

# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

3D Relative Risk Profile Comparison  
Potential Collision Accident Frequency

**CASE P: BASE CASE & Reduction Human Error  
Incident on Oil Barges by 50%**

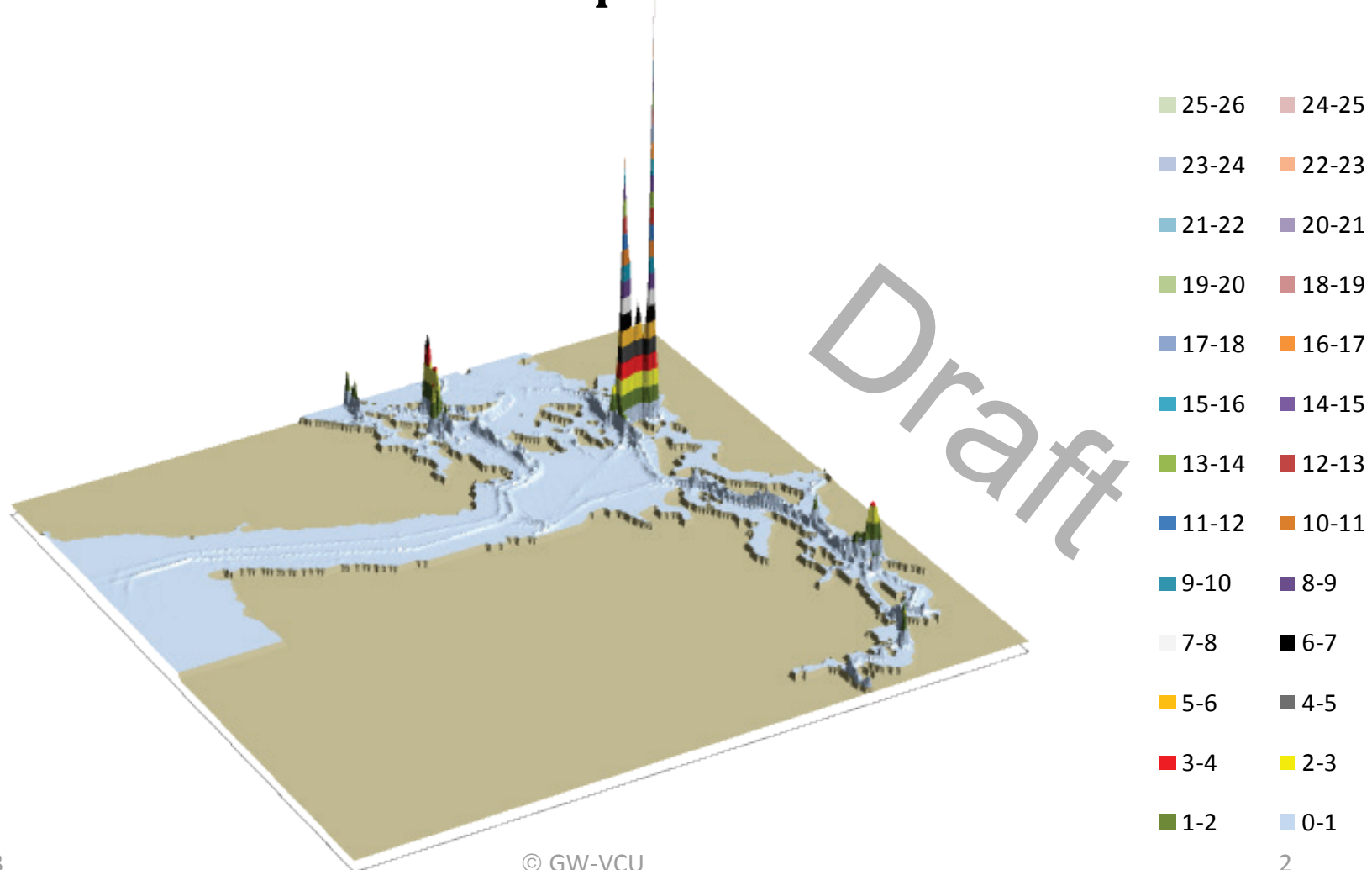
**Dr. J. Rene van Dorp and Dr. Jason R.W Merrick**

**November 2013**



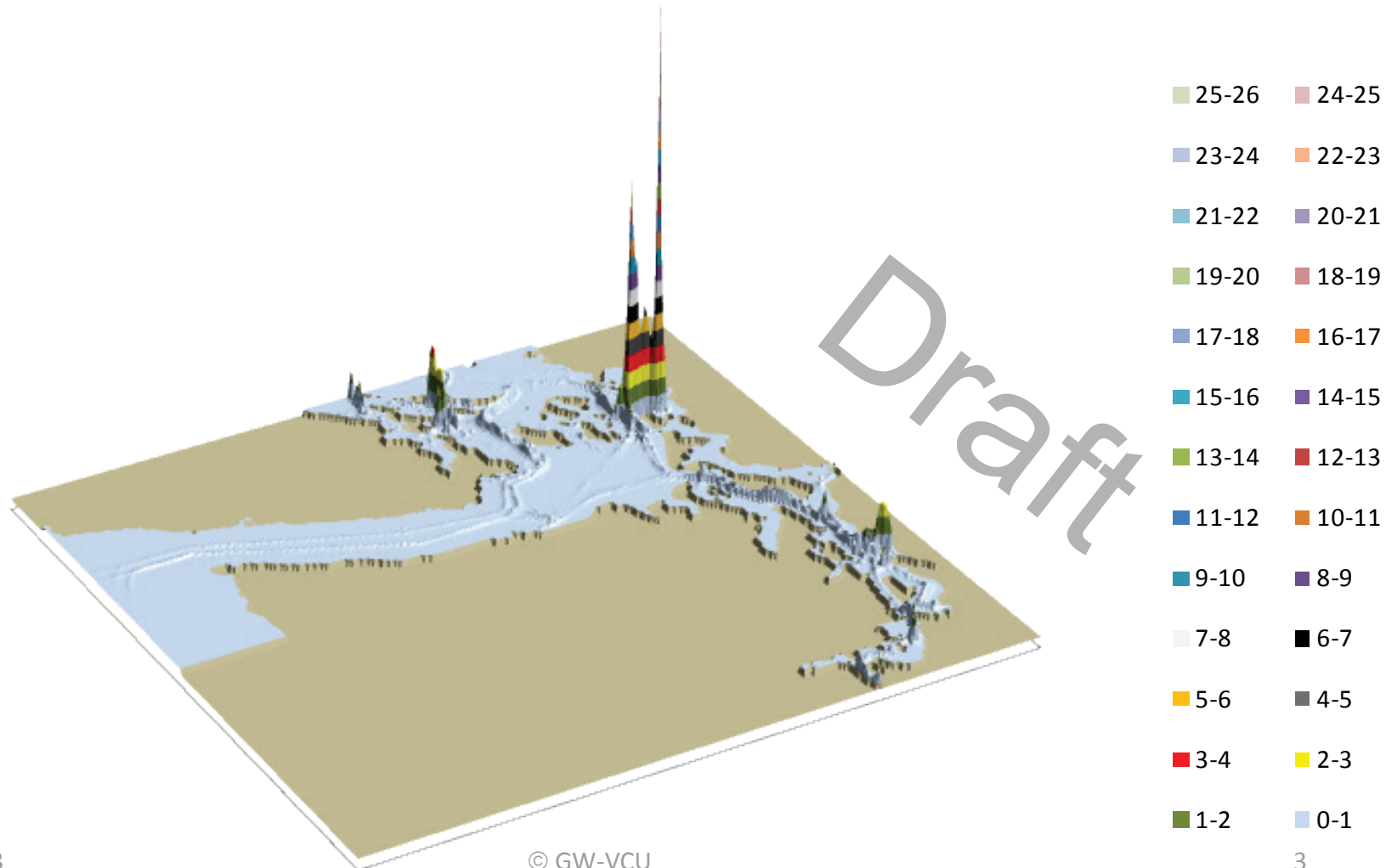
# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

## P: Base Case 3D Risk Profile All FV - Pot. Coll. Acc. Freq.: 100% of Base Case PCF



# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

## P: BC & OB HE50 3D Risk Profile All FV - Pot. Coll. Acc. Freq.: 89% of Base Case PCF



# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

P: VTRA 2010 - BASE CASE - All FV

100.0%

1.7%

69.6%

53.4%

Factor x Average  
# of Accidents

- > 100.00
- > 10.00
- 10.00
- 3.69
- 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

POTENTIAL COLLISION  
FREQUENCY - PCF

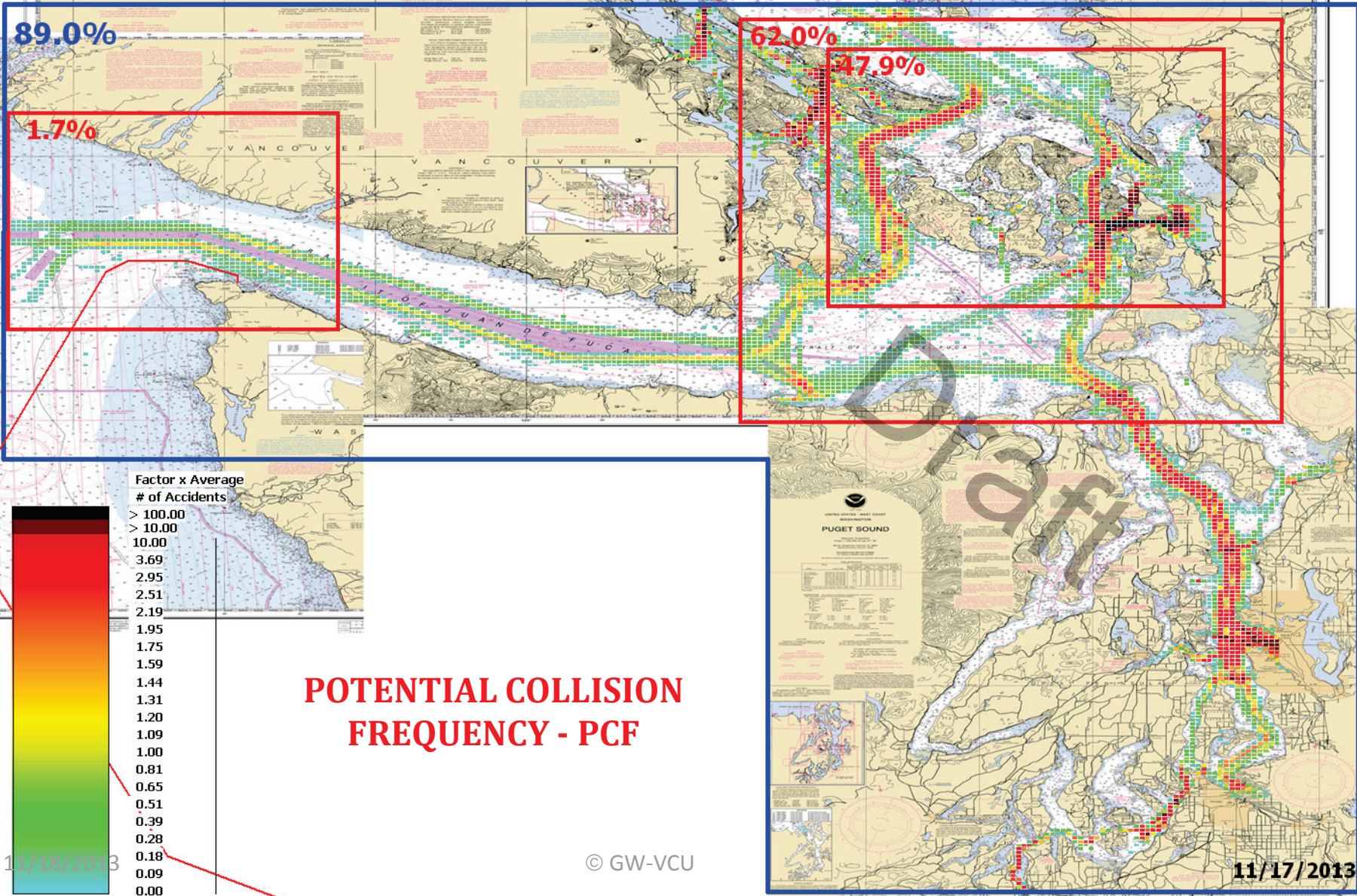
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# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

P: VTRA 2010 - BASE CASE & HUMAN ERROR OIL BARGE @ 50% - All FV



Factor x Average  
# of Accidents

- > 100.00
- > 10.00
- 10.00
- 3.69
- 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

POTENTIAL COLLISION  
FREQUENCY - PCF

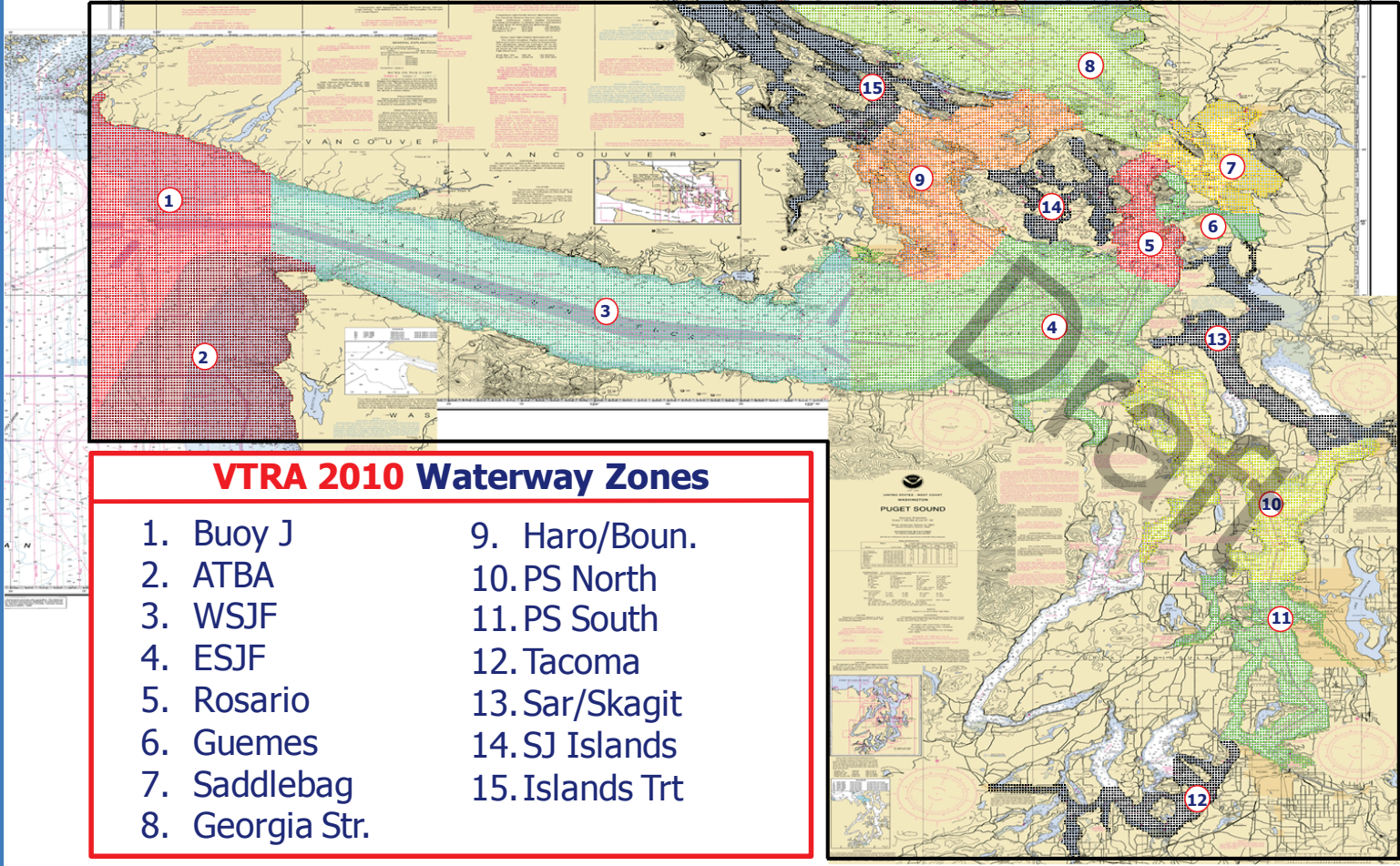
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# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

## DEFINITION OF 15 WATERWAY ZONES



### VTRA 2010 Waterway Zones

- |                 |                 |
|-----------------|-----------------|
| 1. Buoy J       | 9. Haro/Boun.   |
| 2. ATBA         | 10. PS North    |
| 3. WSJF         | 11. PS South    |
| 4. ESJF         | 12. Tacoma      |
| 5. Rosario      | 13. Sar/Skagit  |
| 6. Guemes       | 14. SJ Islands  |
| 7. Saddlebag    | 15. Islands Trt |
| 8. Georgia Str. |                 |

# VESSEL TRAFFIC RISK ASSESSMENT (VTRA) 2010

## % Base Case Collision Frequency - ALL\_FV

### Waterway Zone:

