

VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

3D Relative Risk Profile Comparison
Potential Grounding Oil Loss

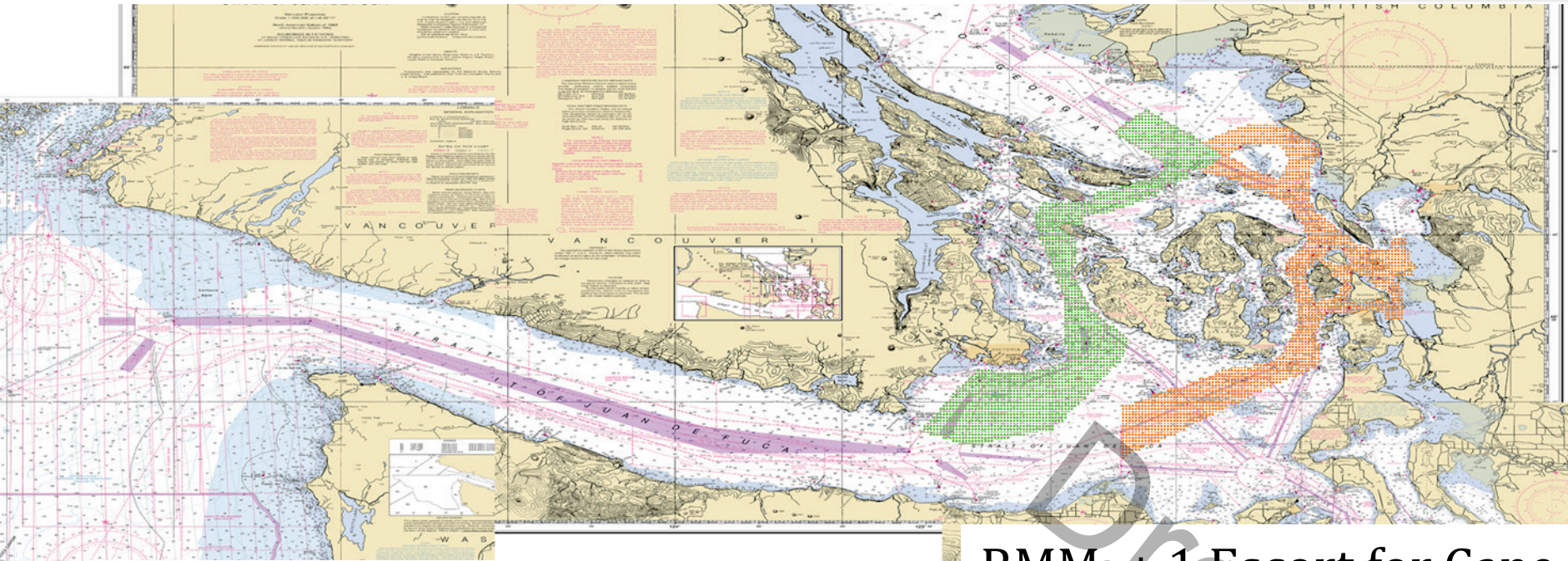
CASE T: GW – KM – DP & +1 Escort Cape Size

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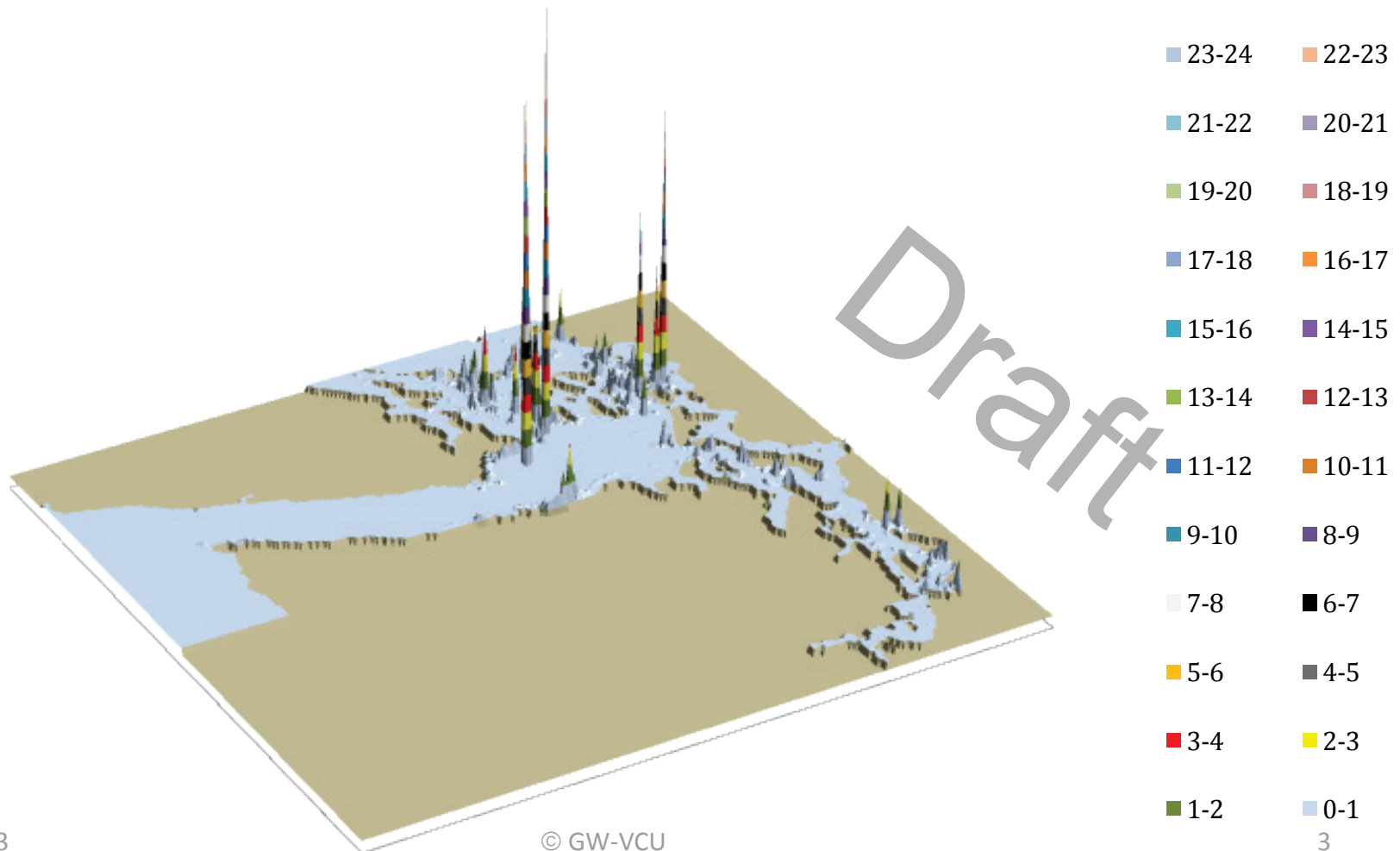


**DEFINITION OF ASSUMED LOCATIONS
FOR ADDED ESCORT VESSEL
FOR HARO-BOUNDARY ROUTES (GREEN)
AND
FOR ROSARIO ROUTES (ORANGE)**

RMM: + 1 Escort for Cape
Size Bulk Carriers on
Rosario Routes (Orange)
and
Haro – Boundary Pass
Routes (Green)

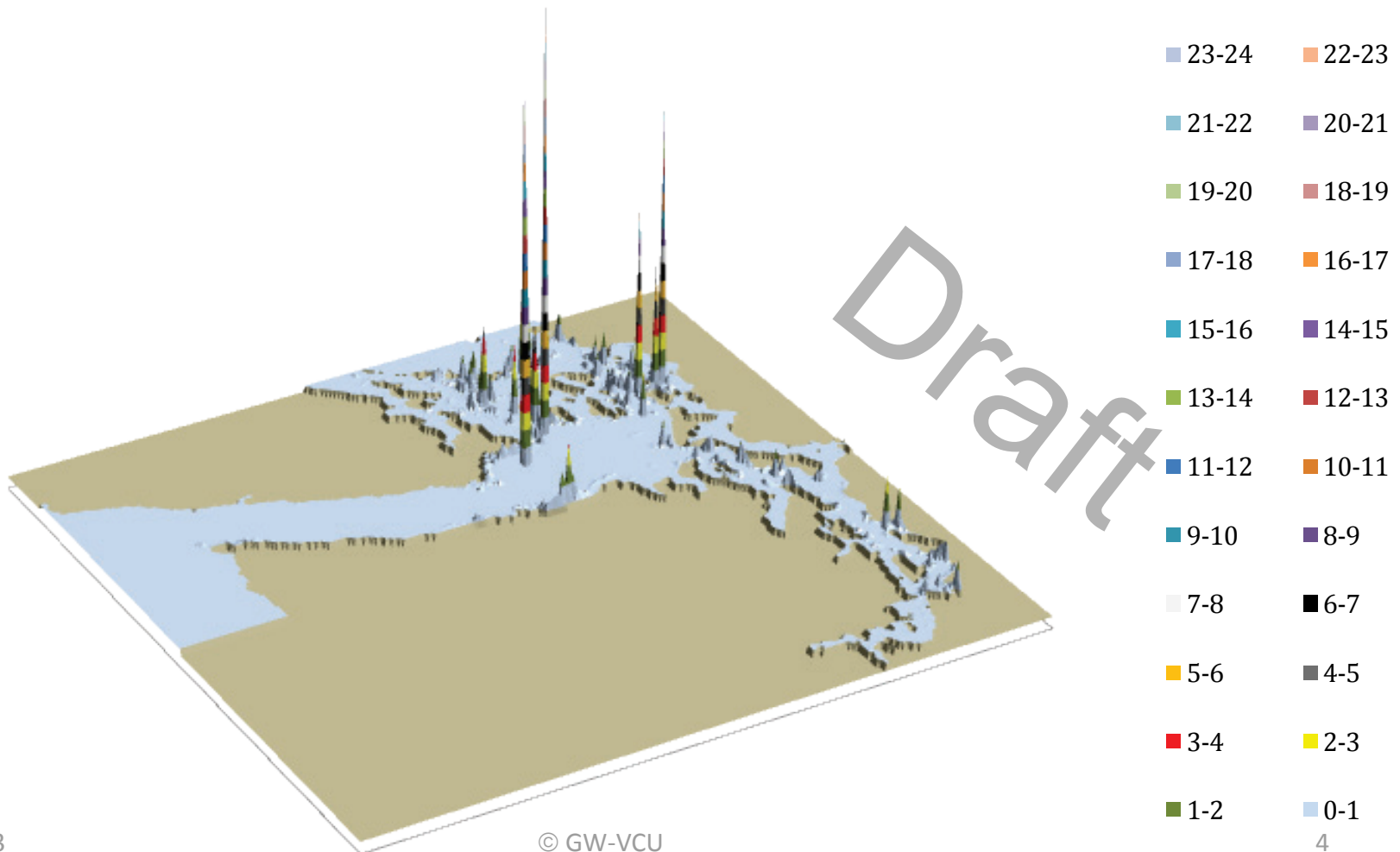
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP 3D Risk Profile All FV - Pot. Ground. Oil Loss: 159% of Base Case PGO



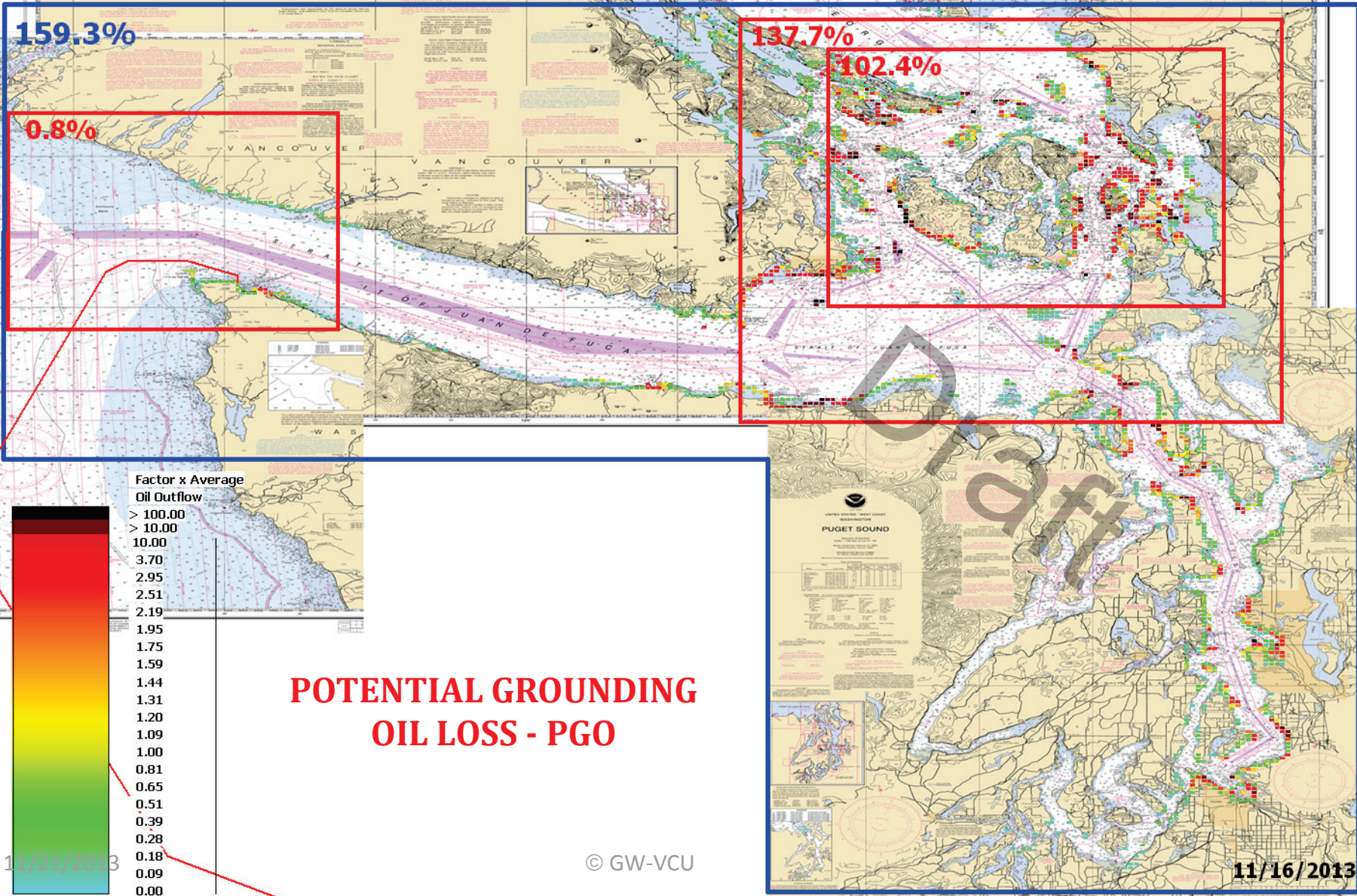
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP & EC 3D Risk Profile All FV - Pot. Ground. Oil Loss: 155% of Base Case PGO



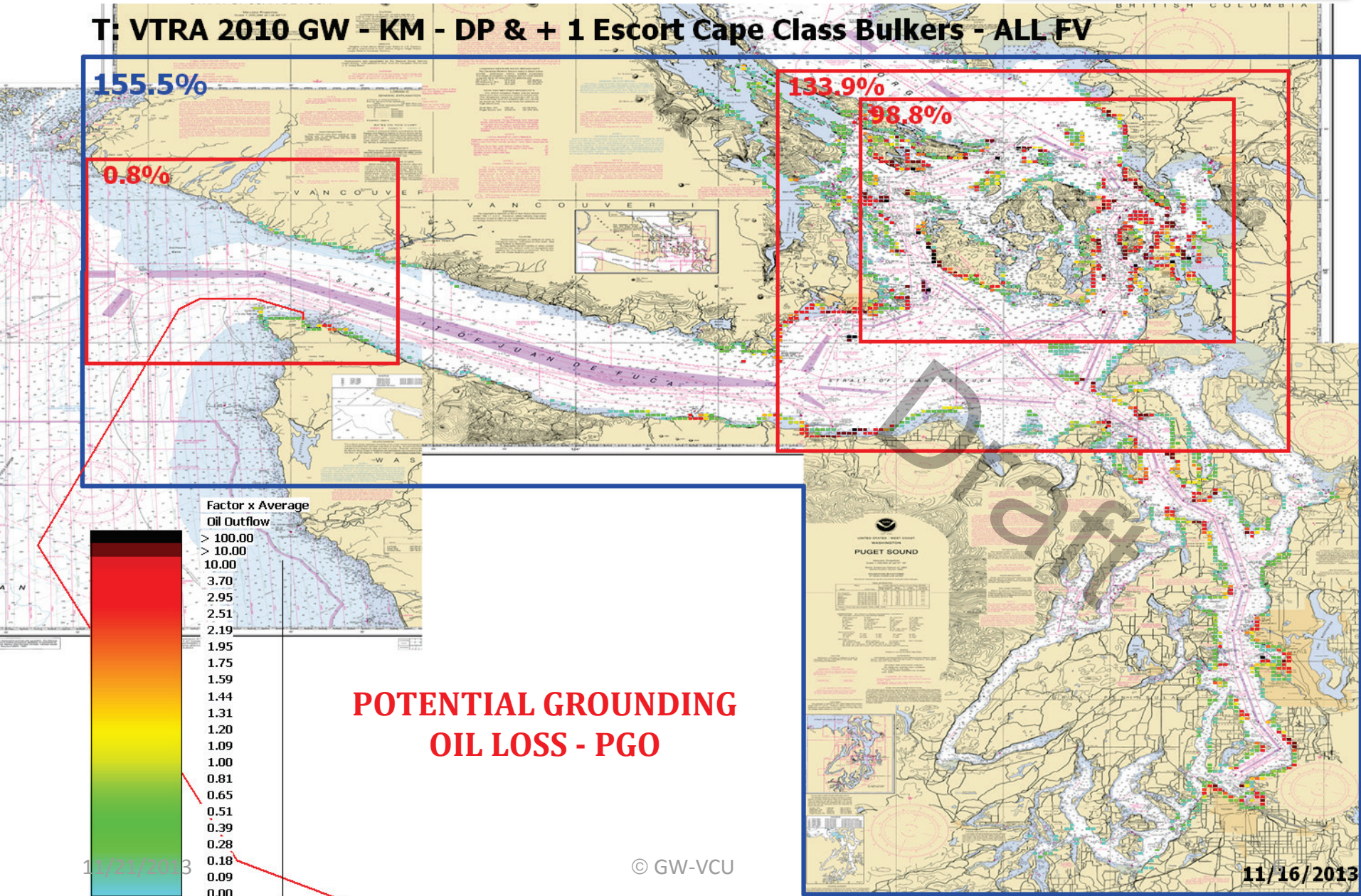
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 - GW 487- KM 348 - DP Cont. 67 and Bulk 348 - ALL FV



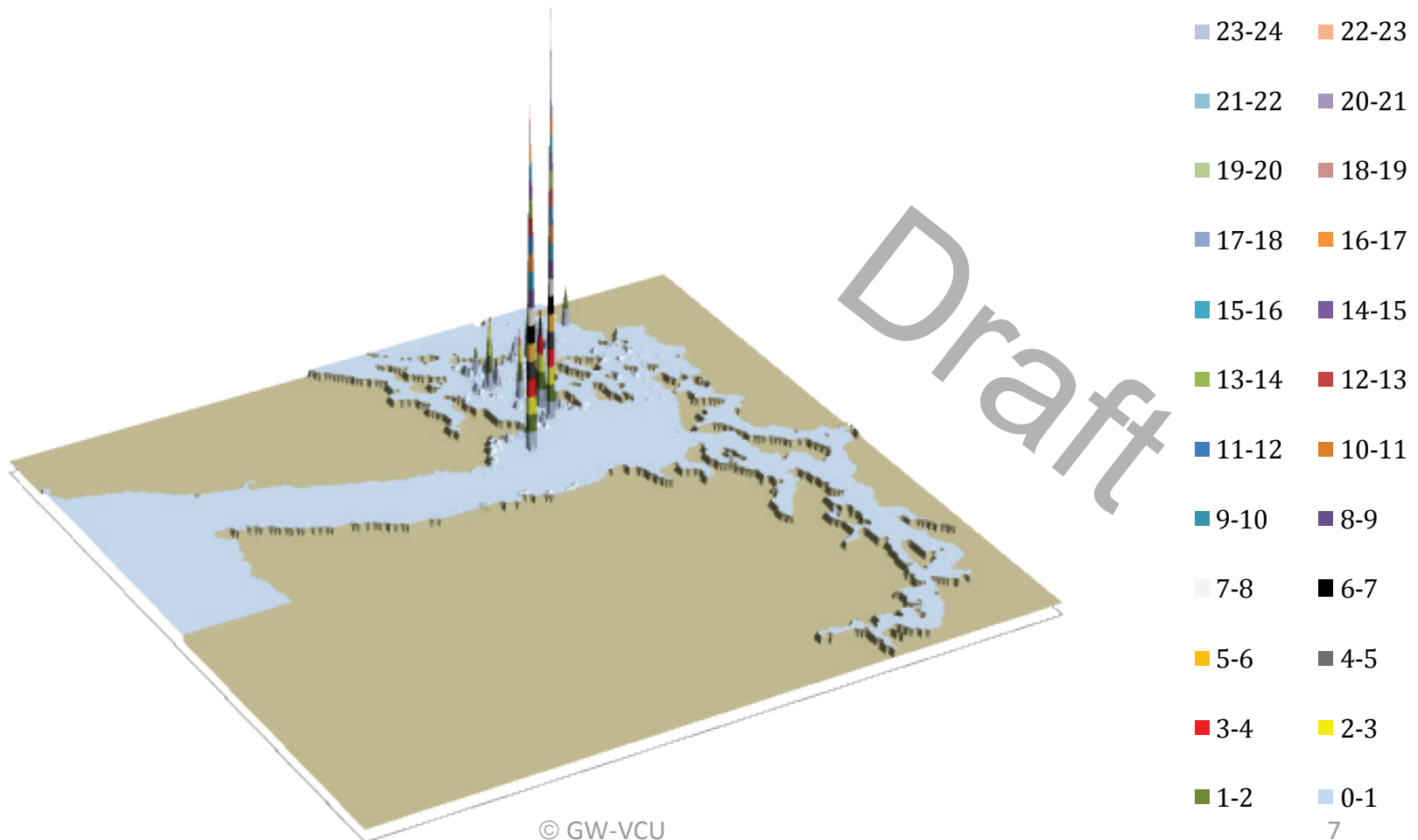
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 GW - KM - DP & + 1 Escort Cape Class Bulklers - ALL FV



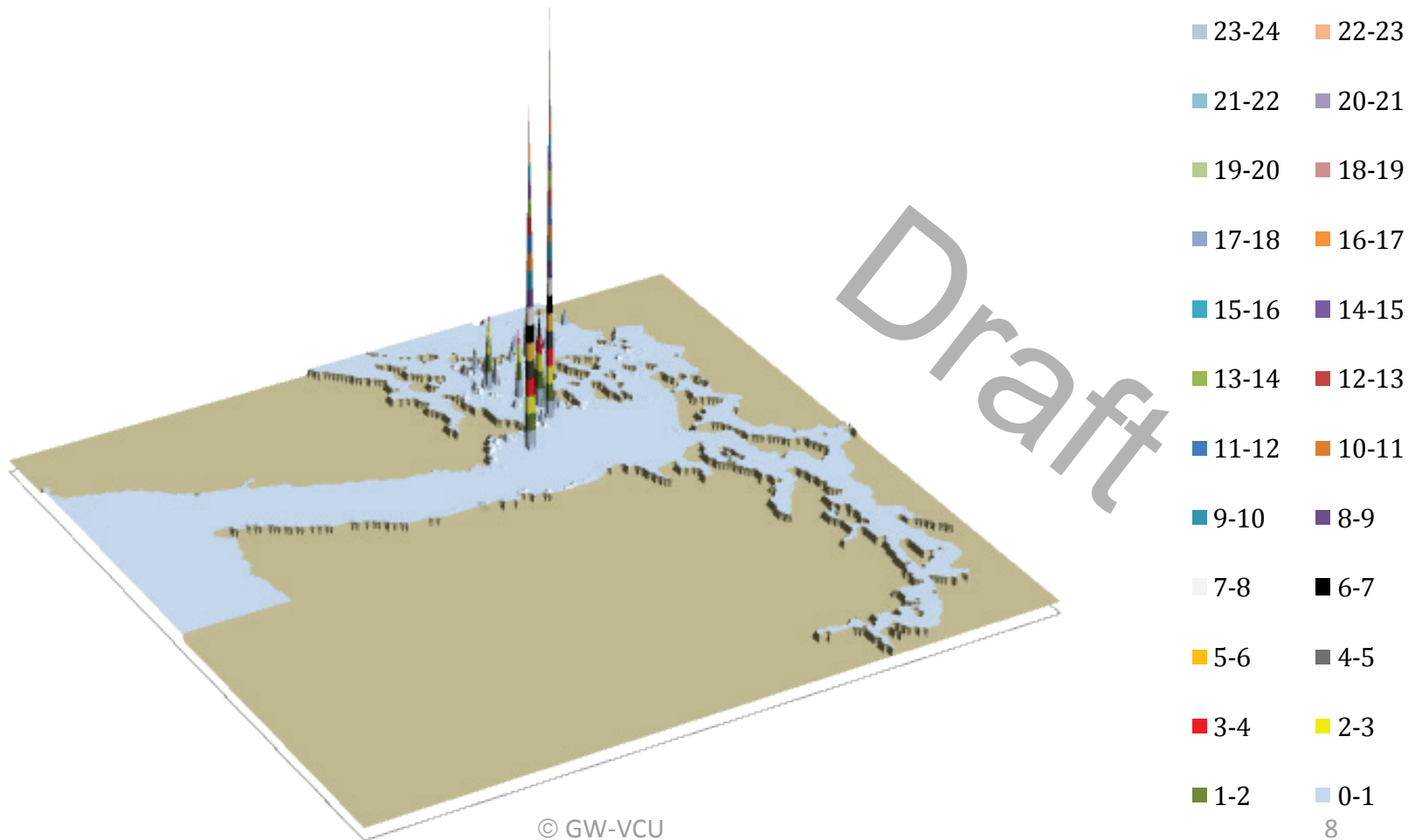
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP 3D Risk Profile What-If FV - Pot. Grou. Oil Loss: 61% of Base Case PGO



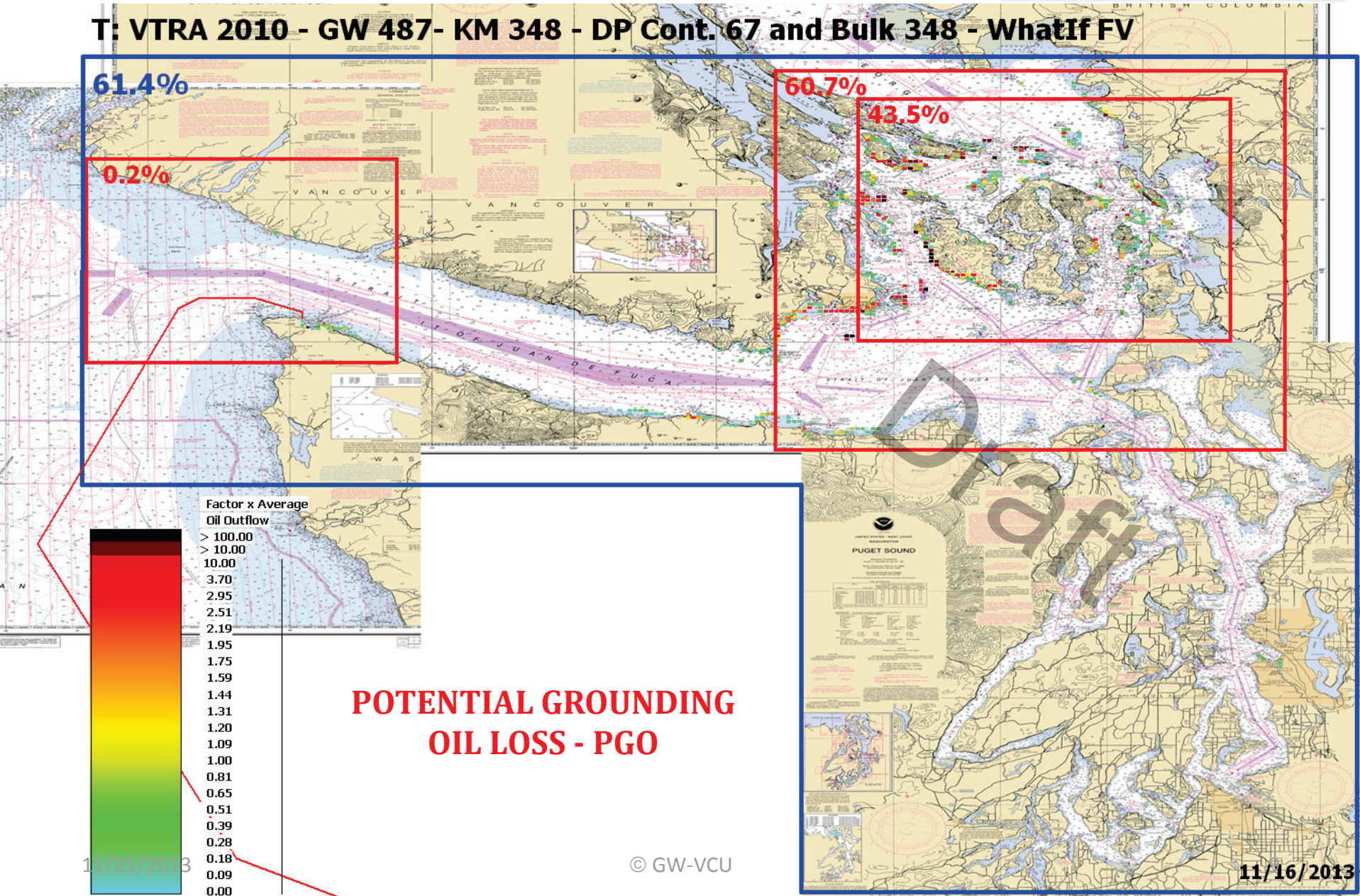
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: GW - KM - DP & EC 3D Risk Profile What-If FV - Pot. Grou. Oil Loss: 58% of Base Case PGO



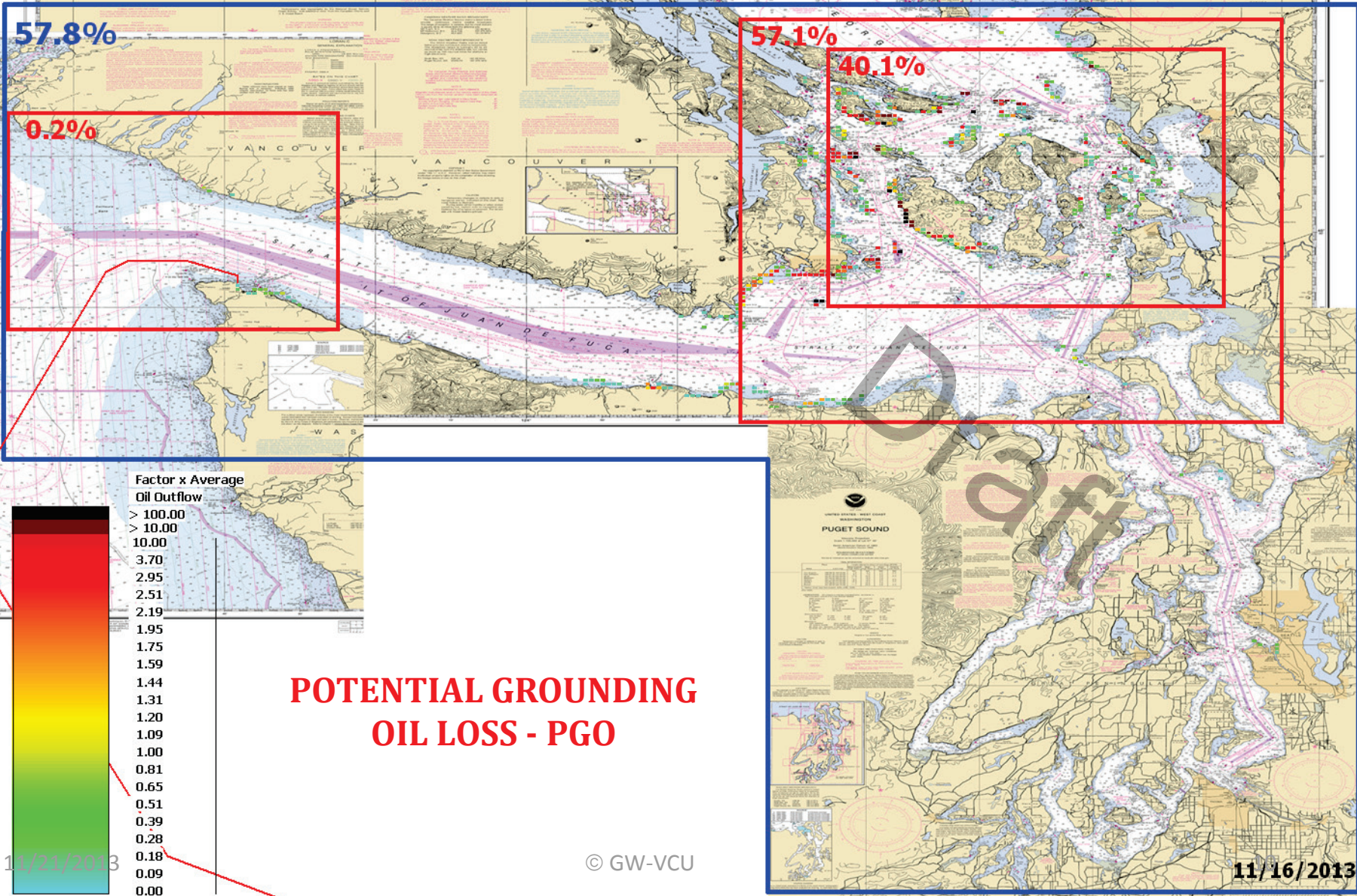
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 - GW 487- KM 348 - DP Cont. 67 and Bulk 348 - WhatIf FV



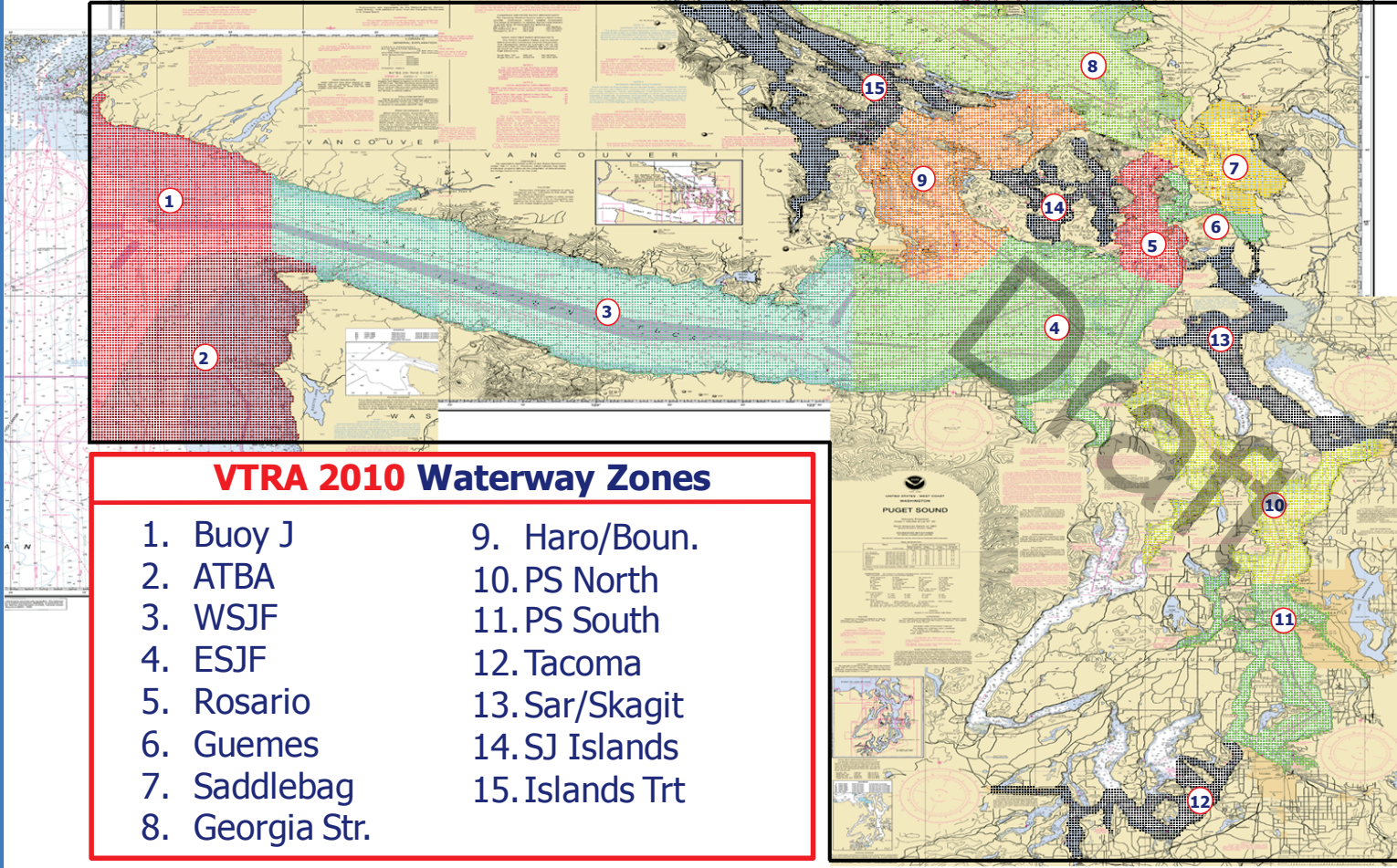
VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

T: VTRA 2010 GW - KM - DP & + 1 Escort Cape Class Bulklers - WhatIf FV



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

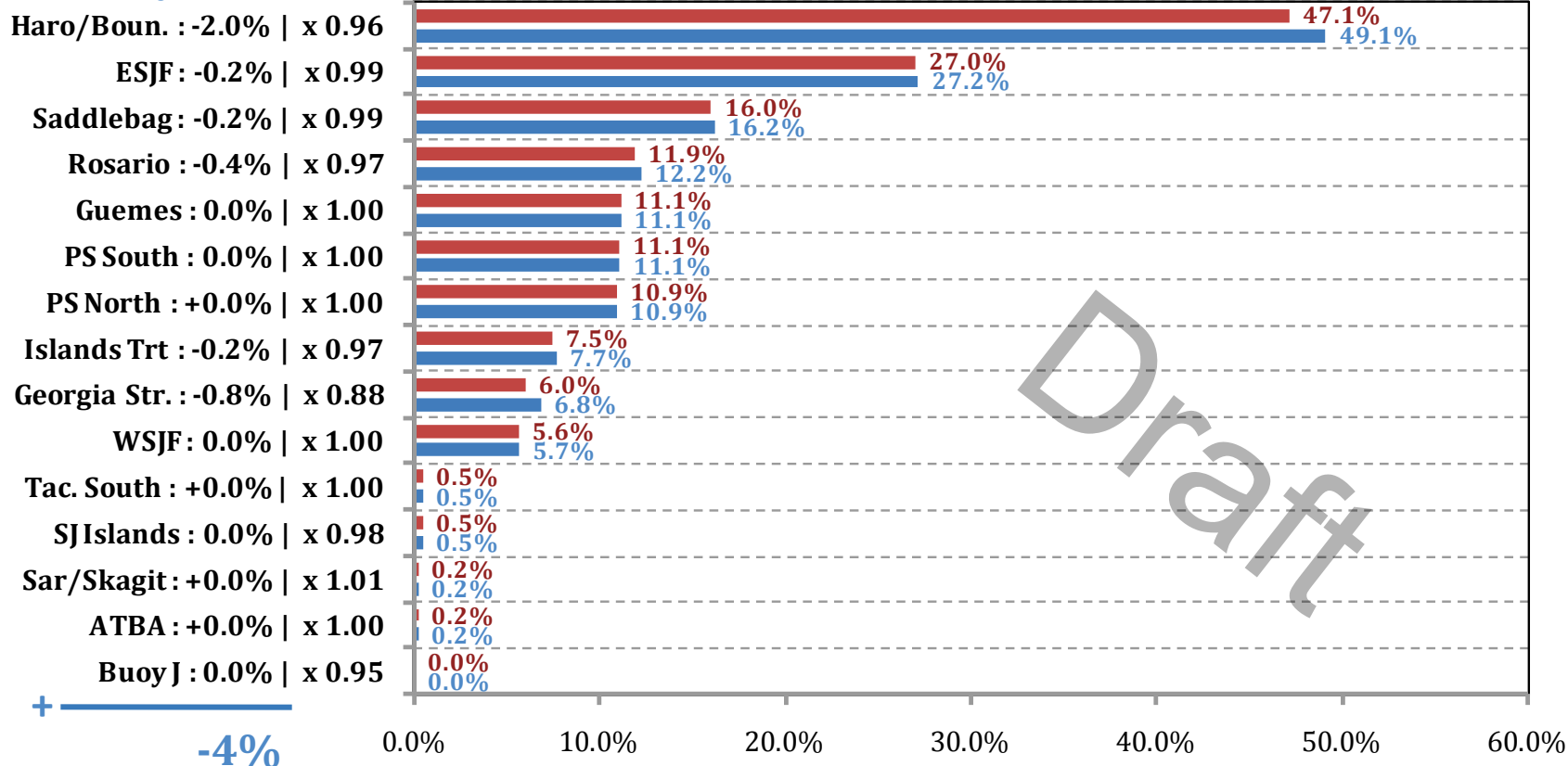
DEFINITION OF 15 WATERWAY ZONES



VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

% Base Case Grounding Oil Loss - ALL_FV

Waterway Zone:



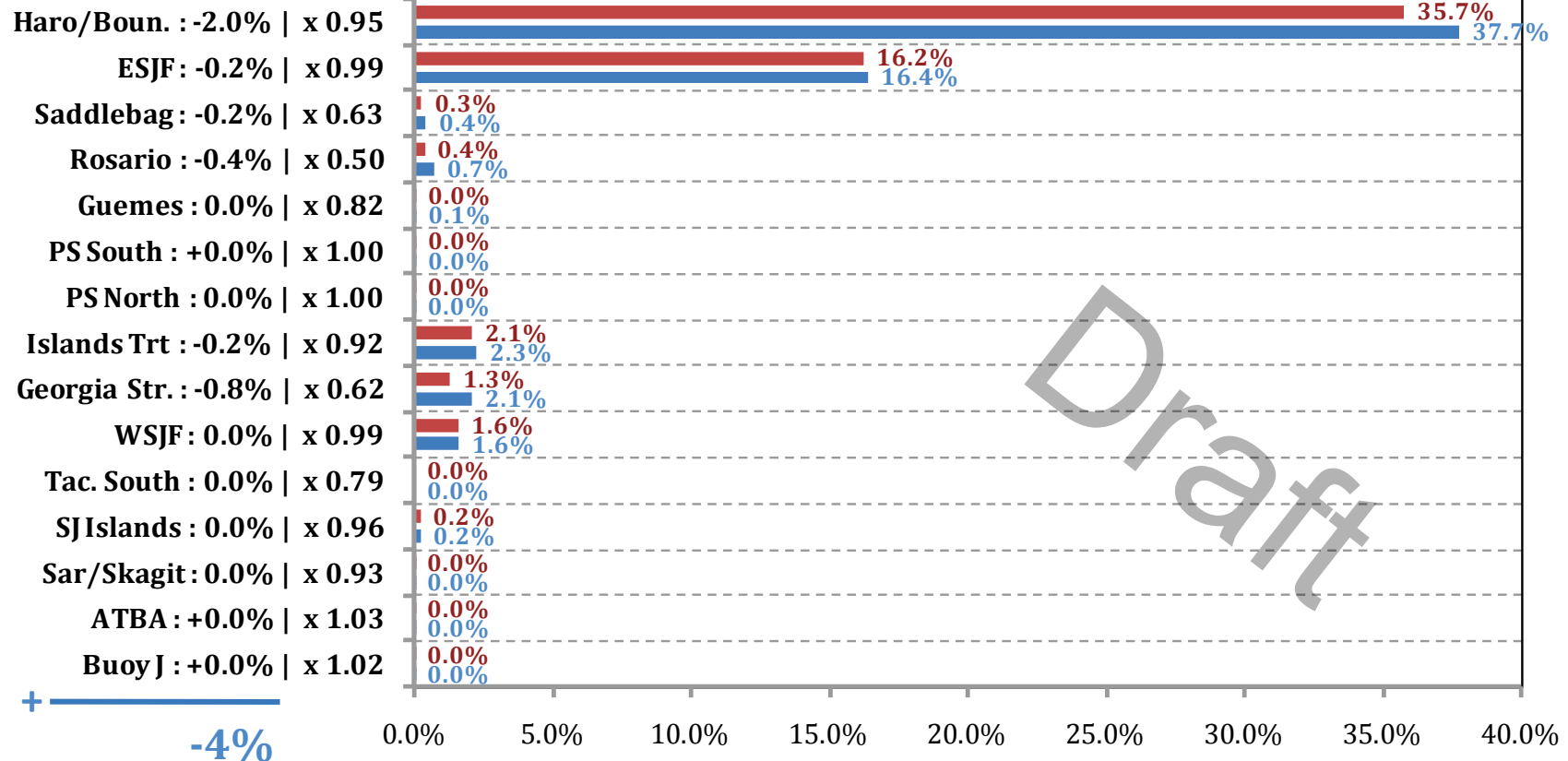
% Base Case Grounding Oil Loss (GOL) - ALL_FV

■ T:GW - KM - DP & EC: 156% (-4% | x 0.98) ■ T:GW - KM - DP: 159%

VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

% Base Case Grounding Oil Loss - WhatIf

Waterway Zone:



% Base Case Grounding Oil Loss (GOL) - WhatIf

■ T:GW - KM - DP & EC : 58% (-4% | x 0.94)

■ T:GW - KM - DP : 62%