Water Supply Forecast Correction Curves

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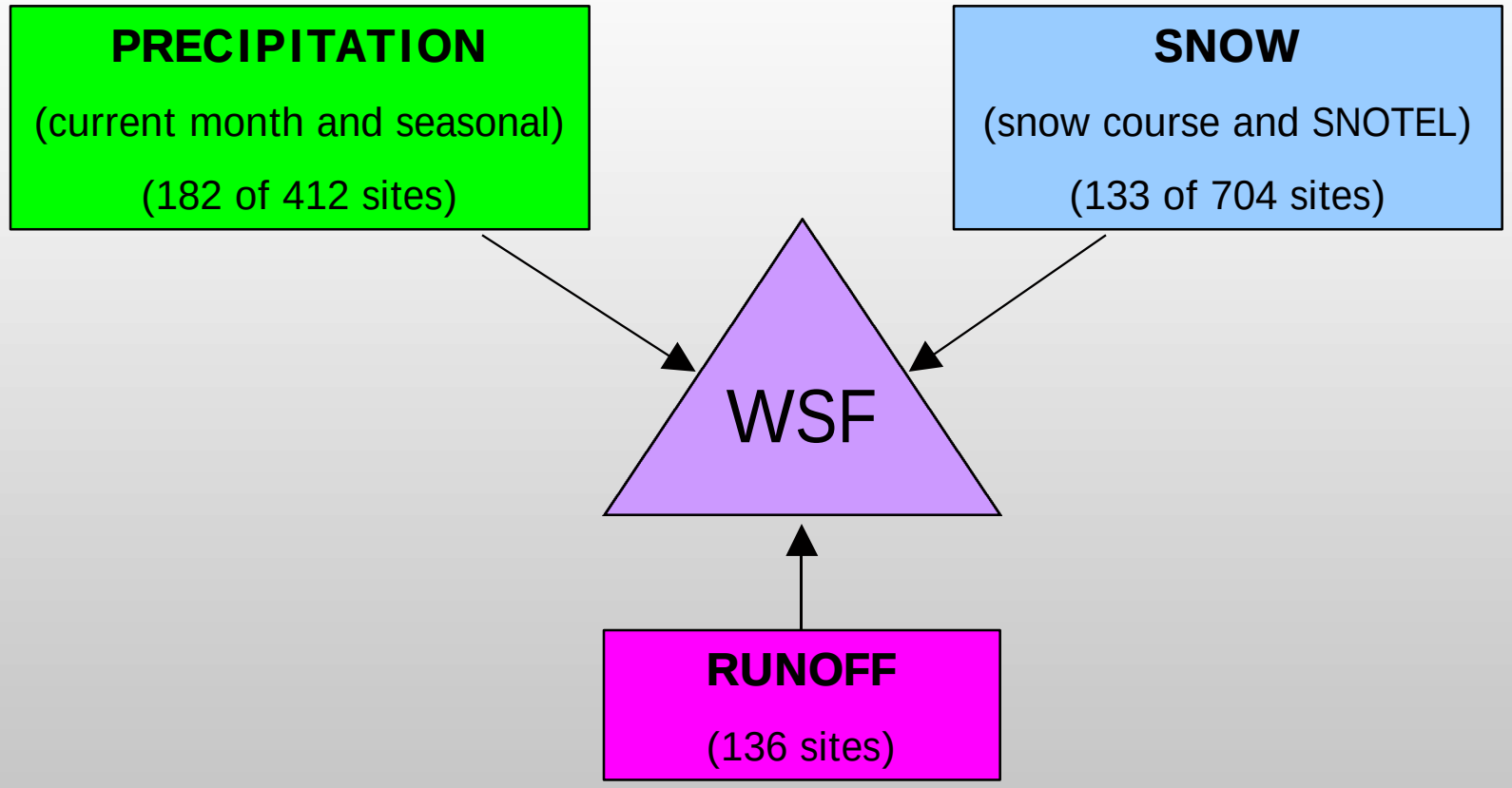
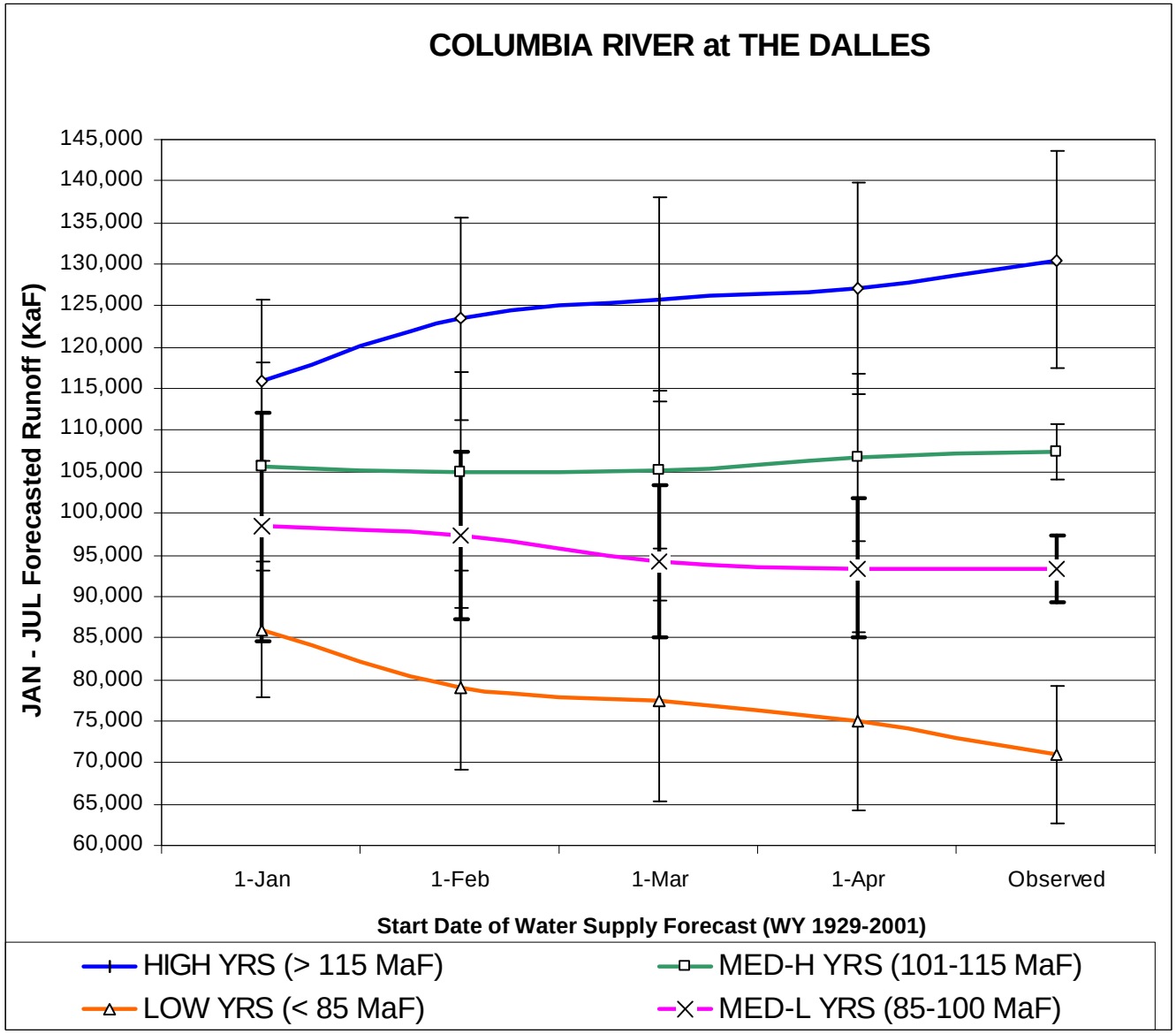
Introduction

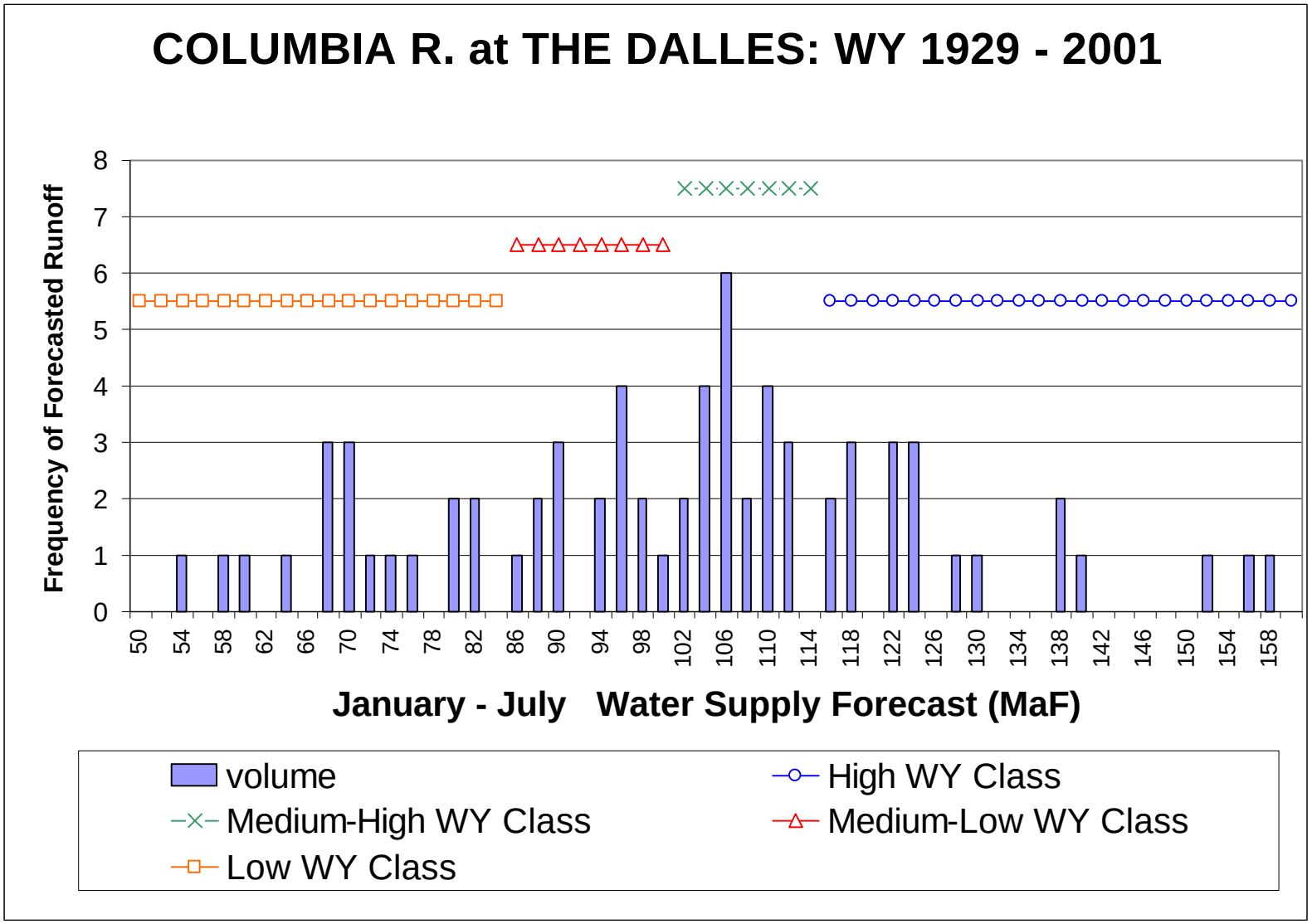
- Curves seek to add value to monthly Water Supply Forecasts (WSF) by projecting future seasonal trends.
- Four volume-based water year classes are devised for each forecast location.
- Historical WSFs and observed runoff data are used to compute the series of curves.

Water Supply Forecasting



$$WSF = \{[(wtPRECIP+wtSNOW+RO)-a]*(b-c)\}+MA$$


COLUMBIA RIVER at THE DALLES
JAN - JUL Forecasted Runoff (KaF)
145,000
140,000
135,000
130,000
125,000
120,000
115,000
110,000
105,000
100,000
95,000
90,000
85,000
80,000
75,000
70,000
65,000
60,000
1-Jan
1-Feb
1-Mar
1-Apr
Observed
Start Date of Water Supply Forecast (WY 1929-2001)
HIGH YRS (> 115 MaF)
MED-H YRS (101-115 MaF)
LOW YRS (< 85 MaF)
MED-L YRS (85-100 MaF)


COLUMBIA R. at THE DALLES: WY 1929 - 2001
Frequency of Forecasted Runoff
0
1
2
3
4
5
6
7
8
50
54
58
62
66
70
74
78
82
86
90
94
98
102
106
110
114
118
122
126
130
134
138
142
146
150
154
158
January - July Water Supply Forecast (MaF)
volume
High WY Class
Medium-High WY Class
Medium-Low WY Class
Low WY Class

Summary

- A correction differential applied to a WSF can give a better forecast by trending.
- Curves divided by High (*La Nina*) and Low (*El Nino*) plus two Medium classes.
- Benefits: (1) More water for fish needs, (2) Minimize overdraft of reservoirs, (3) Better long-range water management.
- Many more curves are being developed.