

Portfolio Monte Carlo Example

**Robert K. Merrill, Ph.D.
Senior Exploration Advisor
Ammonite Resources**

Model Portfolio

- **Eight Exploration Prospects**
- **Variables**
 - ✓ Risk
 - ✓ Area
 - ✓ Net Pay
 - ✓ Porosity
 - ✓ Water Saturation
 - ✓ FVF
 - ✓ Recovery Efficiency
 - ✓ Reservoir Type
- **Describe the Range of Geologic Risk, Recoverable Resource and Risked Recoverable Resource**

Prospects

<u>Prospect</u>	<u>Pg</u>	<u>Area</u>	<u>Net pay</u>	<u>Porosity</u>	<u>Sw</u>	<u>Recovery</u>
Neptune	0.75	3000	50	0.25	0.45	0.15
Poseiden	0.43	1000	80	0.20	0.45	0.22
Diana	0.35	4800	75	0.20	0.45	0.18
Hercules	0.20	1300	50	0.20	0.45	0.20
Zeus	0.14	3300	50	0.20	0.45	0.20
Venus	0.20	2000	75	0.20	0.45	0.20
Macbeth						
FB1	0.33	1000	75	0.20	0.45	0.20
FB2	0.21	1250	75	0.20	0.45	0.20
Lear	0.07	2000	100	0.04	0.40	0.15

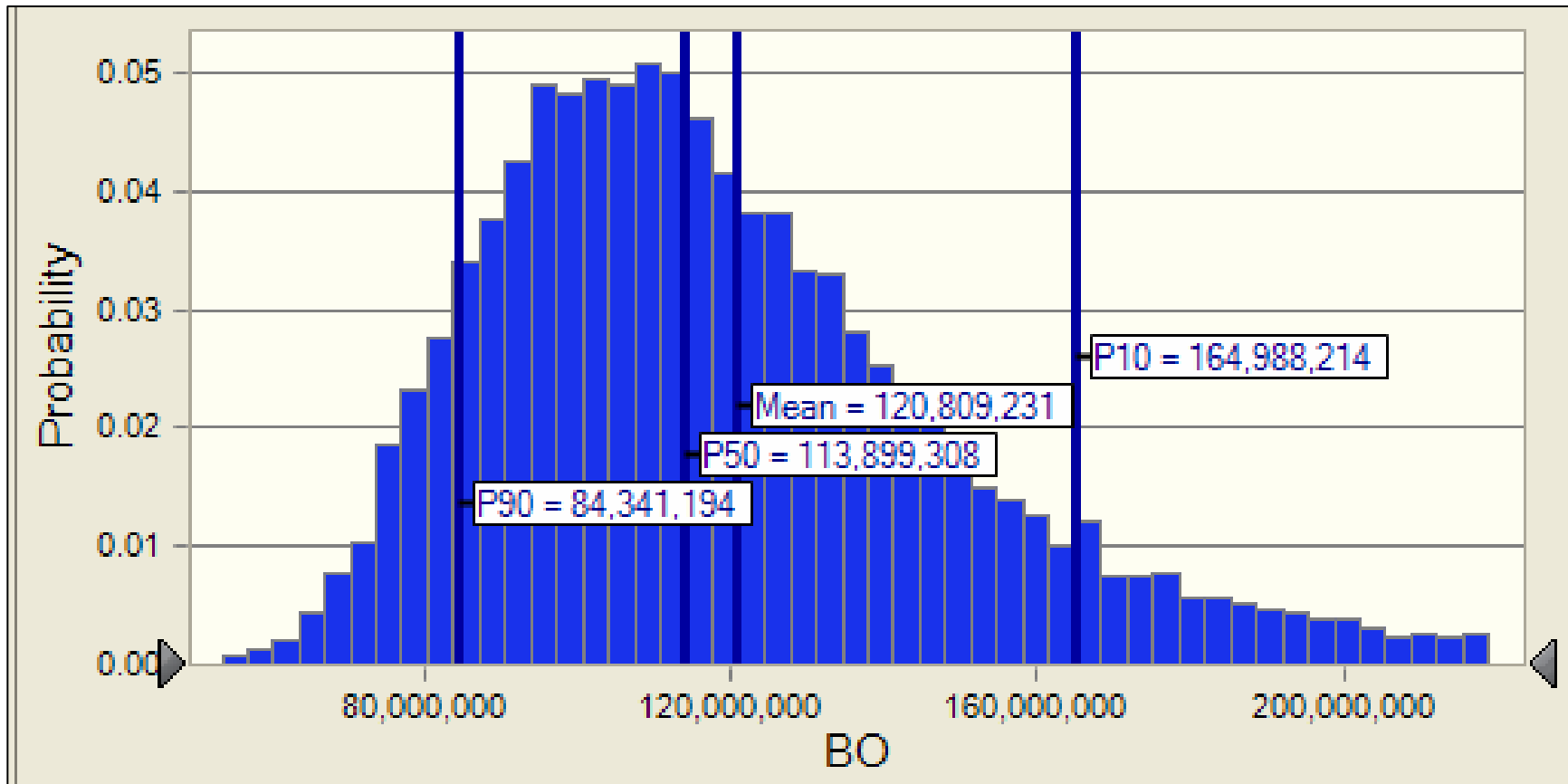
Geometric Factor 0.9

Initial Oil FVF = 1.035

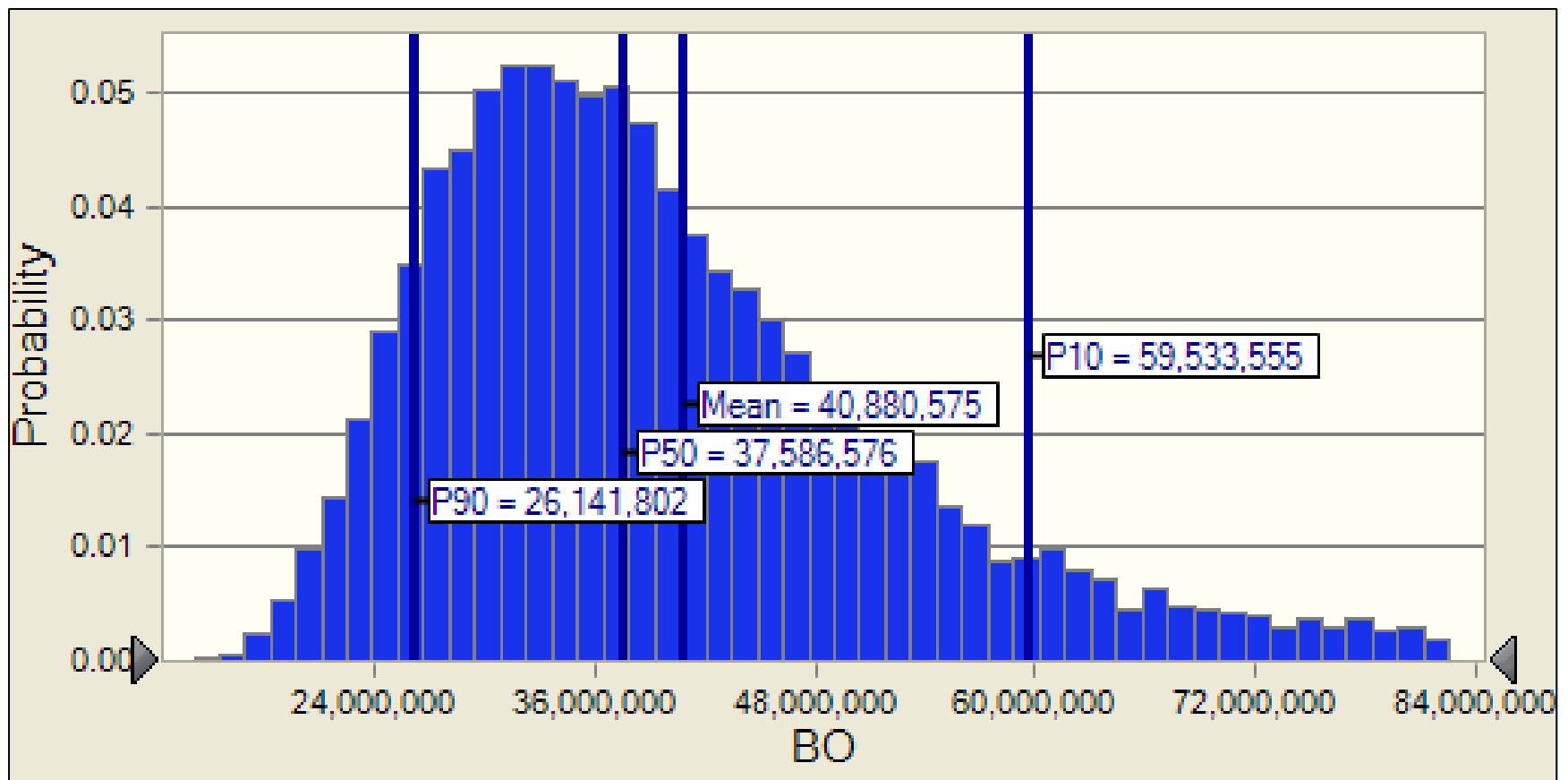
Portfolio Results

Unrisked Resources					
Oil (BO)					
	P10	P50	P90	Mean	
Neptune	25,102,295	14,838,721	8,722,750	16,112,487	
Poseiden	10,317,760	5,481,604	2,877,165	6,149,368	
Diana	79,070,425	31,327,370	12,079,889	40,122,406	
Hercules	11,865,010	6,774,976	3,760,827	7,410,876	
Zeus	32,241,299	17,974,014	9,766,041	19,774,147	
Venus	21,270,446	10,015,930	4,625,811	11,755,039	
Macbeth FB1	14,639,221	7,154,583	3,462,843	8,282,443	
Macbeth FB2	15,022,661	7,734,427	3,805,453	8,781,783	
Macbeth Total	29,661,882	14,889,010	7,268,296	17,064,226	
Lear	6,929,501	2,018,787	577,746	3,163,327	
Total	216,458,617	103,320,413	49,678,526	121,551,876	
Risky Resources					
Oil (BO)					
	P10	P50	P90	Mean	Mean Risk
Neptune	16,400,357	9,527,801	5,487,467	10,416,603	64.6%
Poseiden	4,902,742	2,552,179	1,286,516	2,877,278	46.8%
Diana	34,931,549	13,630,958	5,165,347	17,624,673	43.9%
Hercules	1,781,482	957,691	499,733	1,070,528	14.4%
Zeus	4,243,514	2,237,702	1,144,262	2,514,143	12.7%
Venus	3,151,959	1,408,097	620,462	1,697,473	14.4%
Macbeth FB1	6,372,416	3,065,279	1,428,623	3,560,091	43.0%
Macbeth FB2	2,258,018	1,088,696	513,995	1,267,511	14.4%
Macbeth Total	8,630,434	4,153,975	1,942,618	4,827,603	28.3%
Lear	397,386	104,547	26,668	176,325	5.6%
Total	74,439,423	34,572,949	16,173,072	41,204,626	33.9%

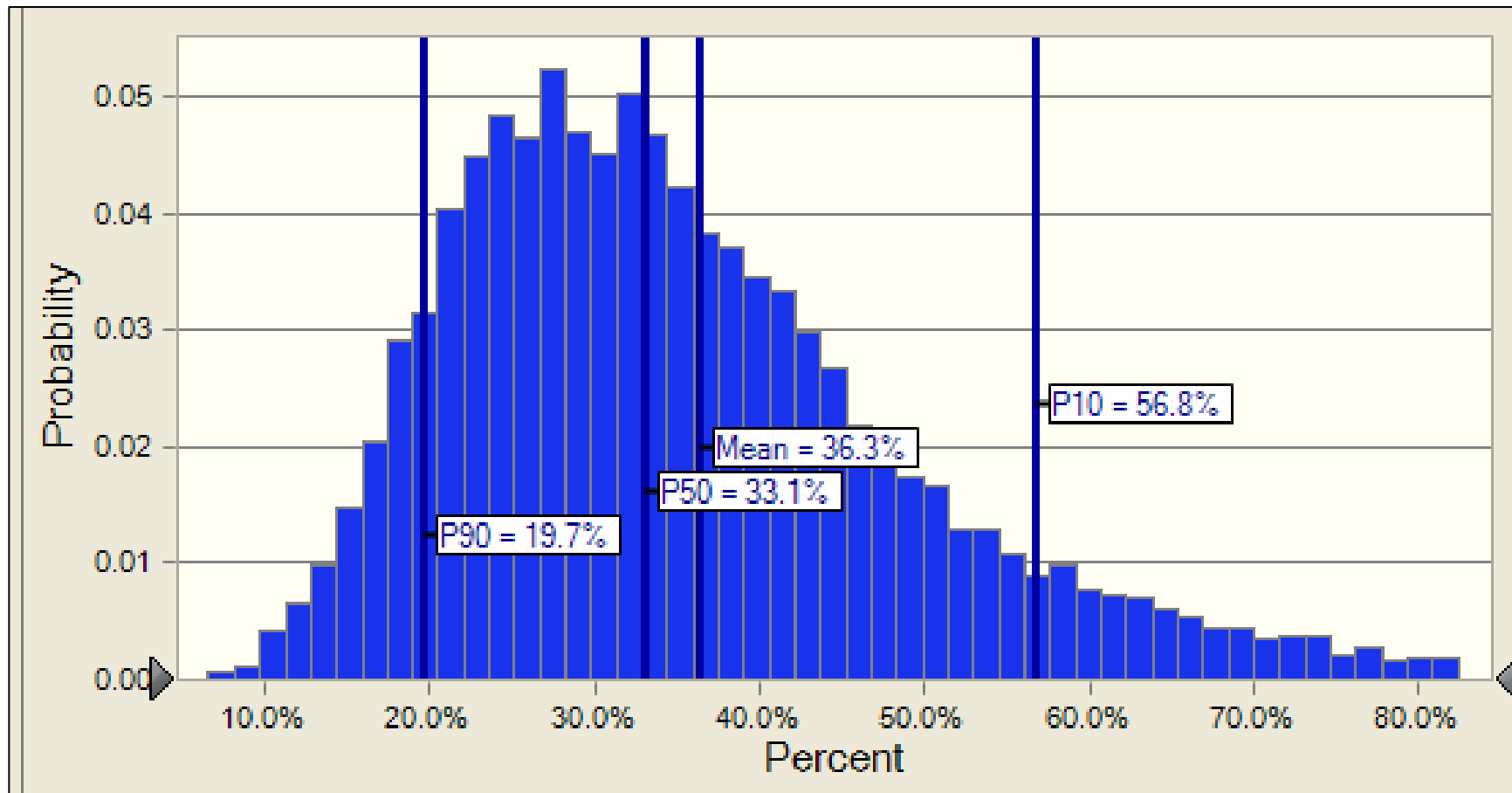
Total Unrisked Resource



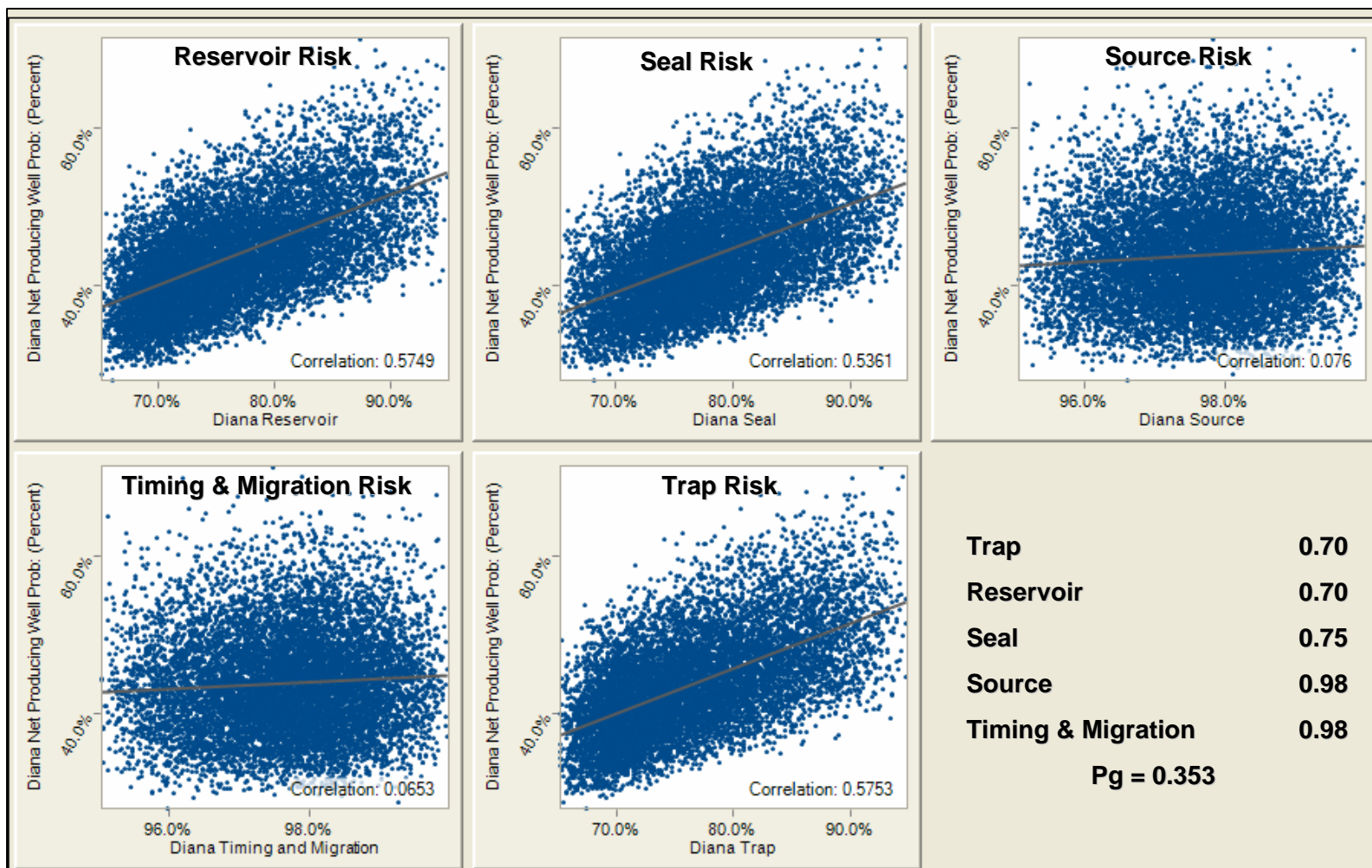
Total Risked Resource



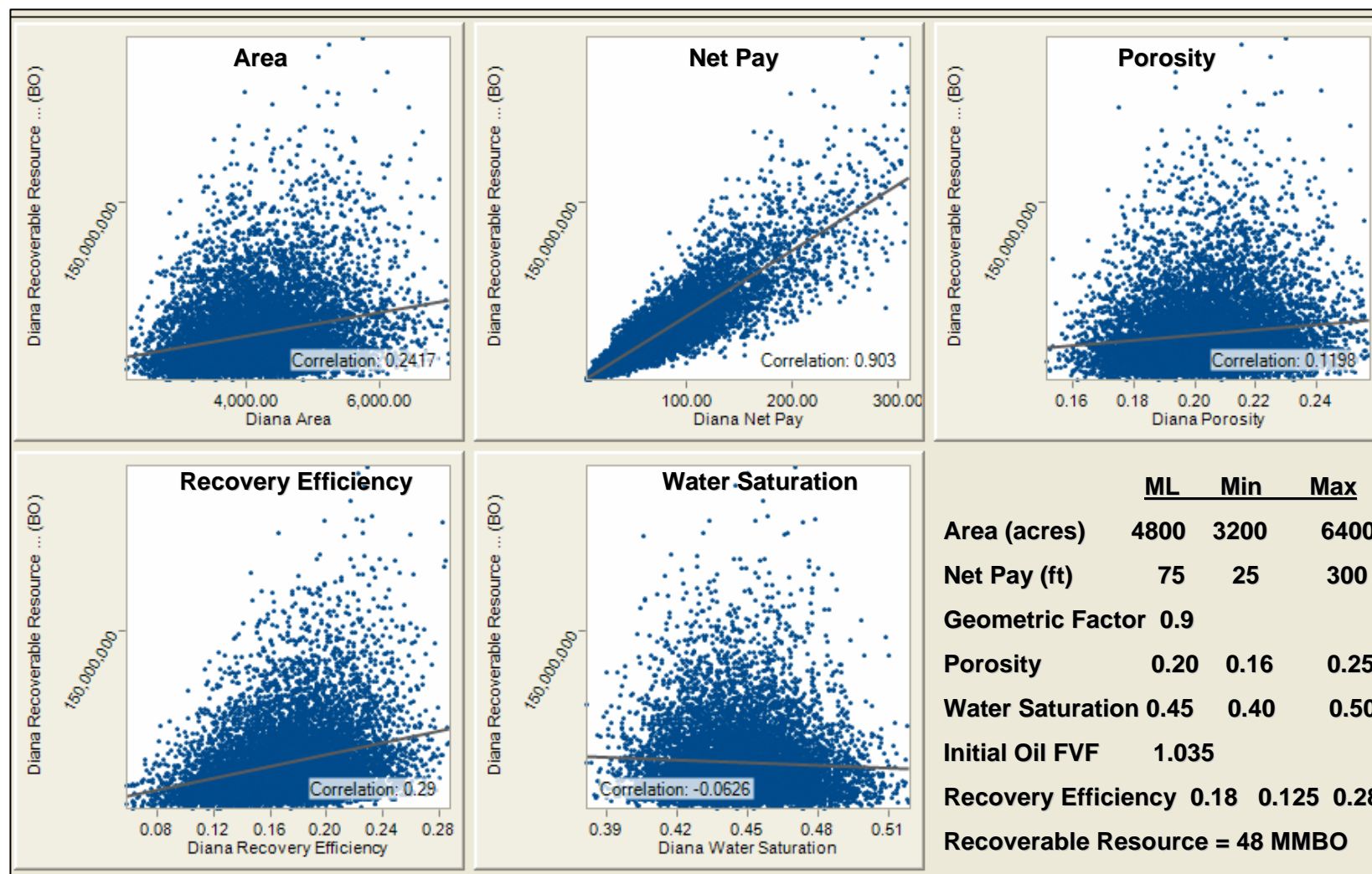
Portfolio Geologic Risk (Pg)



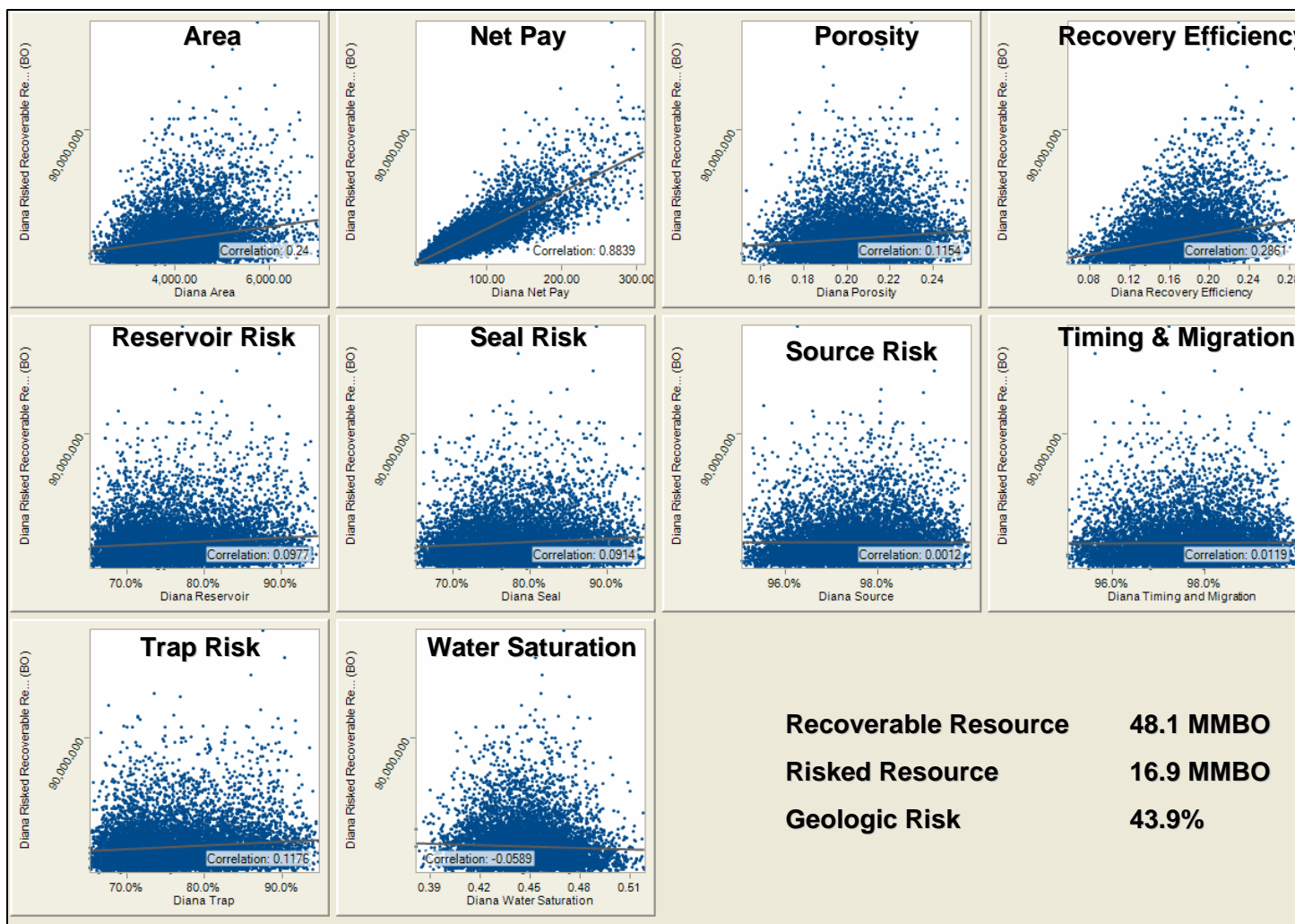
Diana Geologic Risk (Pg)



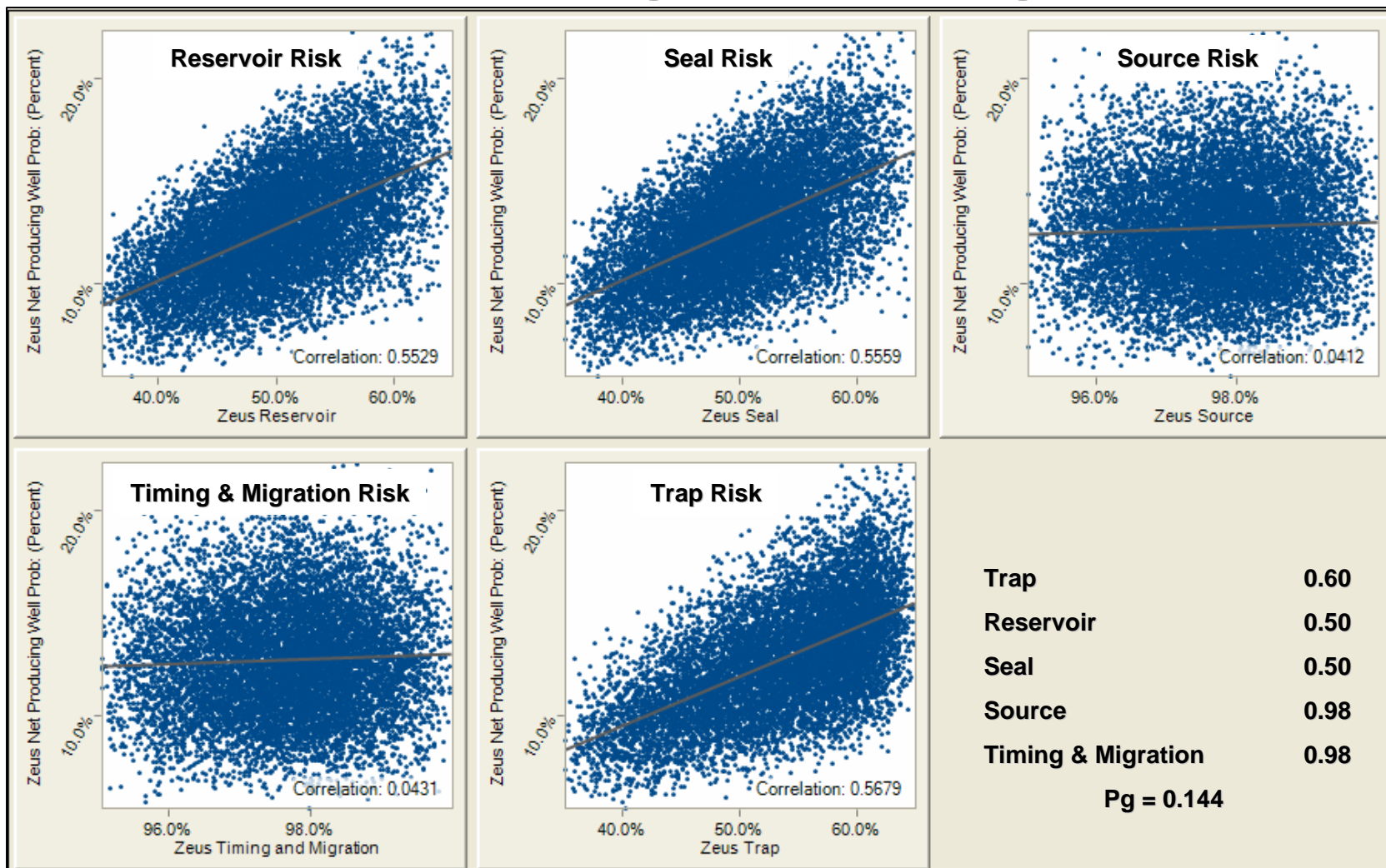
Diana Recoverable Resource



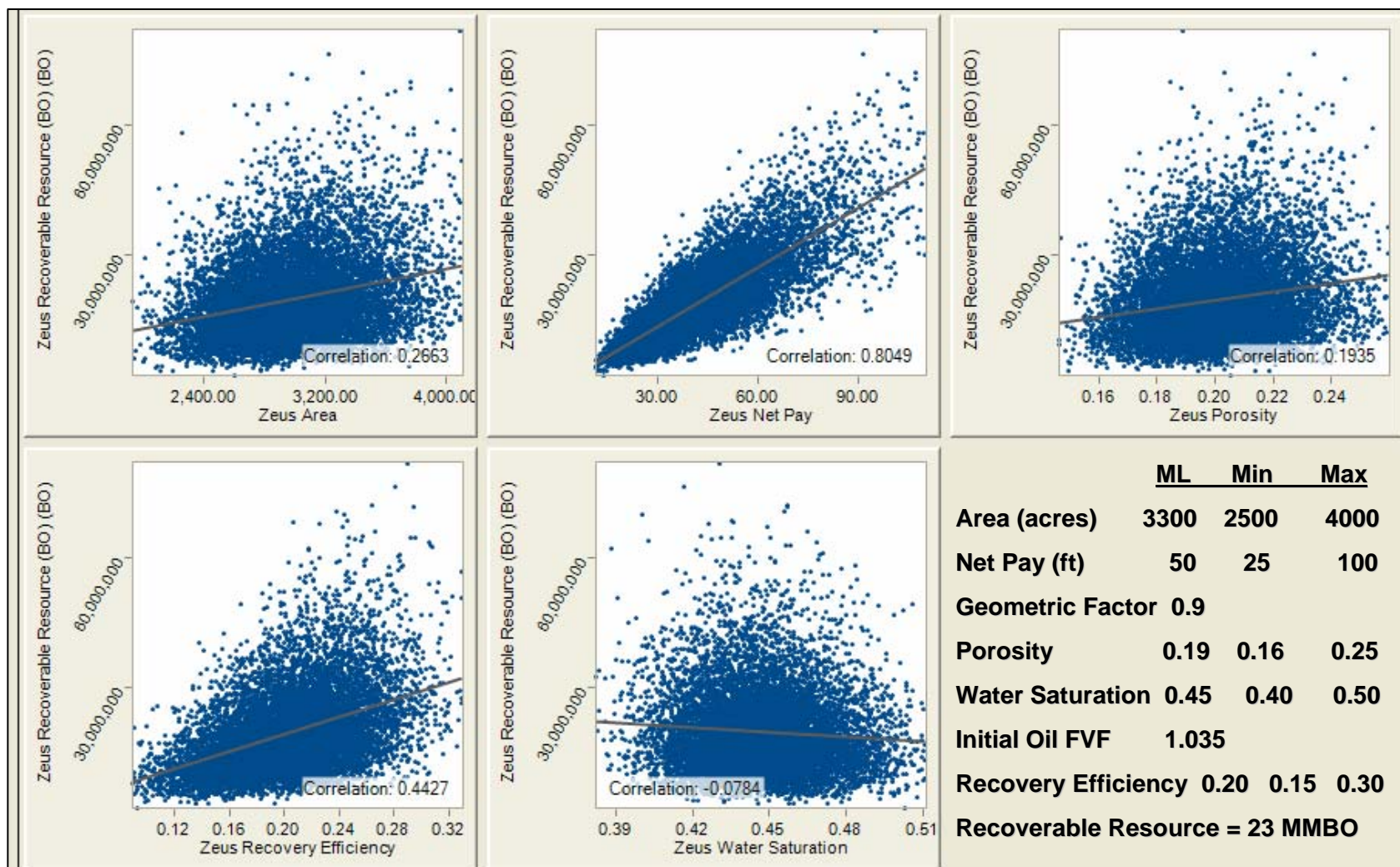
Diana Risked Recoverable Resource



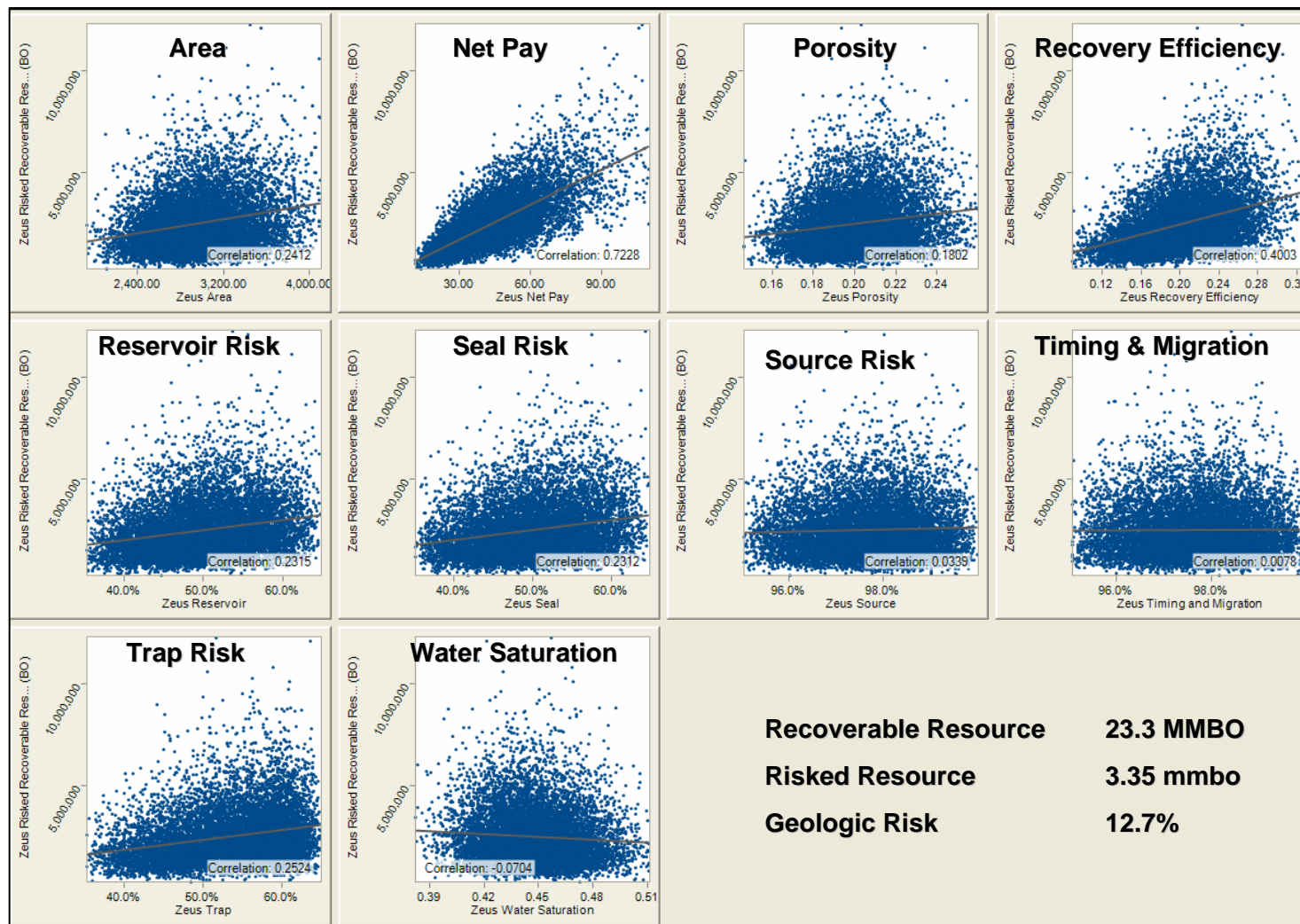
Zeus Geologic Risk (Pg)



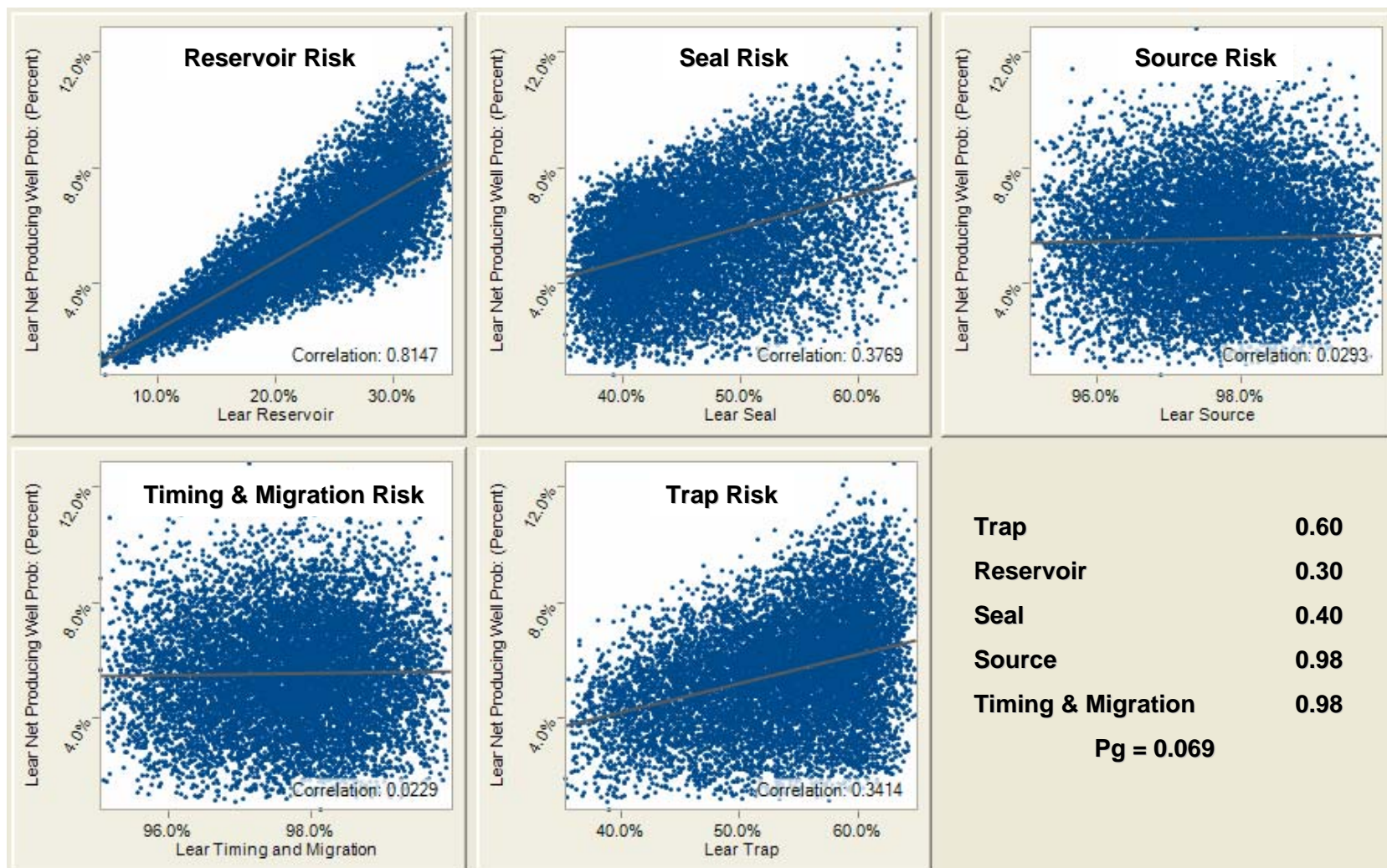
Zeus Recoverable Resource



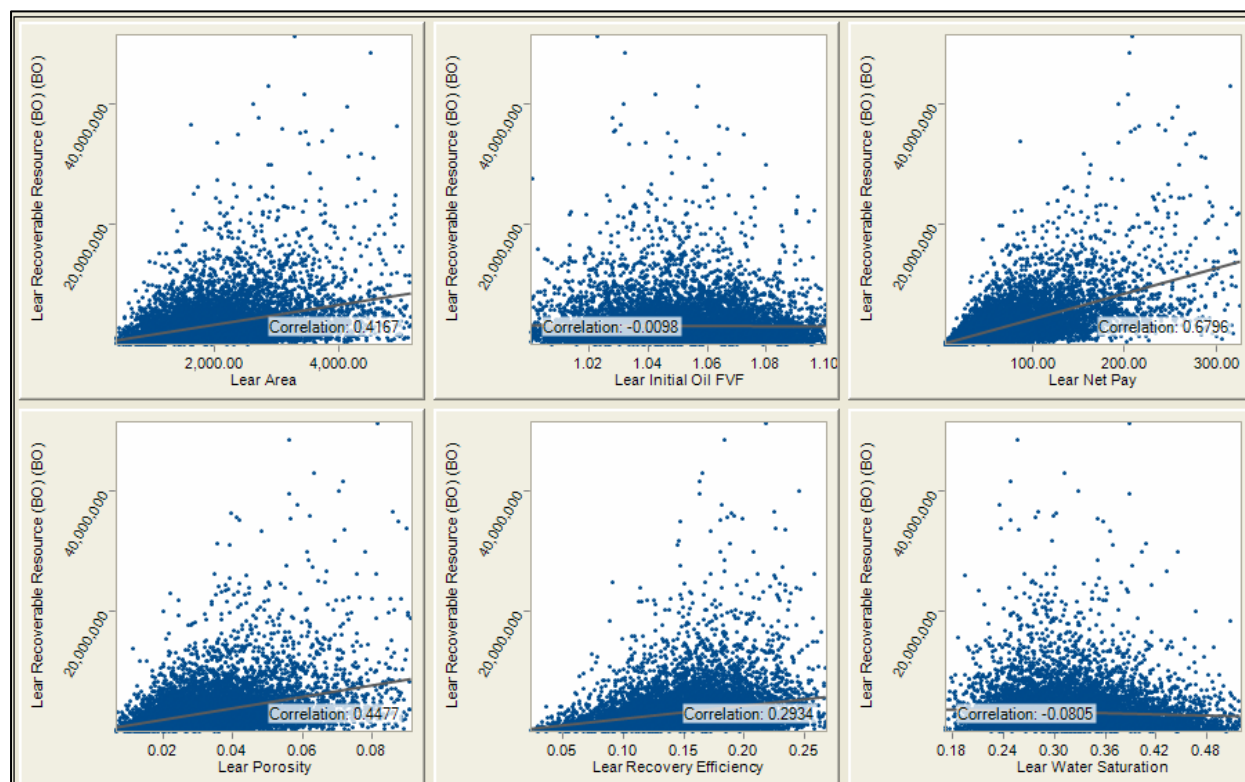
Zeus Risked Recoverable Resource



Lear POSg

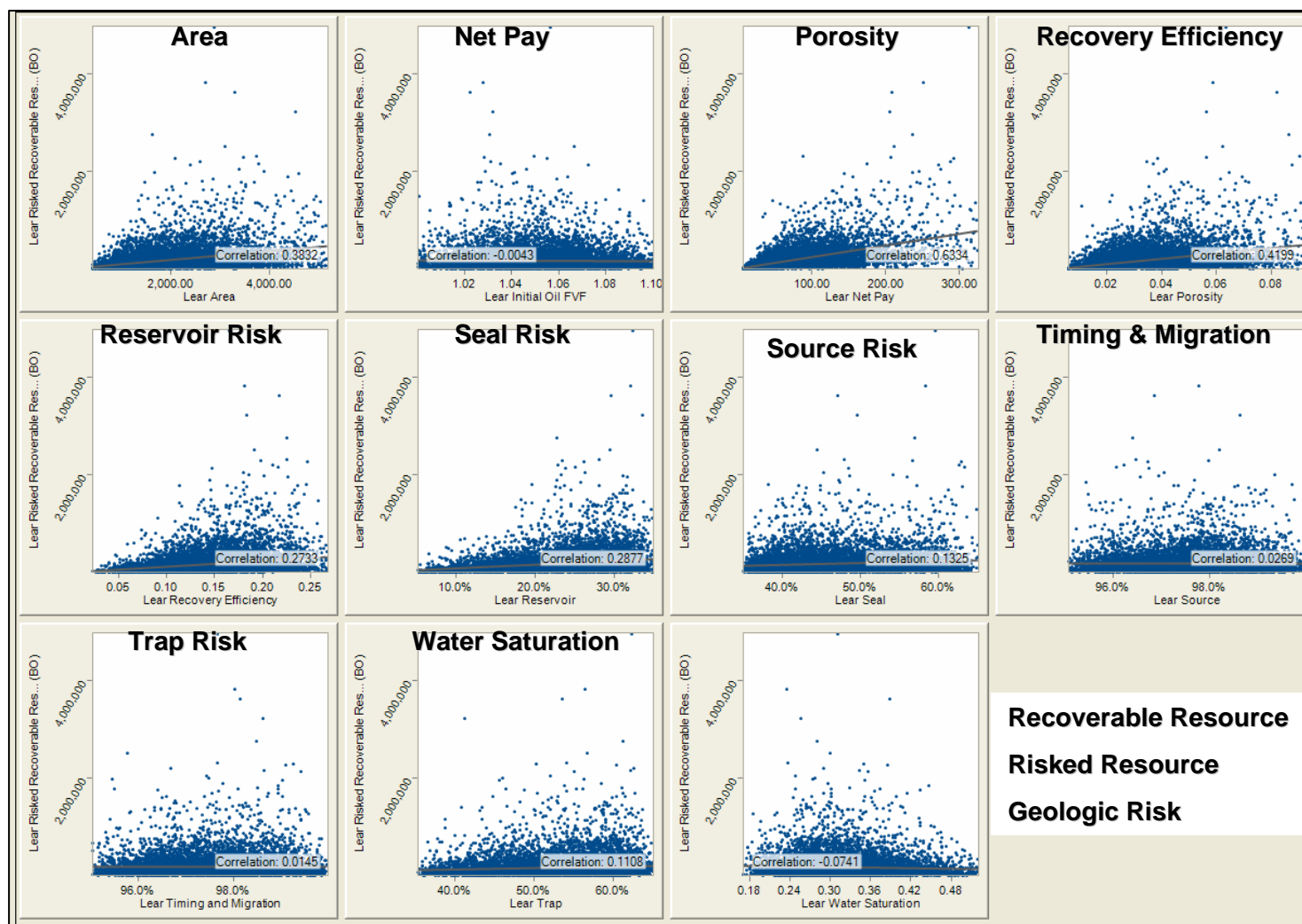


Lear Recoverable Resource



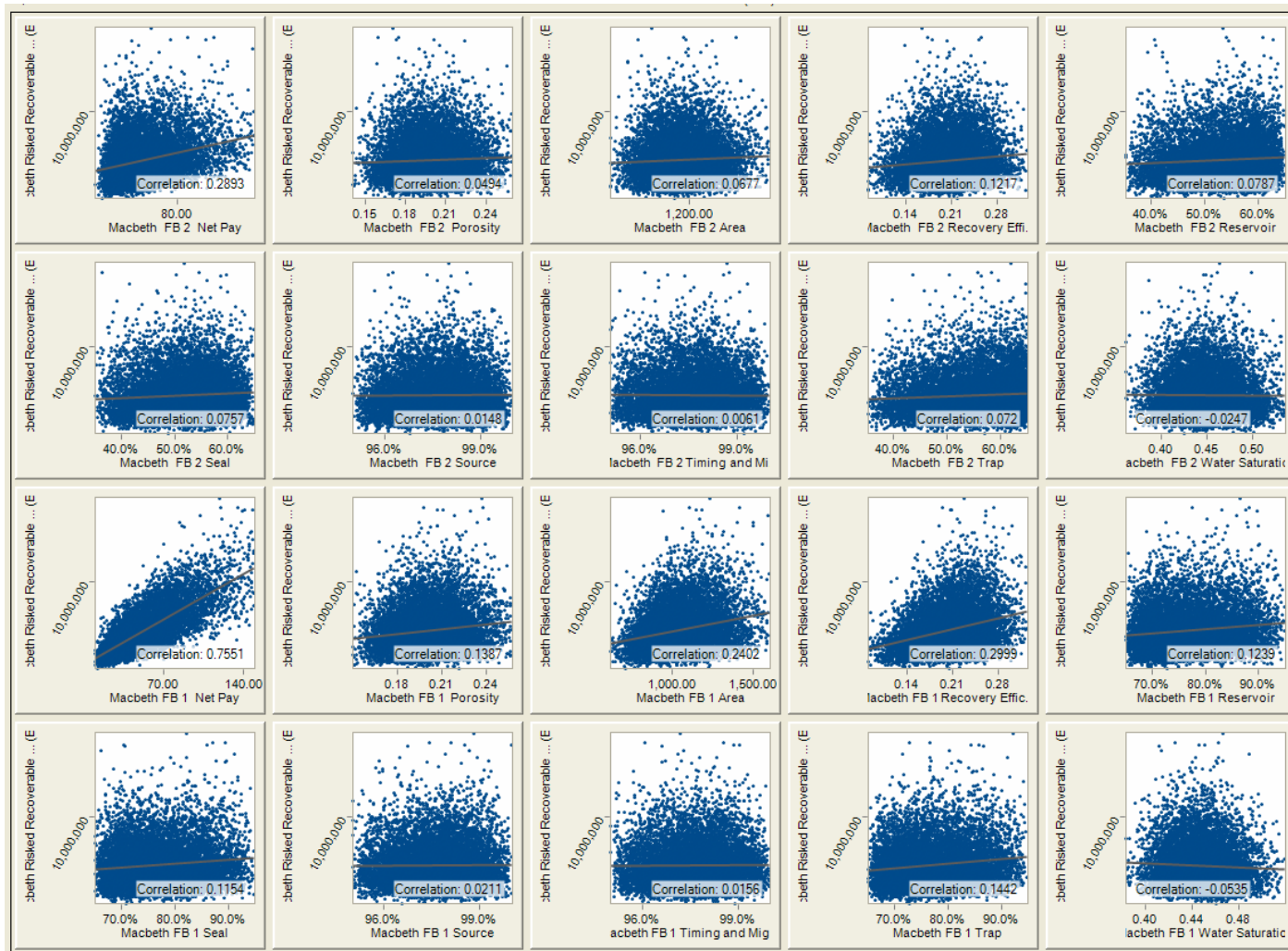
	<u>ML</u>	<u>Min</u>	<u>Max</u>
Area (acres)	2000	1000	5000
Net Pay (ft)	100	25	300
Geometric Factor	0.9		
Porosity	0.04	0.01	0.09
Water Saturation	0.45	0.20	0.50
Initial Oil FVF	1.035	1.000	1.100
Recovery Efficiency	0.15	0.05	0.25
Recoverable Resource = 4.9 MMBO			

Lear Risked Recoverable Resource



Macbeth Risked Recoverable Resource

Two Fault Blocks



Summary

- **Monte Carlo Simulation**
 - ✓ Hydrocarbons in place
 - ✓ Recoverable Resource
 - ✓ Risked Recoverable Resource
 - ✓ Geologic Risk
- **Range of Outcomes with associated probabilities**
 - ✓ Mean
 - ✓ P10 – P90 range
- **Scatter plots deliver insights into what parameters are most important with respect to variance**
 - ✓ For each prospect
 - ✓ For the portfolio

For Further Information Contact:

Robert K. Merrill
(832) 289-0494
rmerrill@catheart.com

G. Warfield (Skip) Hobbs
(203) 972-1130
SkipHobbs@AmmoniteResources.com