Forecasting an April-July Distribution for the headwaters of the Tuolumne River

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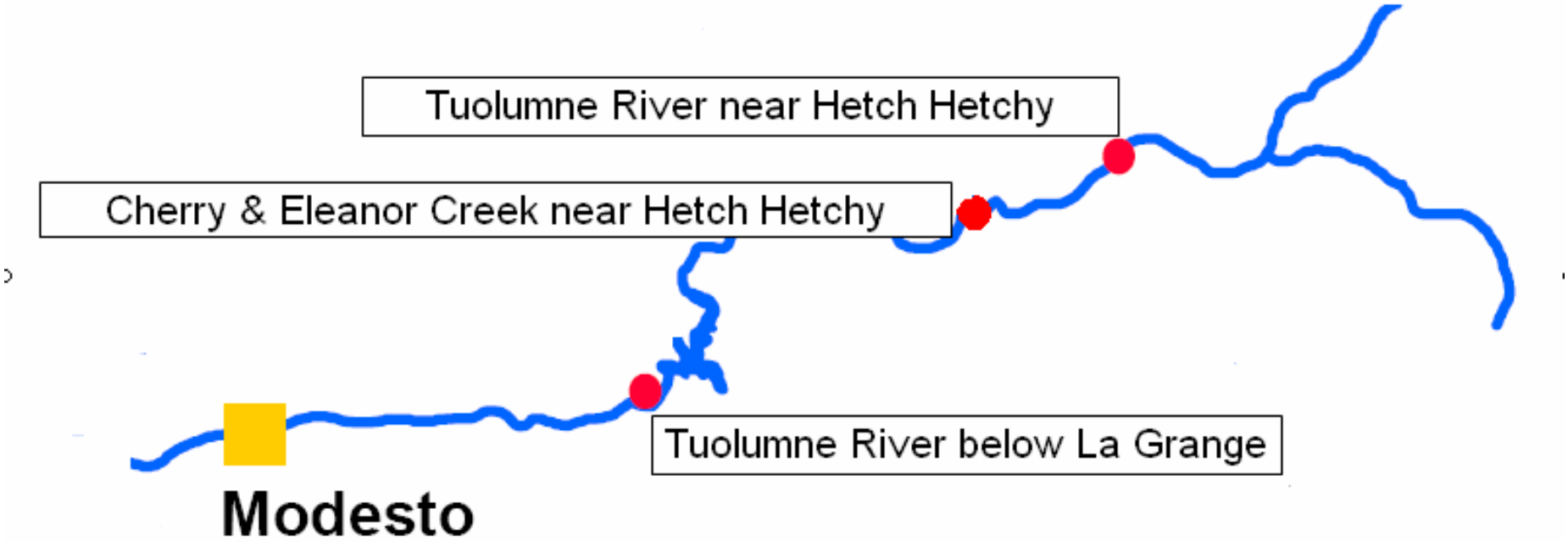
November 18, 2005

- Cherry Creek and Eleanor Creek near Hetch Hetchy

- Tuolumne River near Hetch Hetchy

Tuolumne River, Bulletin 120 Apr-Jul Runoff Forecast Stations



Tools to Compute April-July Distribution

- Daily FNF Runoff Data
- Monthly FNF Probability Tables
- Snowmelt Runoff Forecasts
- Weather Forecast

Daily FNF Runoff Data

Department Of Water Resources
CALIFORNIA COOPERATIVE SNOW SURVEYS
Daily Full Natural Flows Report
for Month October 2005
in Cubic Feet per Second

Basin Names:

Day	Stanisl. at Goodwin	Tuolumne at Don Pedro	Merced at Mc Clure	San Joaq. at Friant	Kings at Pine Flat	Kaweah at Terminus	Tule at Success	Kern at Isabella
01	324	149	98	294	388	73	17	351
02	199	149	69	319	351	73	14	374
03	199	63	54	511	291	63	11	277
04	212	212	80	260	378	70	14	465
05	298	212	100	266	308	70	17	397
06	212	314	79	351	285	67	20	417
07	173	244	72	392	326	63	19	334
08	157	291	56	343	312	65	14	325
09	120	291	0	305	320	59	18	370
10	218	254	46	578	320	61	31	384
11	290	41	70	197	343	58	17	360
12	310	99	83	-310	341	58	19	377
13	292	338	74	152	284	55	19	358
14	239	176	34	203	293	52	20	302
15	195	54	98	168	274	51	12	304
16	88	55	88	242	391	67	20	334

Monthly FNF Probability Tables

Tuolumne River at La Grange Dam Unimpaired Flow [taf] 1/102005

Monthly data ranked for individual months (months are from various years)

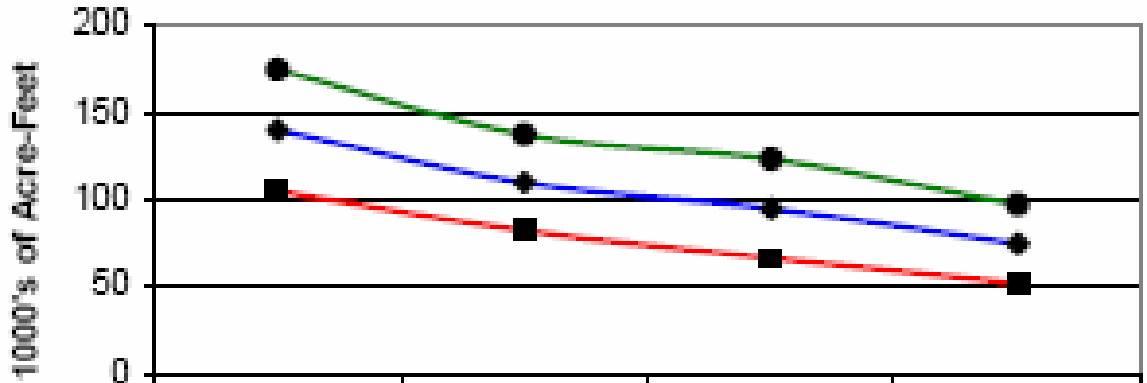
1901-2003

Apr	May	Jun	Jul	Aug	Sep	Apr-Jul	WY	Rank	%exc
254	392	295	57	14	6	1004	1418	40	62%
254	398	315	59	14	6	1020	1429	41	61%
257	408	315	60	14	6	1025	1462	42	60%
259	411	319	62	15	6	1025	1525	43	59%
260	436	319	63	15	6	1072	1525	44	58%
260	436	322	66	16	7	1073	1546	45	57%
262	437	330	67	17	7	1085	1590	46	56%
264	442	336	67	17	7	1113	1627	47	55%
264	448	336	67	17	7	1137	1631	48	54%
266	448	337	70	17	7	1157	1683	49	53%
269	449	348	72	18	7	1161	1766	50	52%
270	454	352	75	18	7	1166	1786	51	51%
274	455	353	81	19	8	1175	1877	52	50%
277	456	372	83	19	8	1178	1879	53	50%
280	465	384	84	20	9	1179	1914	54	49%

Snowmelt Runoff Forecasts

Tuolumne River at New Don Pedro

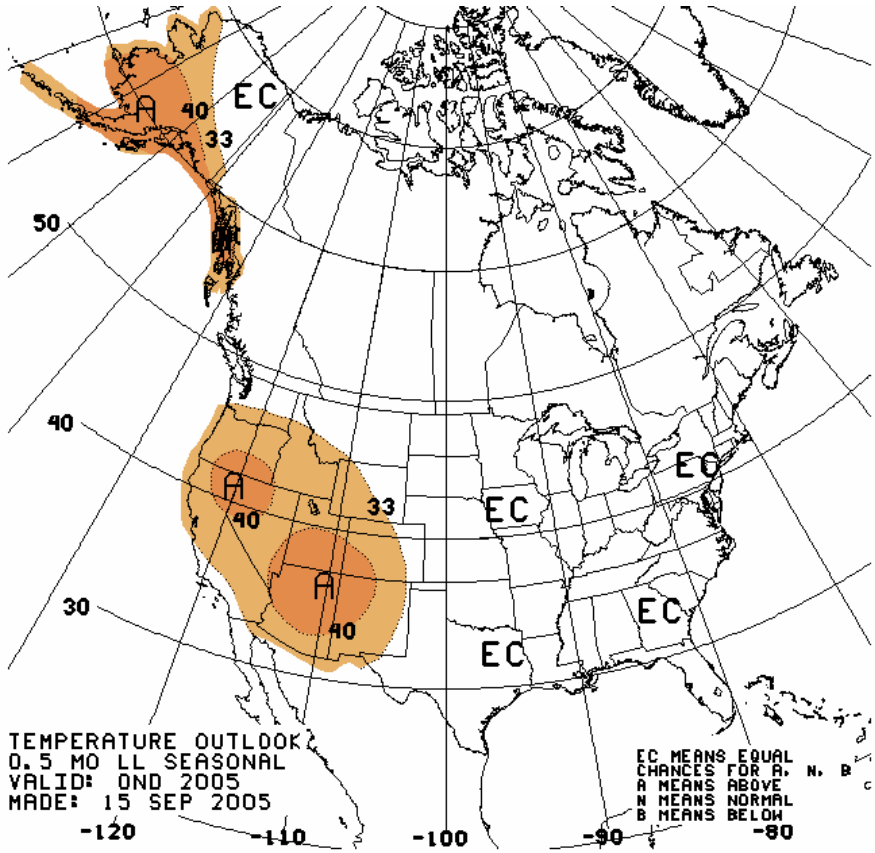
Peak 1-Day Vol. 40.3 Date: 5/27



	6/24	6/29	7/4	7/9
Min	105	83	67	53
Prob	140	110	95	75
Max	175	138	124	98

Weather Forecasts

- CN-RFC Quantitative Precipitation Forecasts
- NWS Climate Prediction Center Forecasts
- Statewide NWS-FO Weather Forecasts



How will the Tuolumne Headwaters be forecasted

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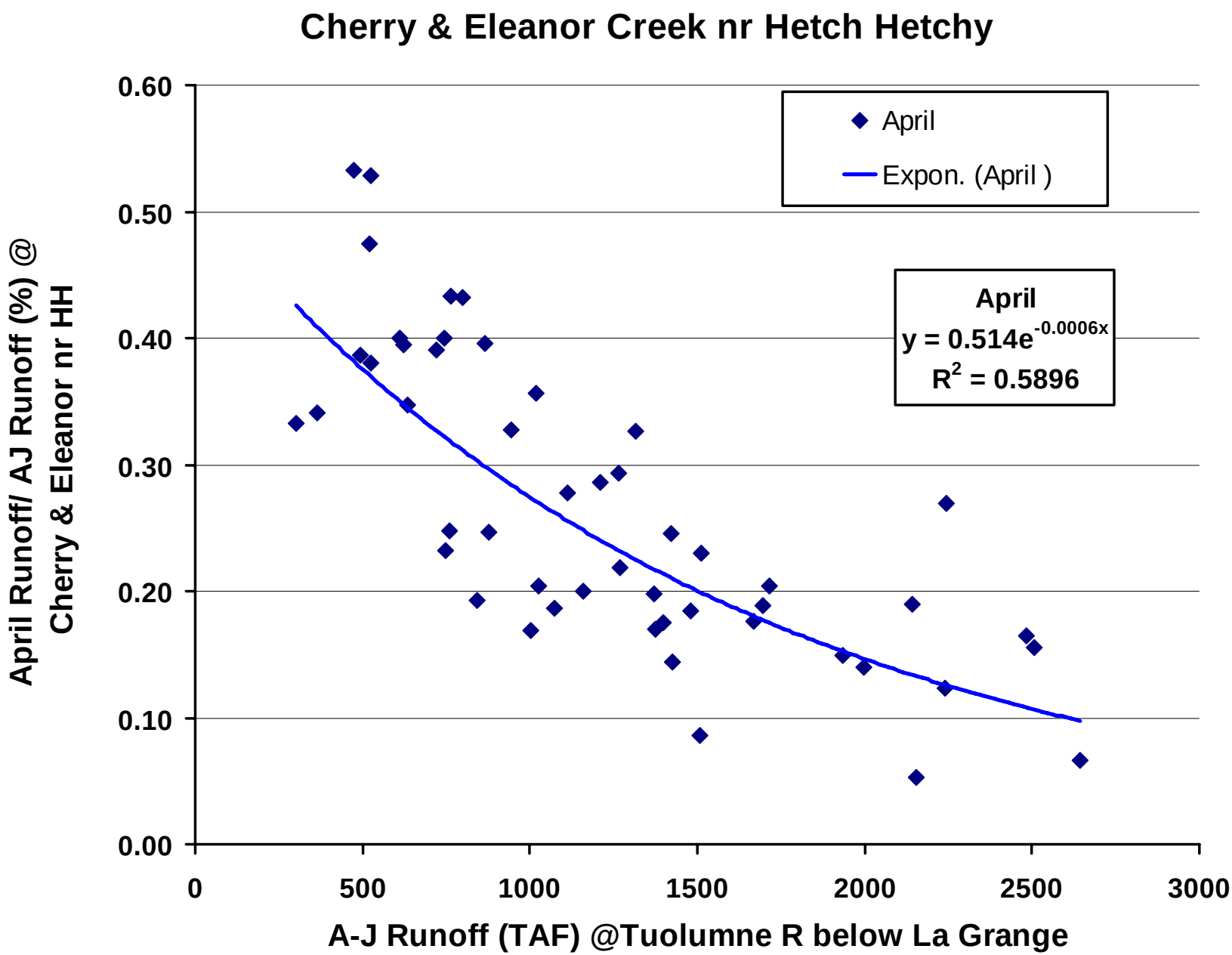
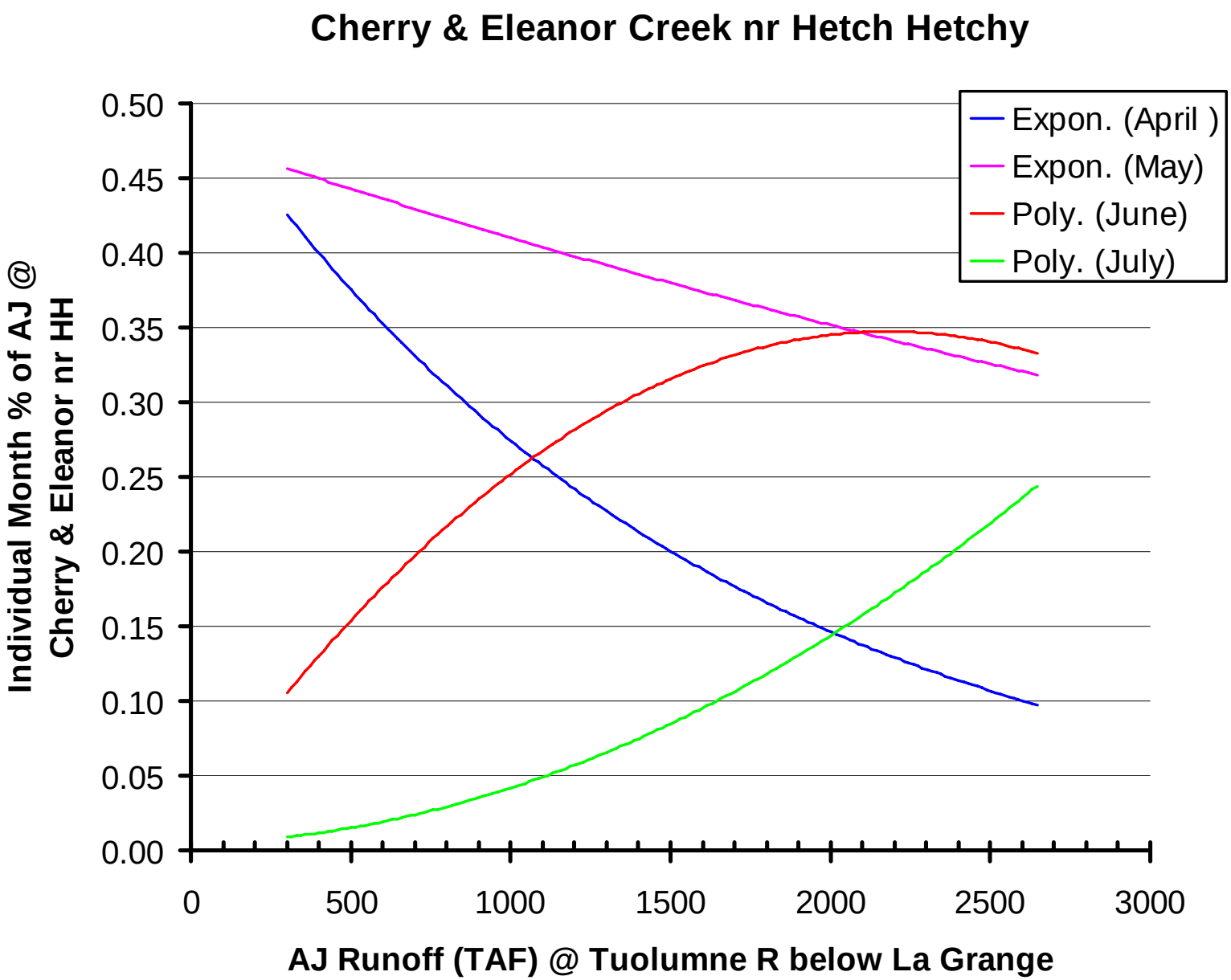
New Forecast Method: Apr-Jul Distribution

Sub-Basin % Apr-Jul RO	**Basin Apr-Jul RO**
Apr RO/Apr-Jul RO	Apr-Jul RO
May RO/Apr-Jul RO	Apr-Jul RO
Jun RO/Apr-Jul RO	Apr-Jul RO
Jul RO/Apr-Jul RO	Apr-Jul RO


Cherry & Eleanor Creek nr Hetch Hetchy
April
Expon. (April)
April
y = 0.514e^-0.0006x
R^2 = 0.5896
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
3000
April Runoff/ AJ Runoff (%) @ Cherry & Eleanor nr HH
A-J Runoff (TAF) @Tuolumne R below La Grange


Cherry & Eleanor Creek nr Hetch Hetchy
Expon. (April)
Expon. (May)
Poly. (June)
Poly. (July)
Individual Month % of AJ @ Cherry & Eleanor nr HH
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
500
1000
1500
2000
2500
3000
AJ Runoff (TAF) @ Tuolumne R below La Grange

Example: 1700 taf AJ TLG, 430 taf AJ C&EHH

April RO	19% of AJ	80 taf
May RO	34% of AJ	146 taf
Jun RO	33% of AJ	142 taf
Jul RO	10% of AJ	43 taf
Total	96% of AJ	411 taf

Questions

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