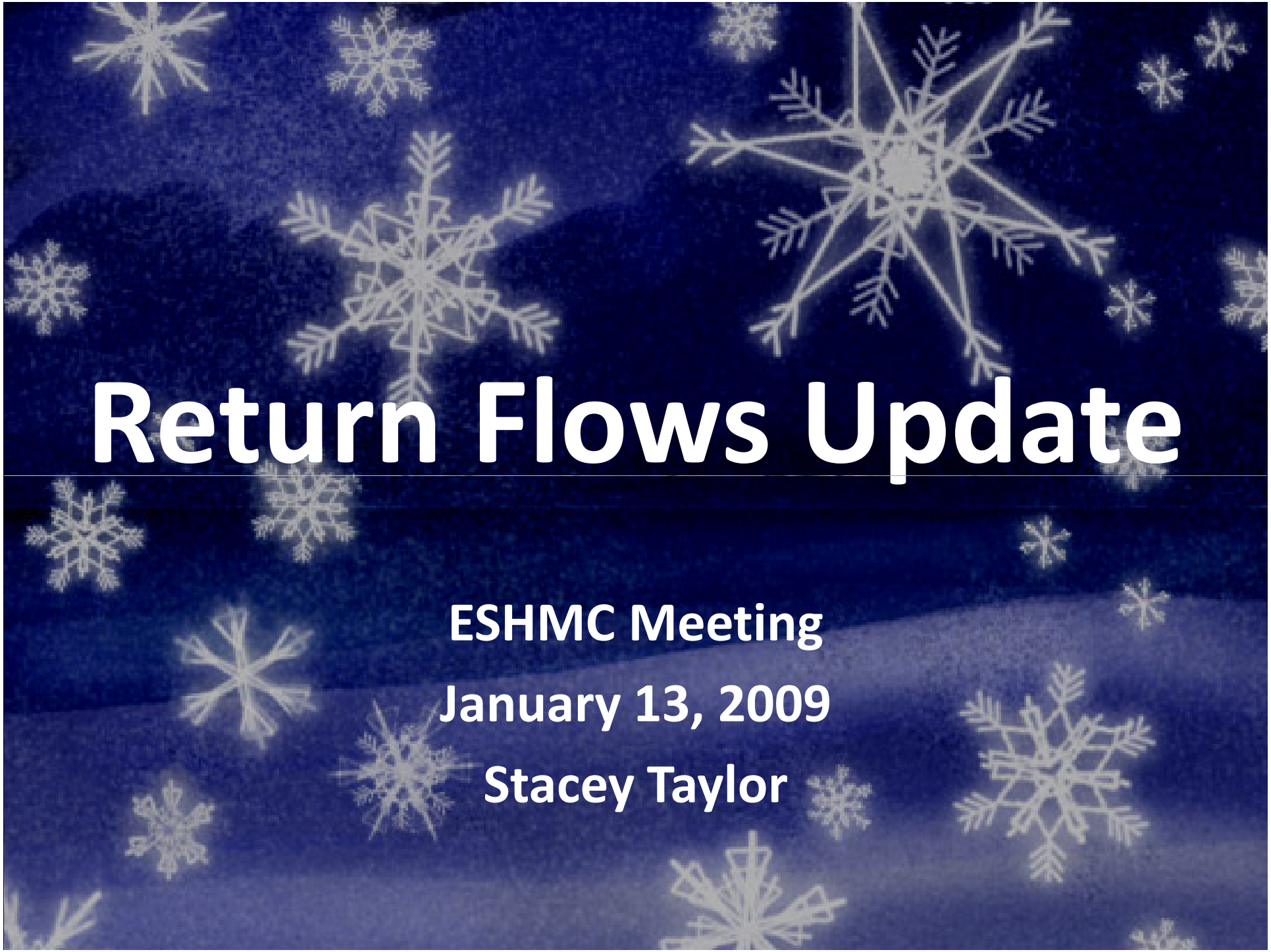


Return Flows Update

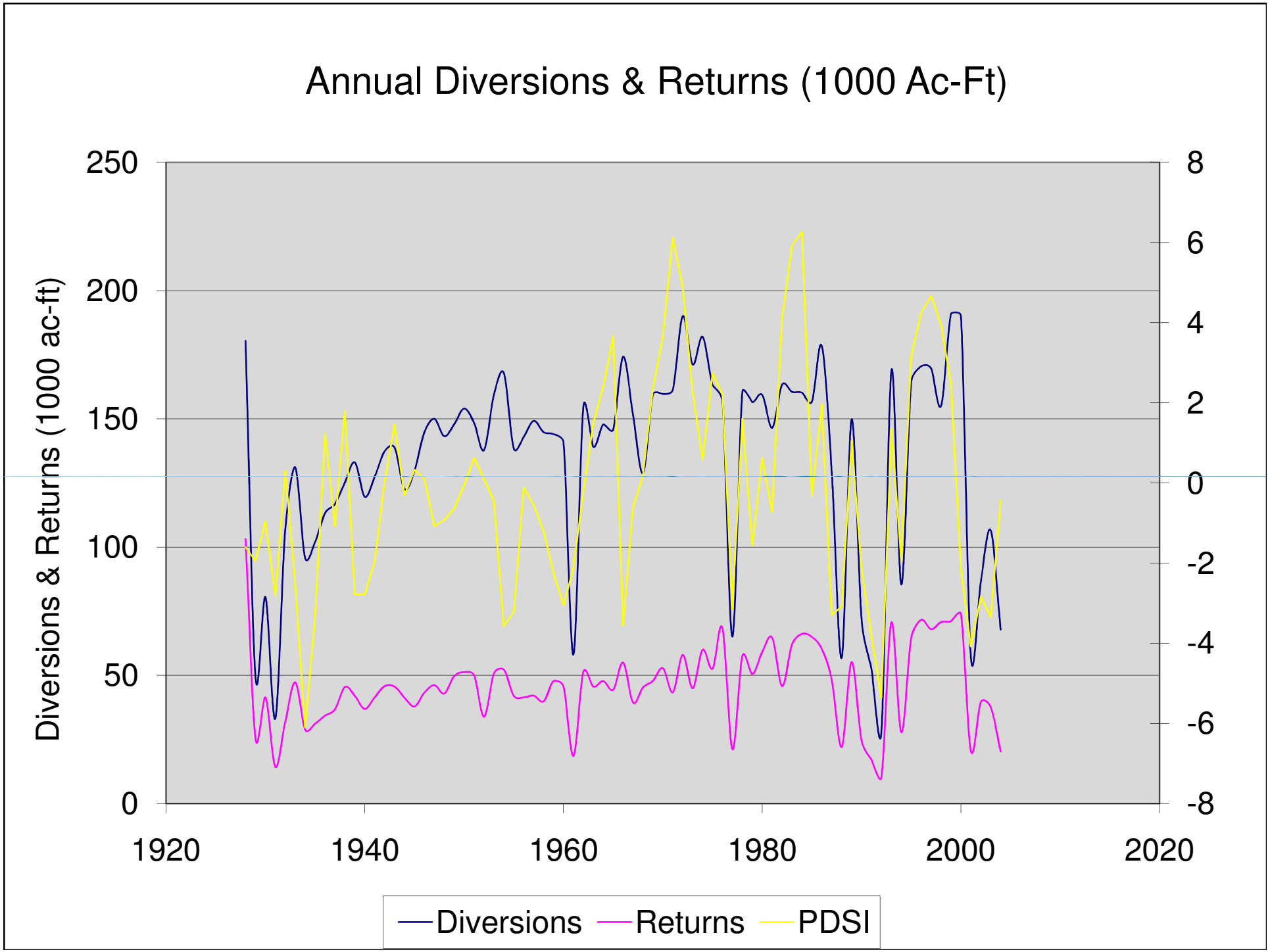
ESHMC Meeting

January 13, 2009

Stacey Taylor

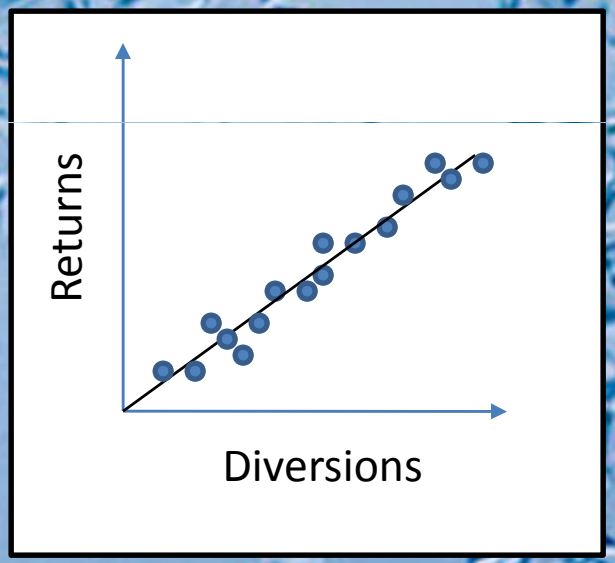
Last Meeting

- Kraig Grubaugh analyzed Richfield Canal for graduate student work
- Richfield entity (IESW054) inflows and outflows:
  - Inflow:
    - Richfield #4
  - Outflows:
    - Marley Slough (Cottonwood slough)
    - Jim Burn Slough (East and West Main)
    - Wasteways A to E


Annual Diversions & Returns (1000 Ac-Ft)
Diversions & Returns (1000 ac-ft)
250
200
150
100
50
0
8
6
4
2
0
-2
-4
-6
-8
1920
1940
1960
1980
2000
2020
Diversions
Returns
PDSI

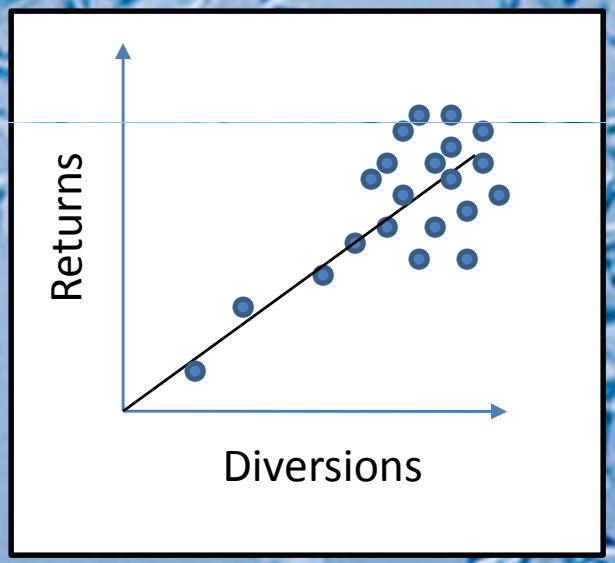
Results

- Dry years yield linear features for plot of Returns vs. Diversions

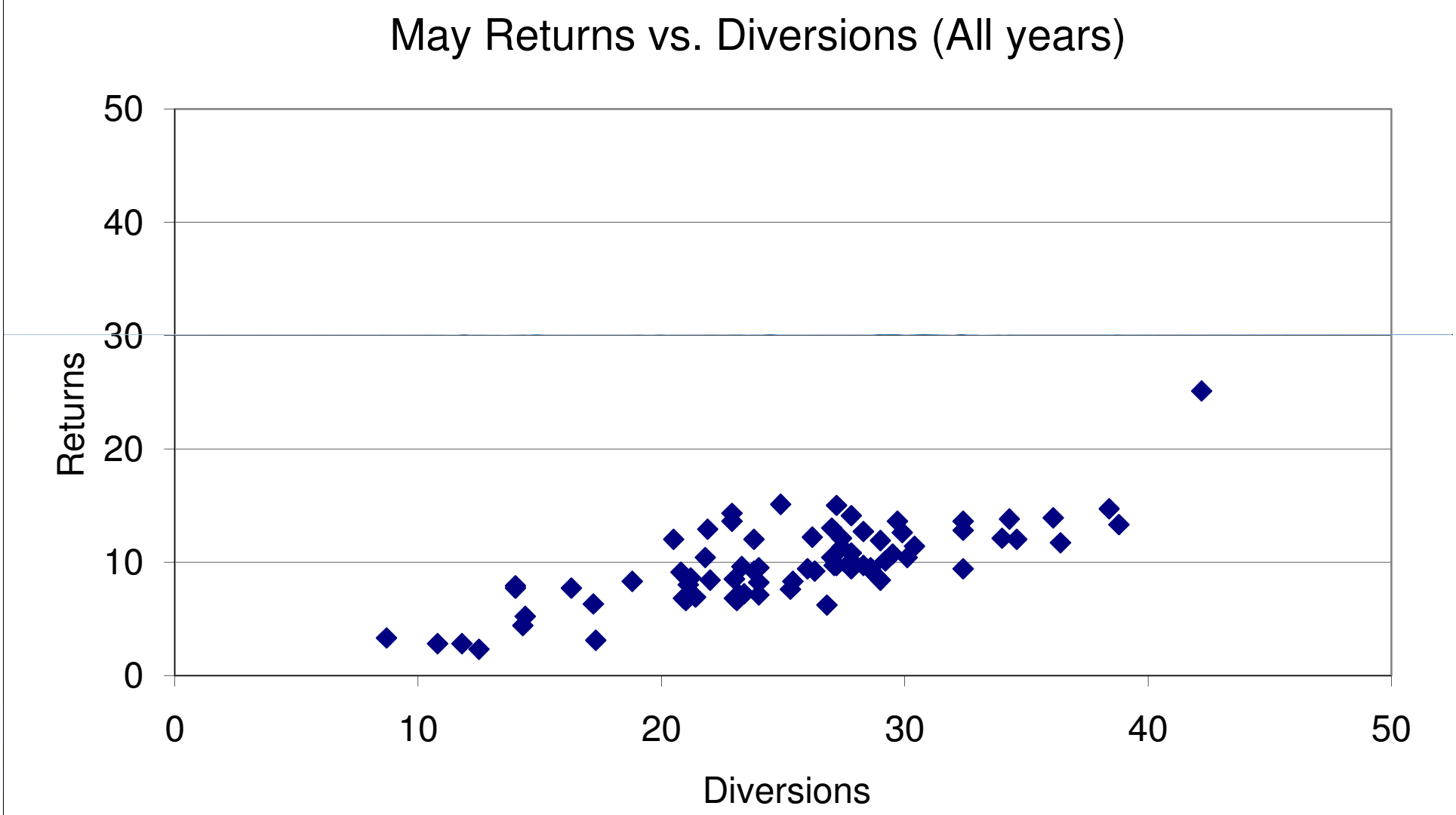


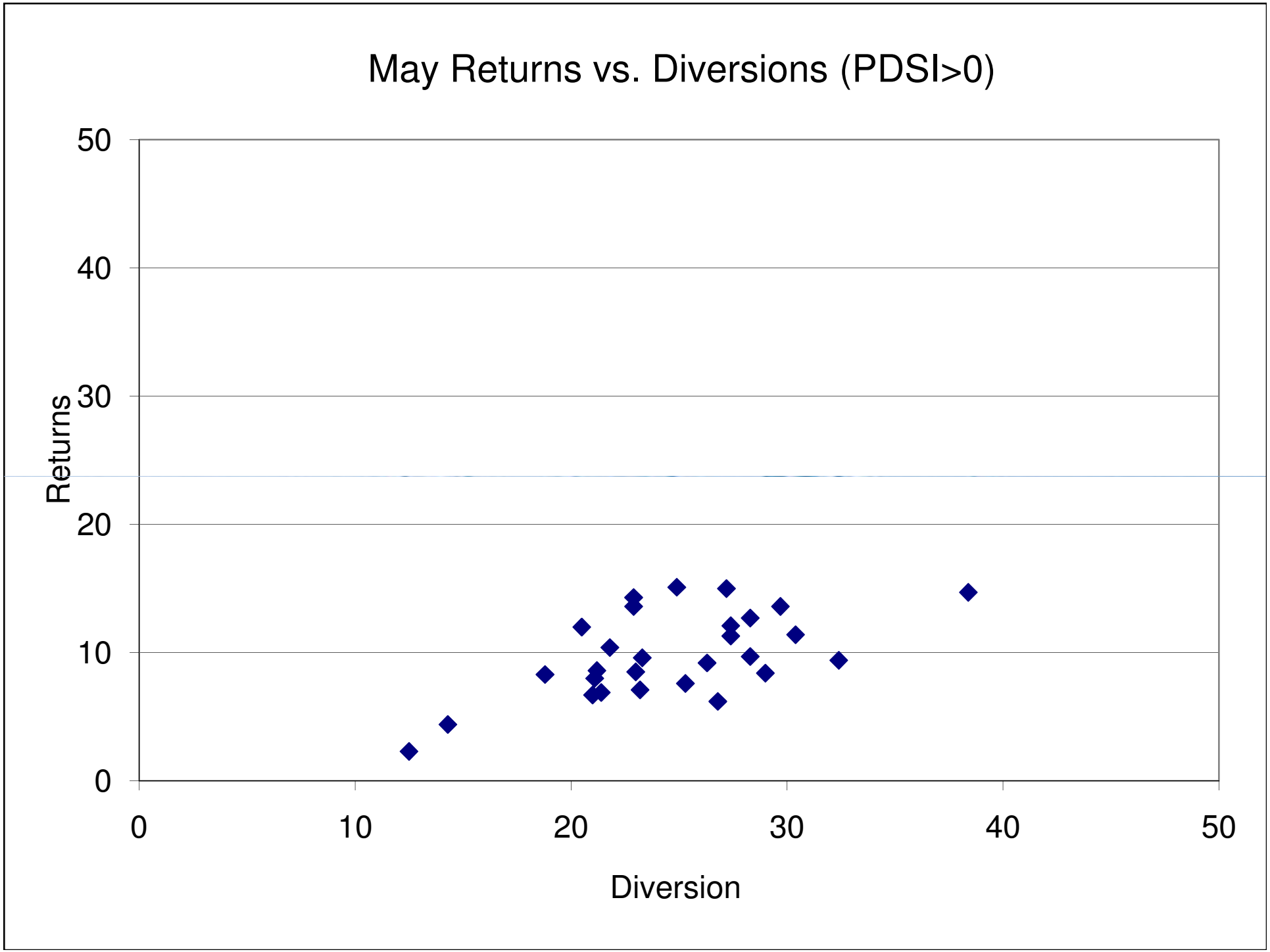
Results (continued)

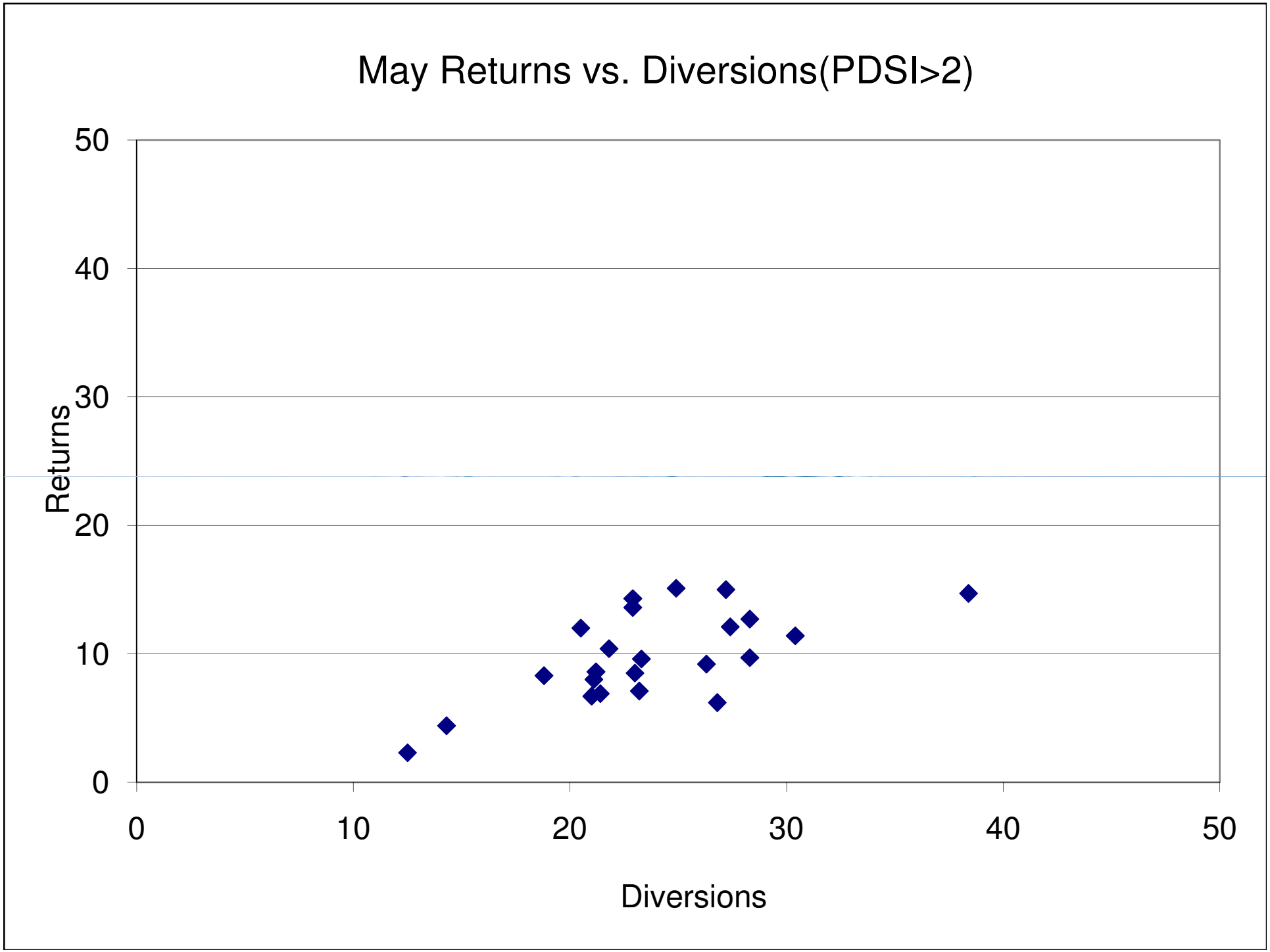
- For wet years, linear features are much less visible

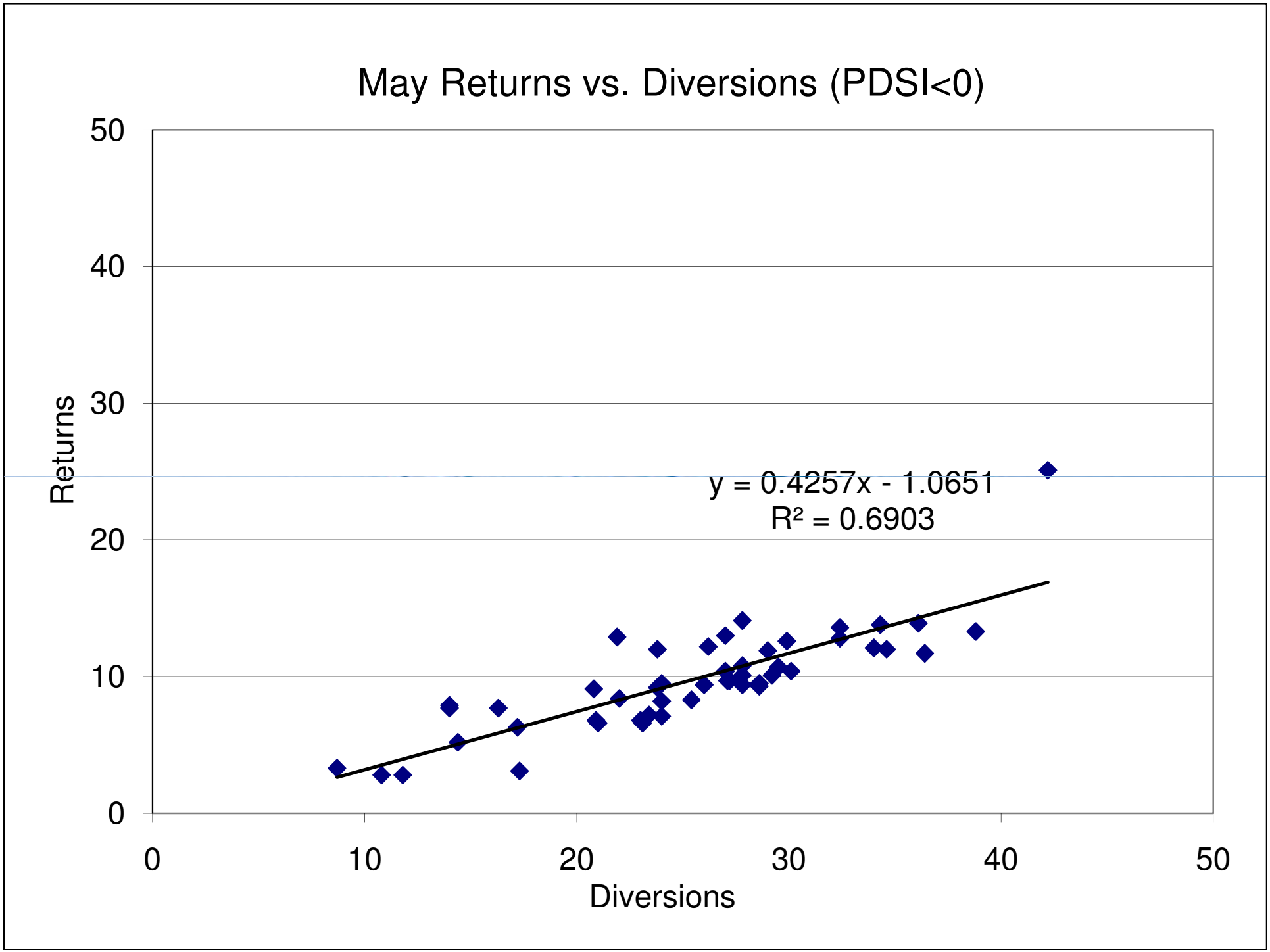


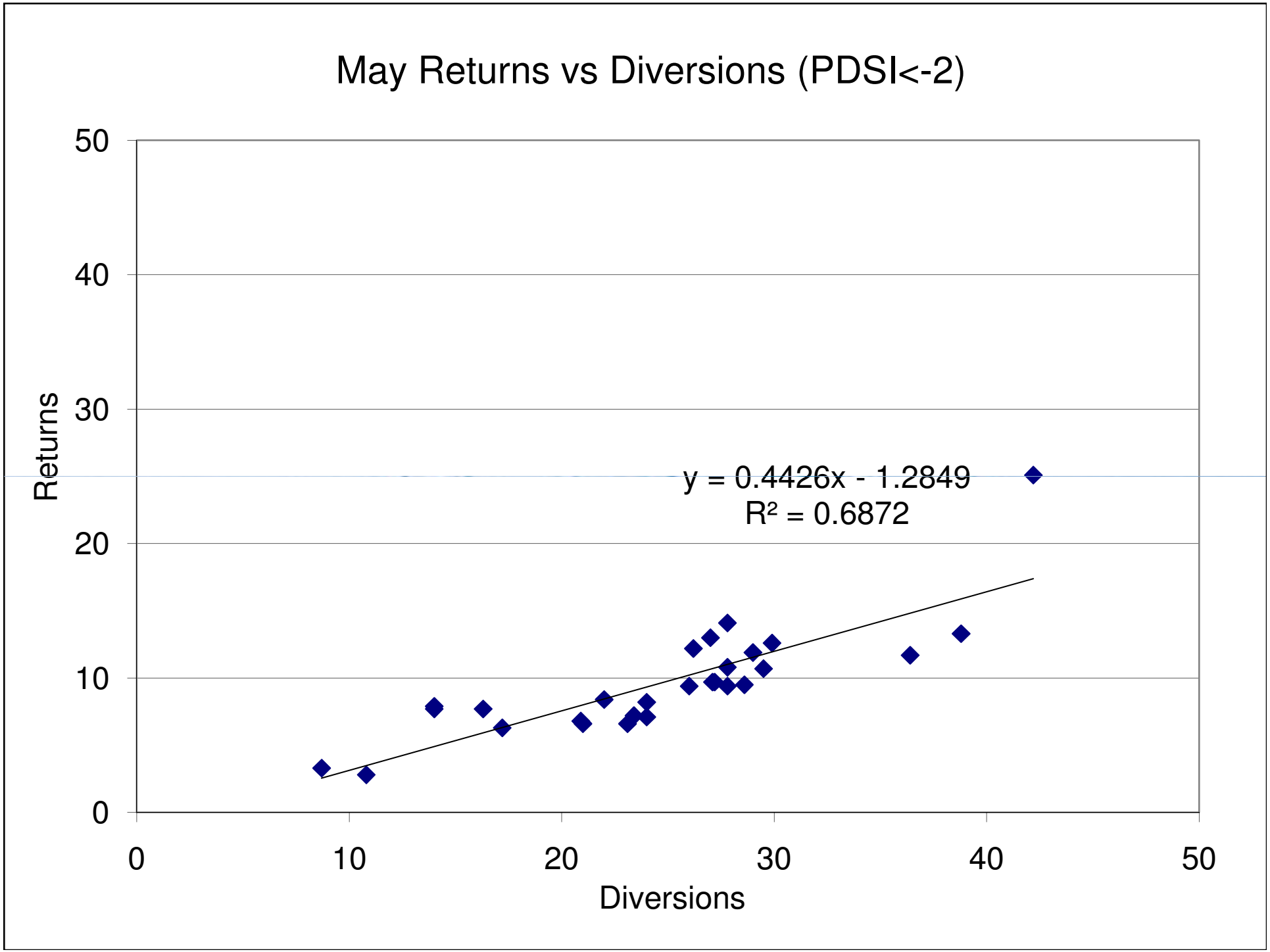
Returns/Diversions Month-by-Month (May)



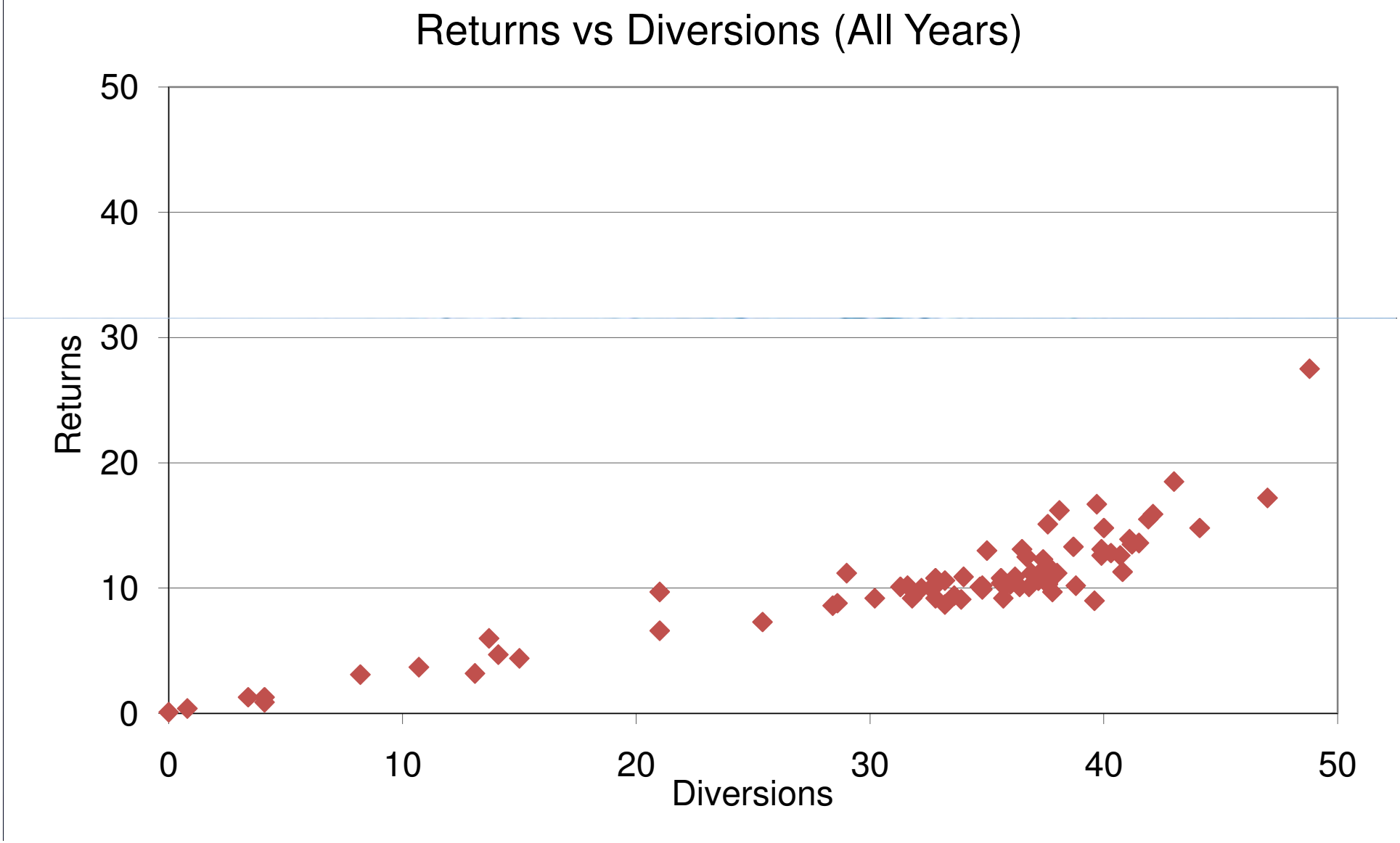

May Returns vs. Diversions (PDSI>0)
Returns
Diversion
0
10
20
30
40
50

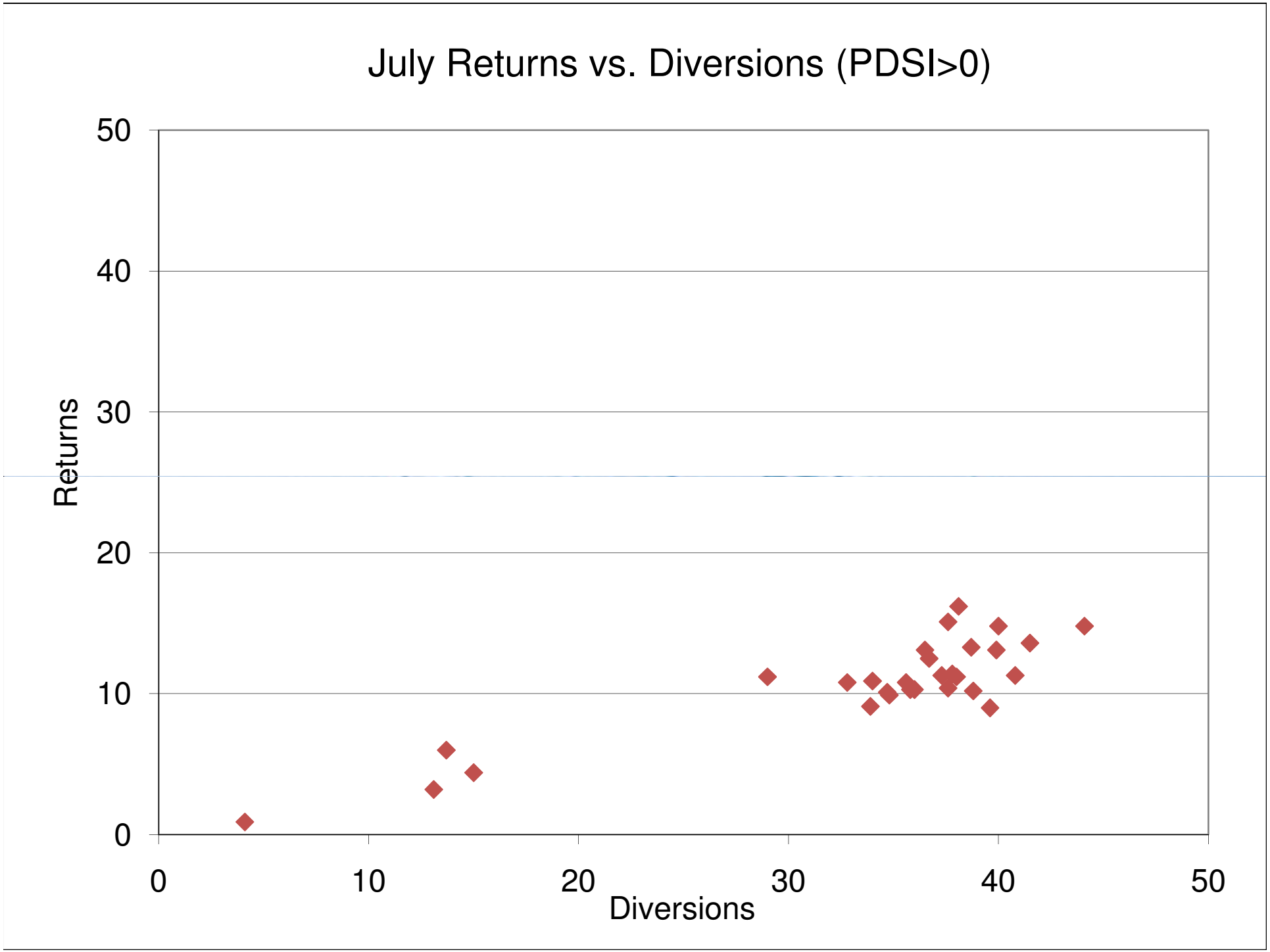

May Returns vs. Diversions(PDSI>2)
Returns
Diversions
0
10
20
30
40
50

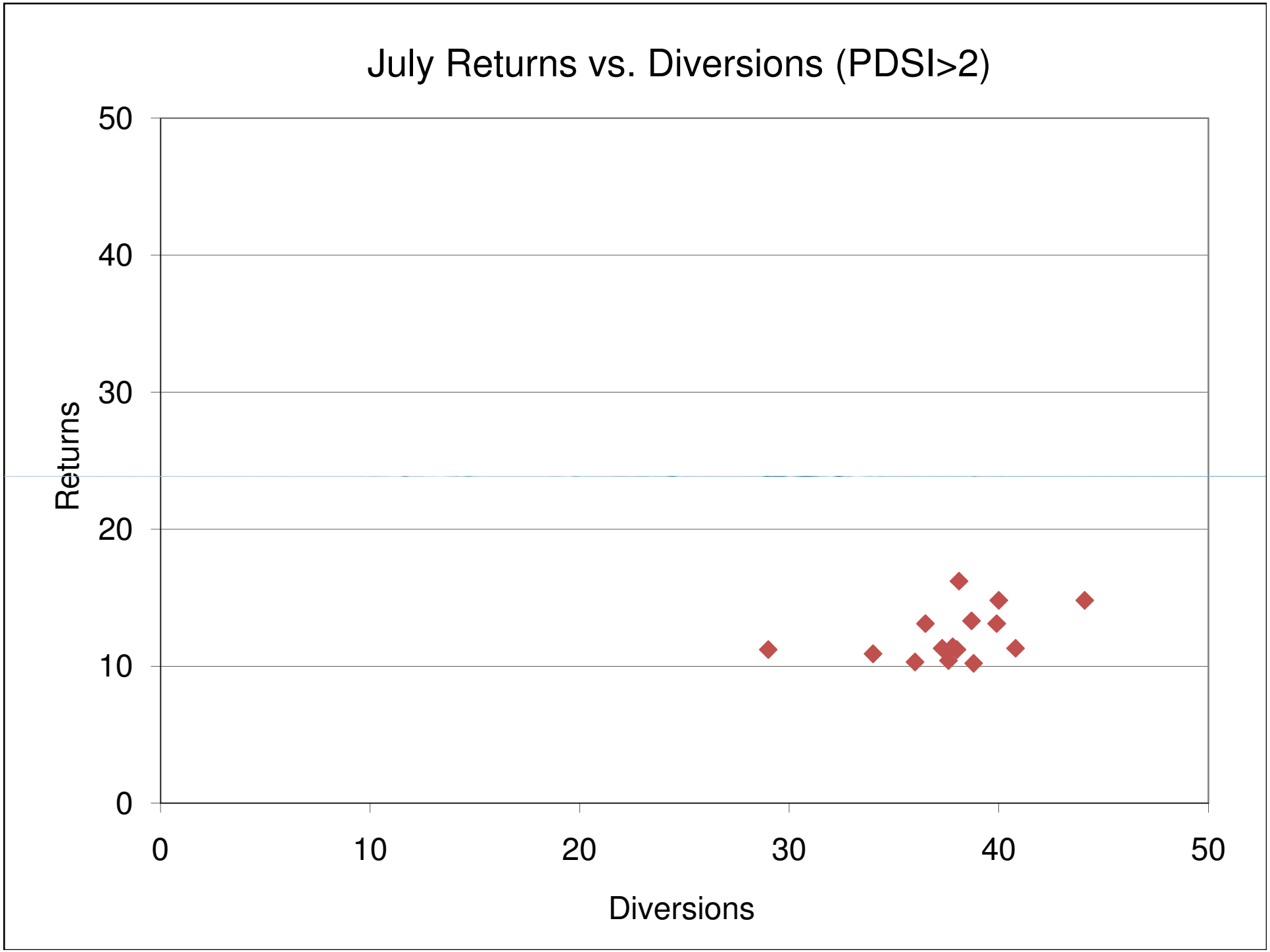

May Returns vs. Diversions (PDSI<0)
Returns
Diversions
y = 0.4257x - 1.0651
R² = 0.6903
0
10
20
30
40
50

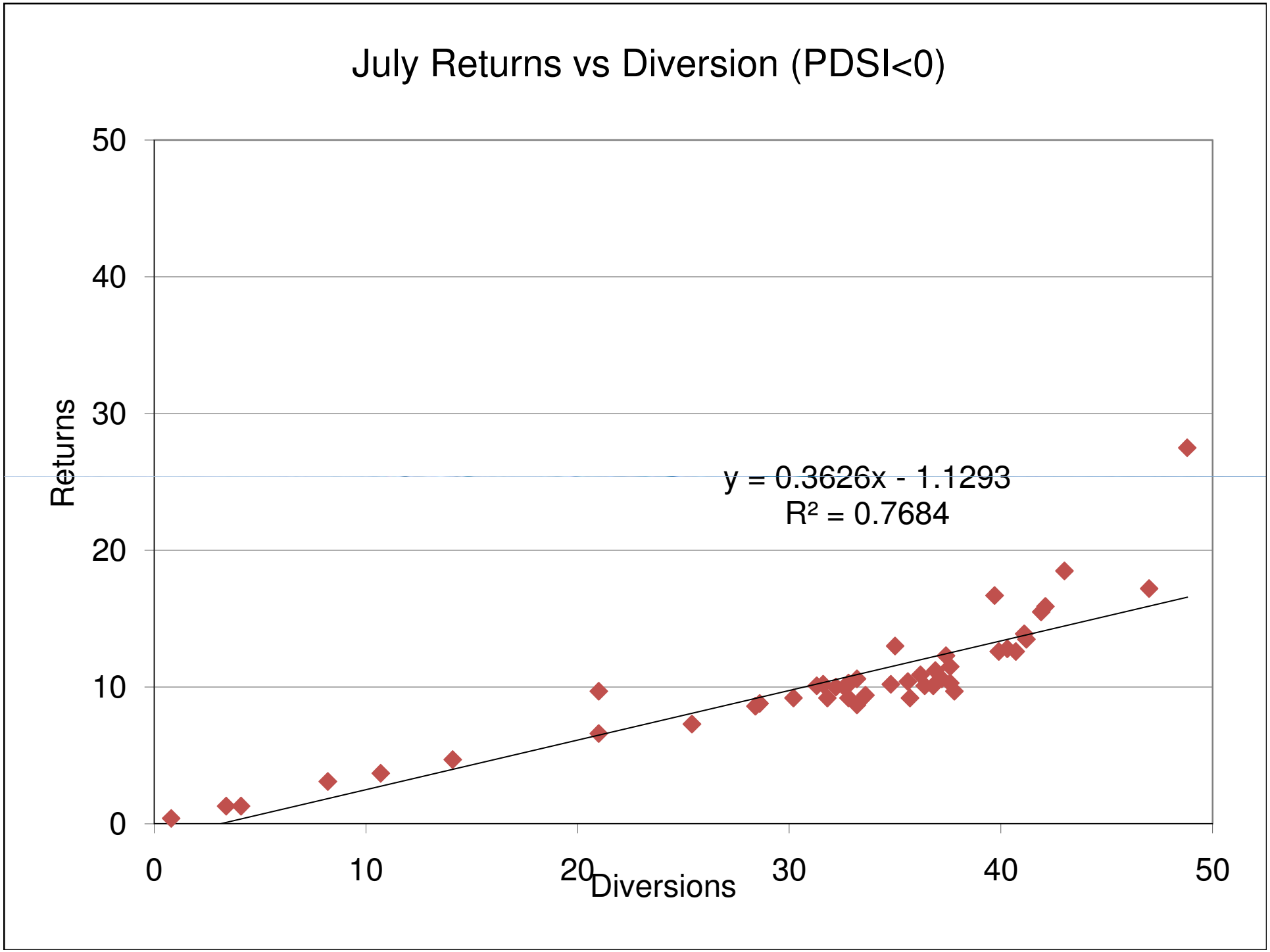

May Returns vs Diversions (PDSI<-2)
Returns
Diversions
0
10
20
30
40
50
y = 0.4426x - 1.2849
R² = 0.6872

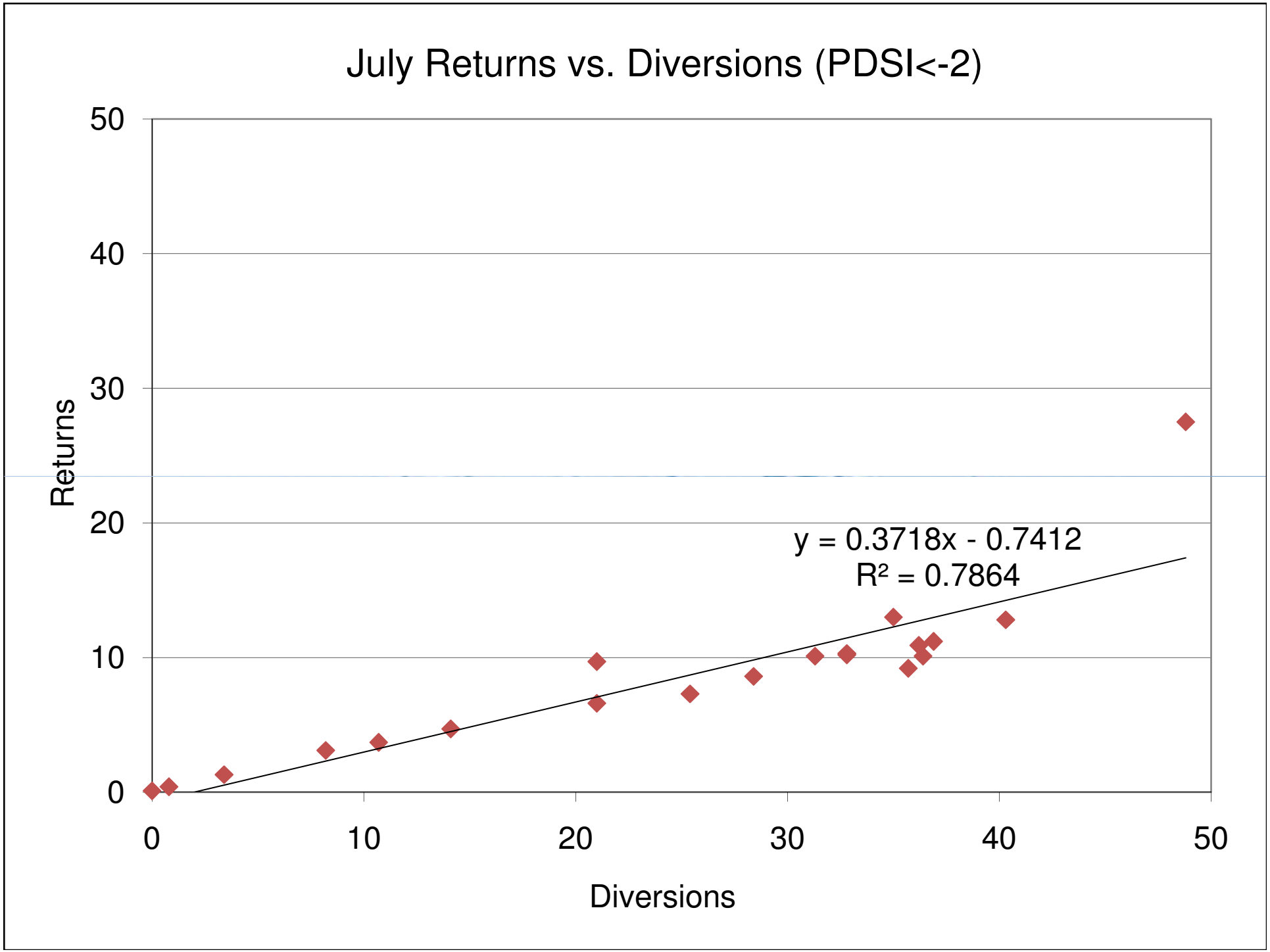
Returns/Diversions Month-by-Month (July)




July Returns vs. Diversions (PDSI>0)
Returns
Diversions
0
10
20
30
40
50
0
10
20
30
40
50


July Returns vs. Diversions (PDSI>2)
Returns
Diversions
0
10
20
30
40
50


July Returns vs Diversion (PDSI<0)
Returns
Diversions
y = 0.3626x - 1.1293
R² = 0.7684
0
10
20
30
40
50


July Returns vs. Diversions (PDSI<-2)
Returns
Diversions
0
10
20
30
40
50
y = 0.3718x - 0.7412
R² = 0.7864

Conclusions

- For water-short years, returns are a function of diversions where:
  - Returns = fct(Diversions)
- For wet years, difficulty quantifying relationship
- This is all great information, but the goal with return flows will be to continue with Dick Lutz's method of calculating lag factors as agreed at last meeting