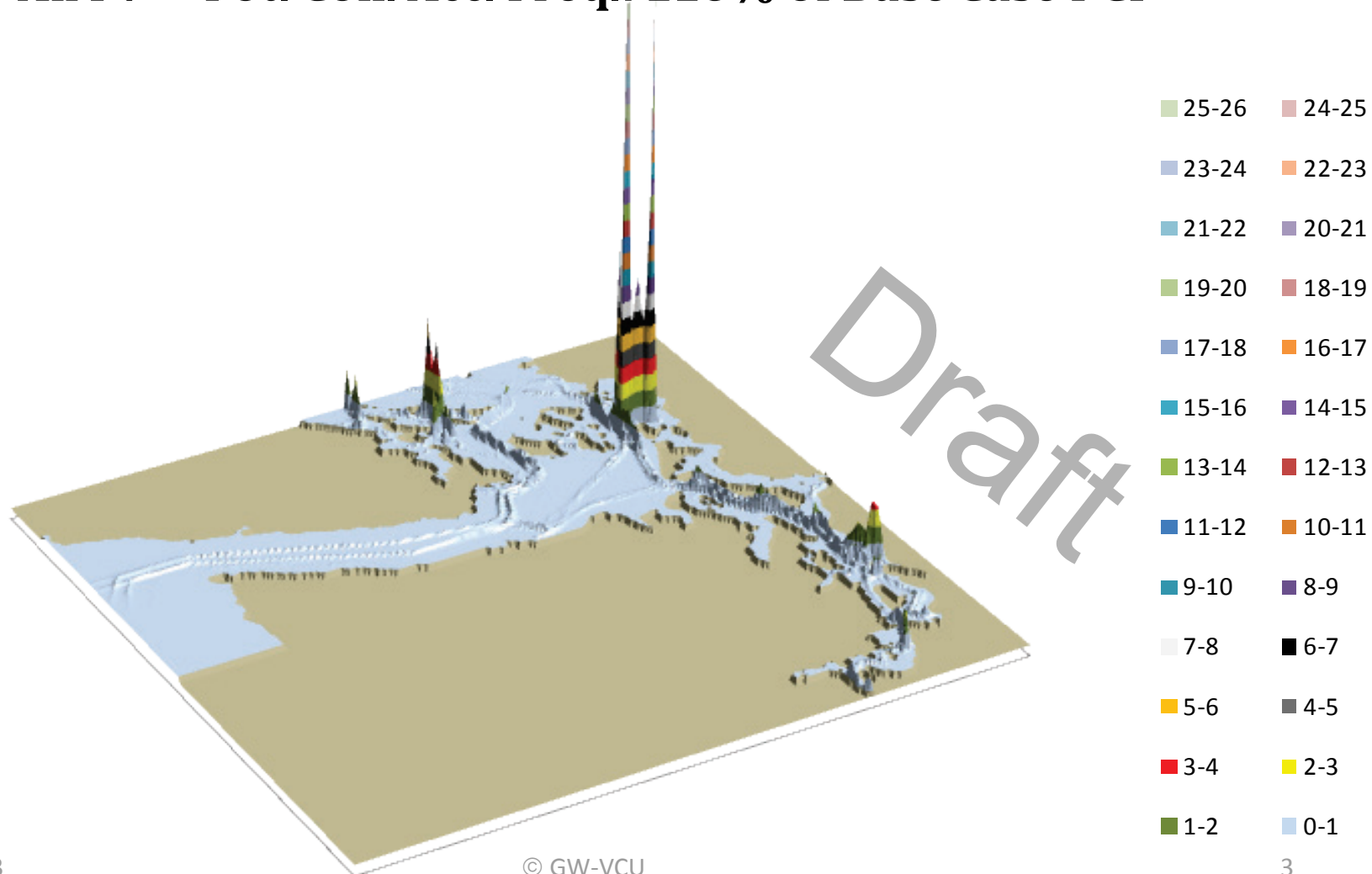


**DEFINITION OF ASSUMED LOCATIONS
FOR ADDED ESCORT VESSEL
FOR HARO-BOUNDARY ROUTES (GREEN)
AND
FOR ROSARIO ROUTES (ORANGE)**

RMM: + 1 Escort for
Laden Tankers, Chem.
Carrier, ATB & Cape Size
Bulkers on Rosario Routes
(Orange)

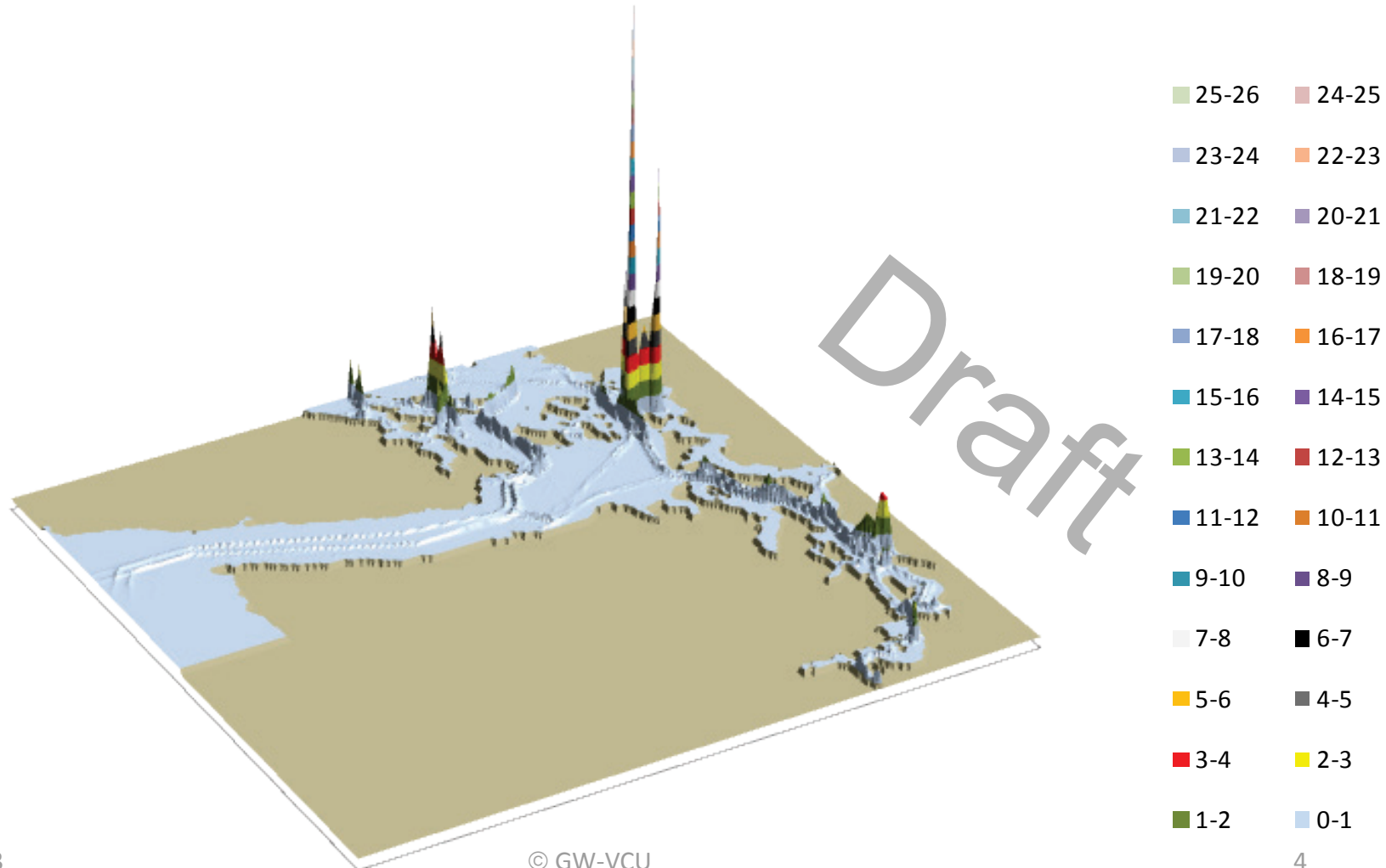
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP & EH 3D Risk Profile All FV - Pot. Coll. Acc. Freq.: 116% of Base Case PCF



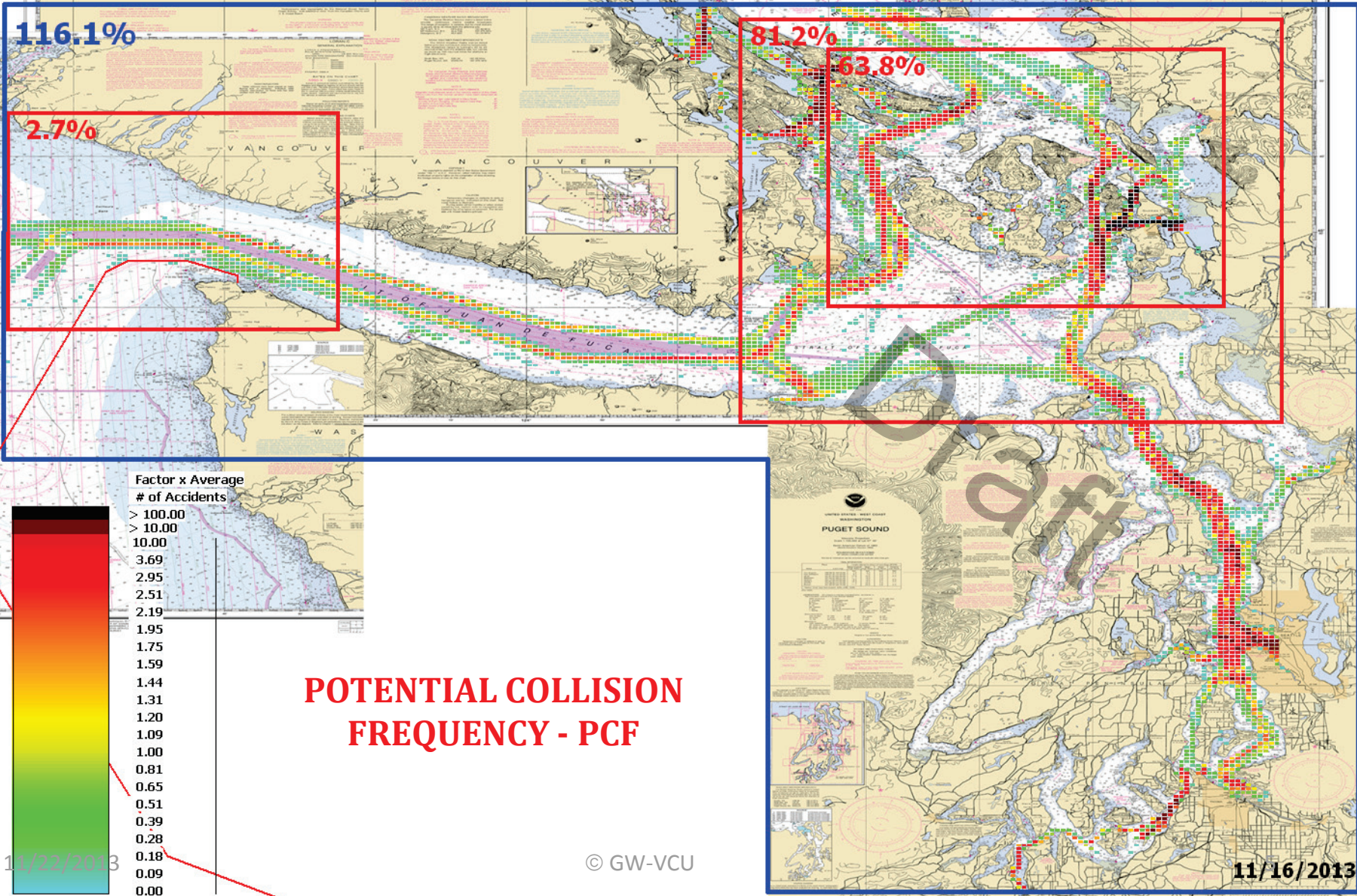
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP & ER 3D Risk Profile All FV - Pot. Coll. Acc. Freq.: 108% of Base Case PCF



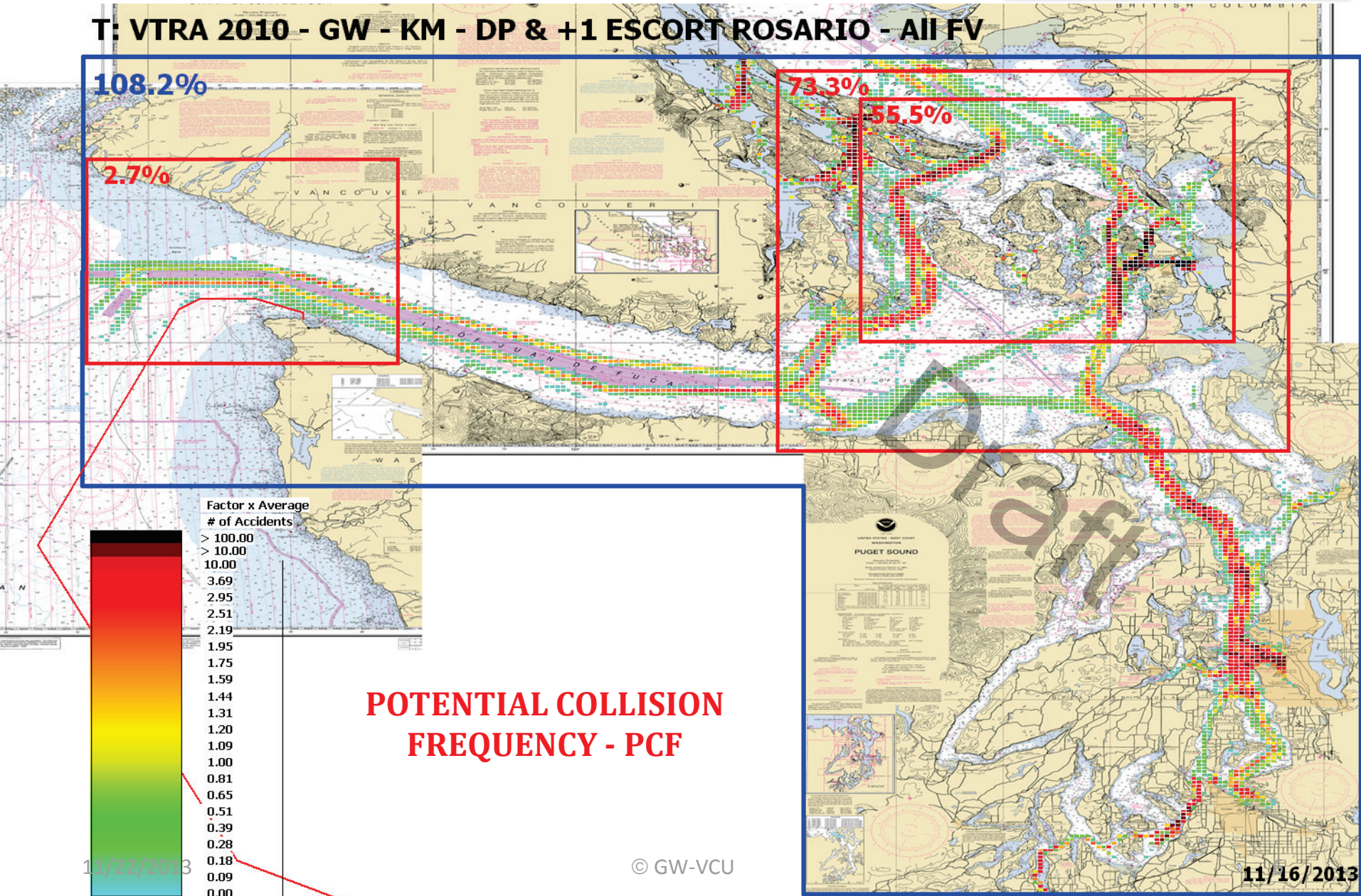
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 - GW - KM - DP & +1 ESCORT HARO-BOUNDARY - All FV



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 - GW - KM - DP & +1 ESCORT ROSARIO - All FV



POTENTIAL COLLISION FREQUENCY - PCF

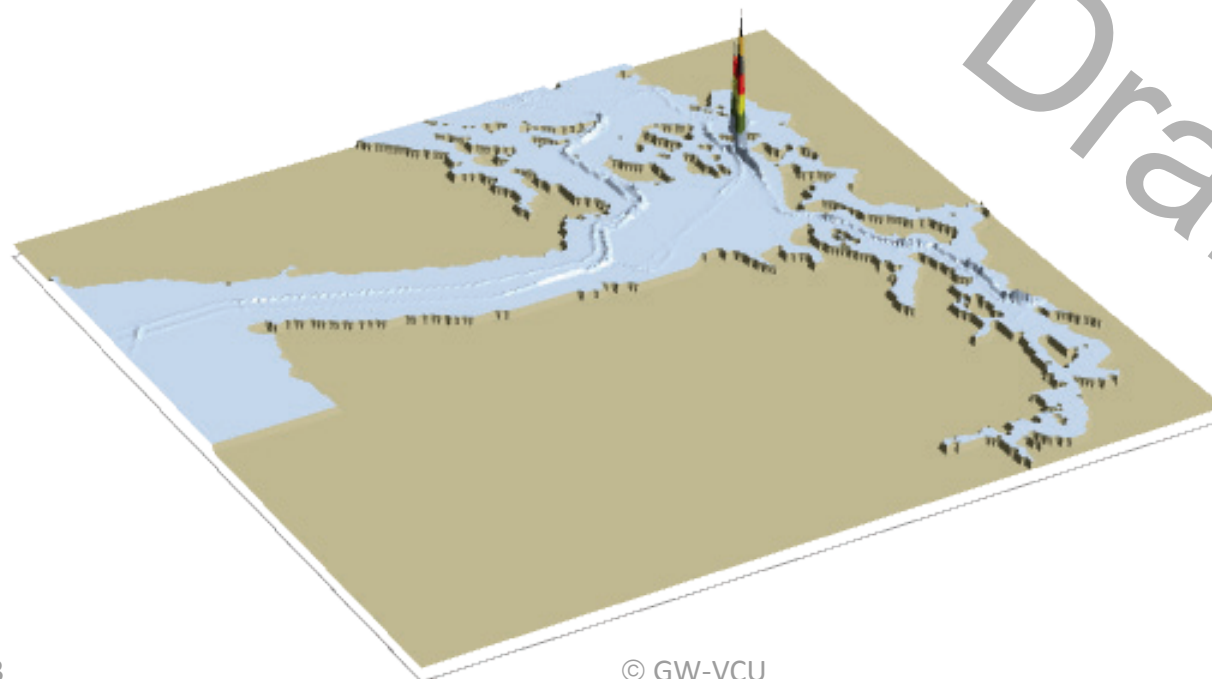
11/22/2013

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11/16/2013

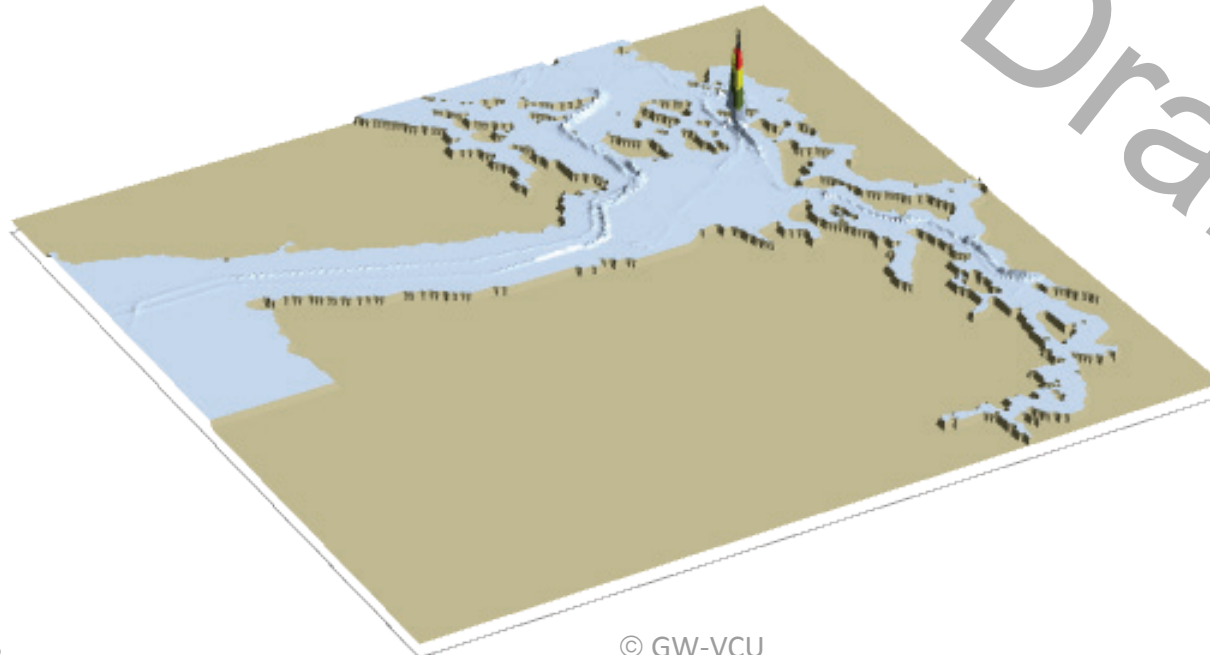
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP & EH 3D Risk Profile What If FV - Pot. Coll. Acc. Fr.: 17% of Base Case PCF



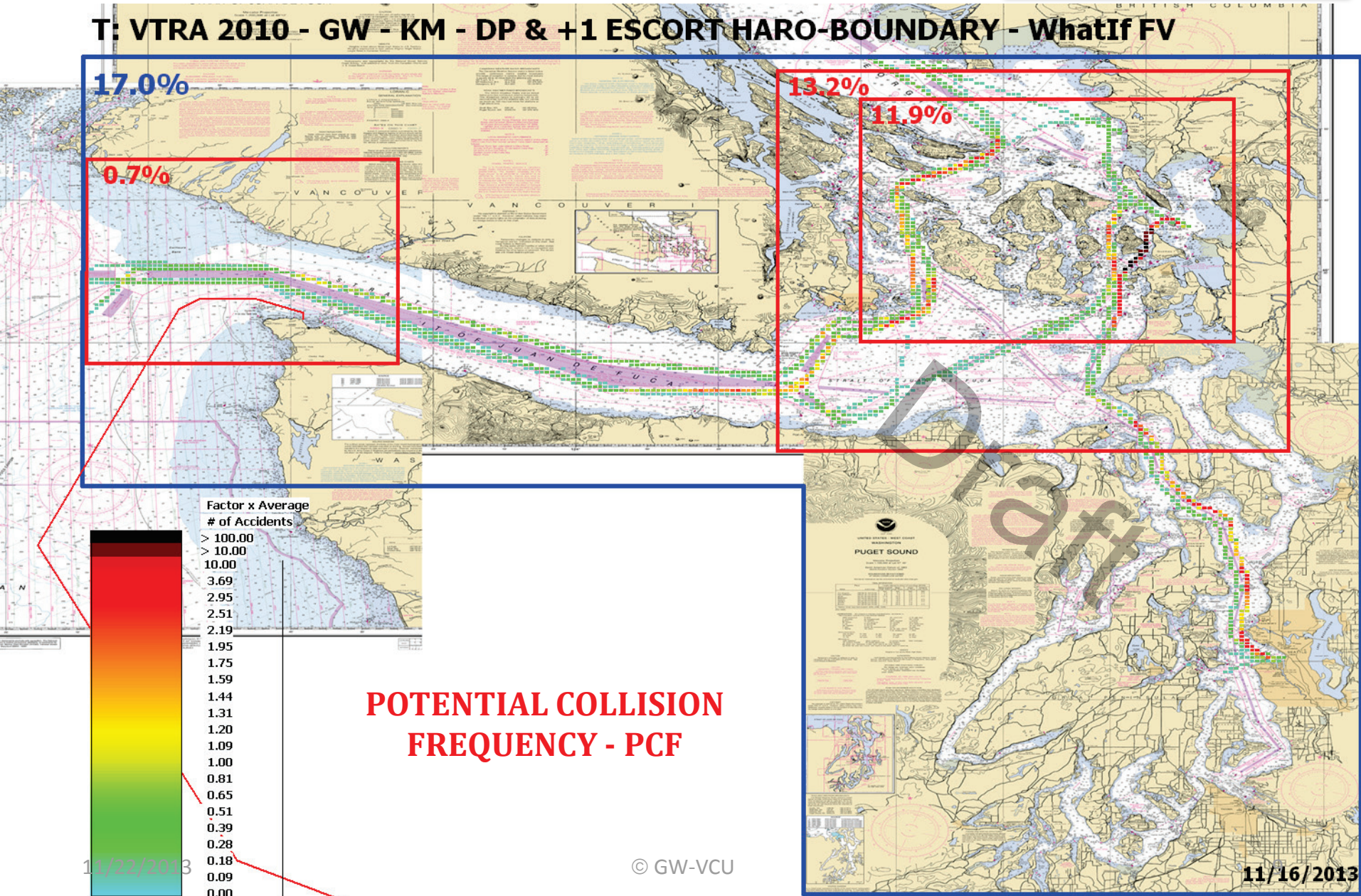
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP 3D Risk Profile What If FV - Pot. Coll. Acc. Fr.: 18% of Base Case PCF



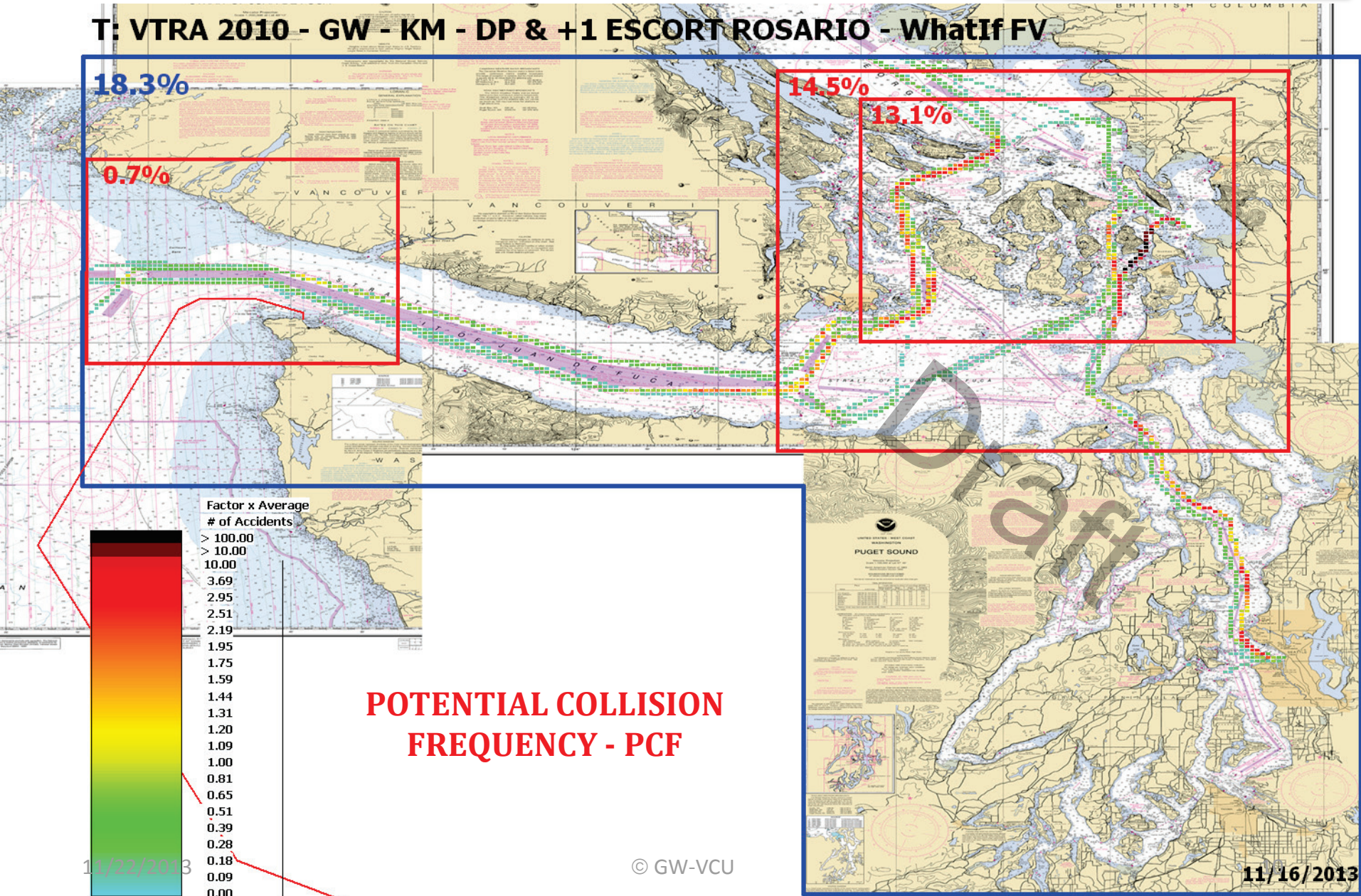
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 - GW - KM - DP & +1 ESCORT HARO-BOUNDARY - WhatIf FV



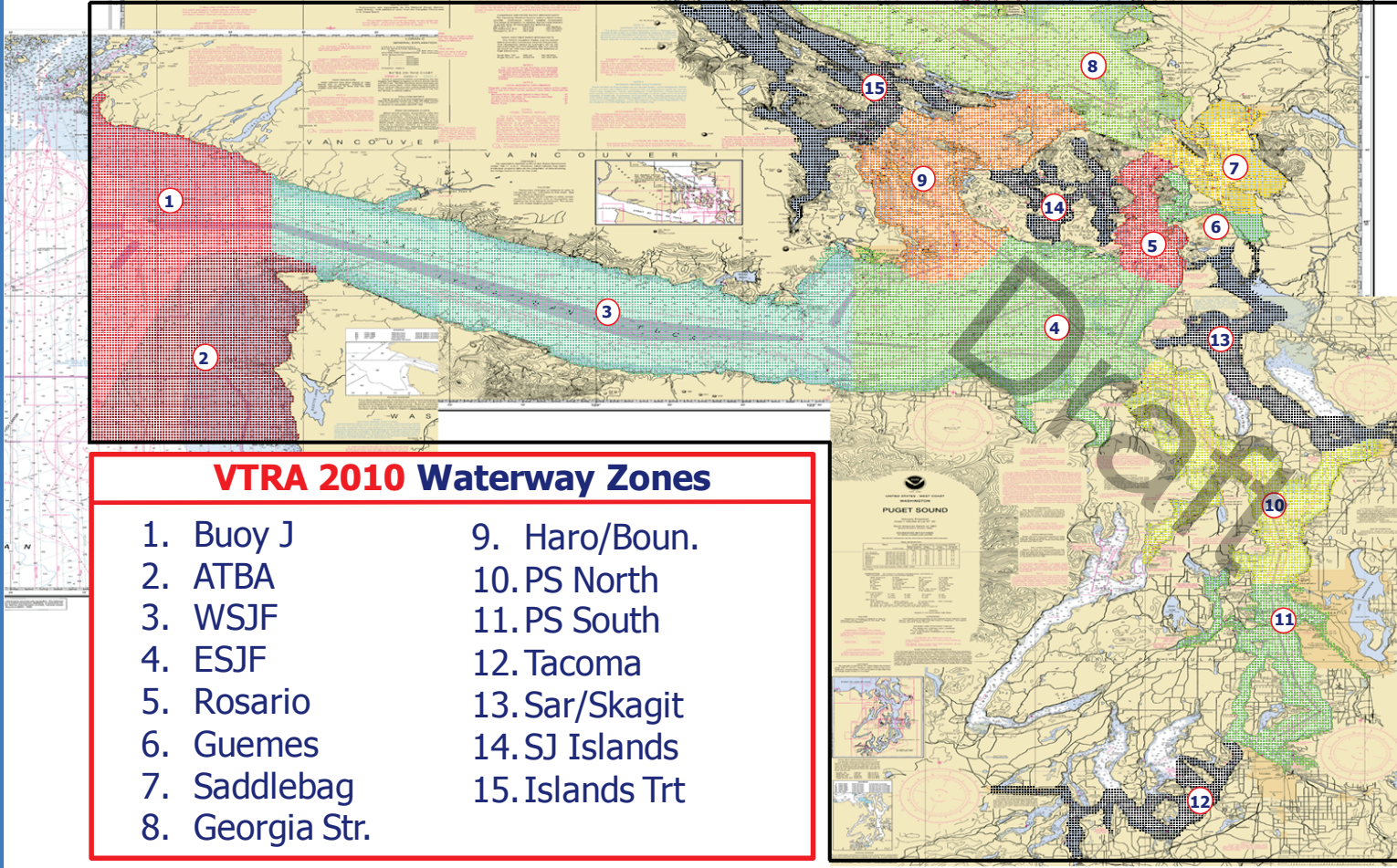
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 - GW - KM - DP & +1 ESCORT ROSARIO - WhatIf FV



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

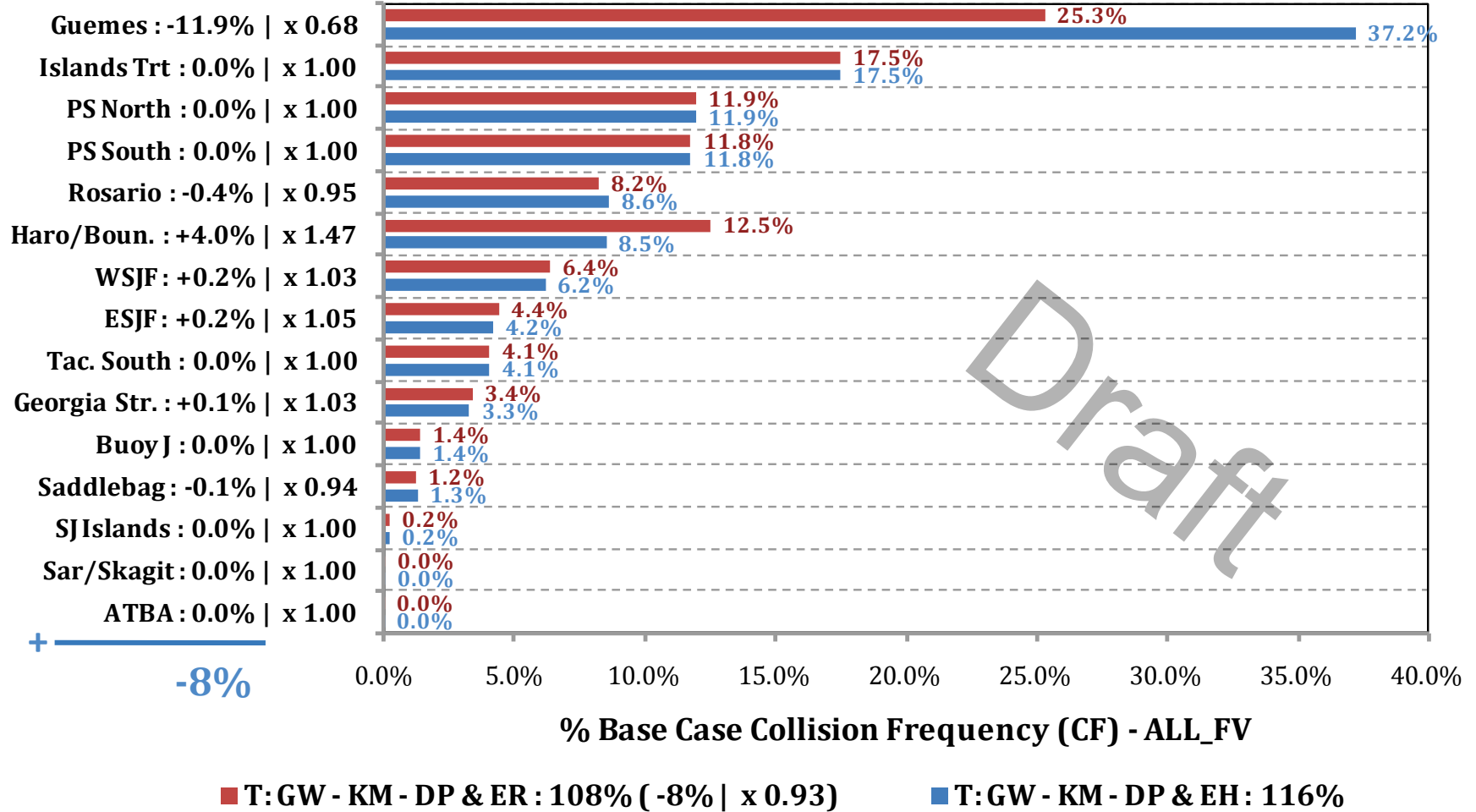
DEFINITION OF 15 WATERWAY ZONES



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

% Base Case Collision Frequency - ALL_FV

Waterway Zone:



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

% Base Case Collision Frequency - WhatIf

Waterway Zone:

