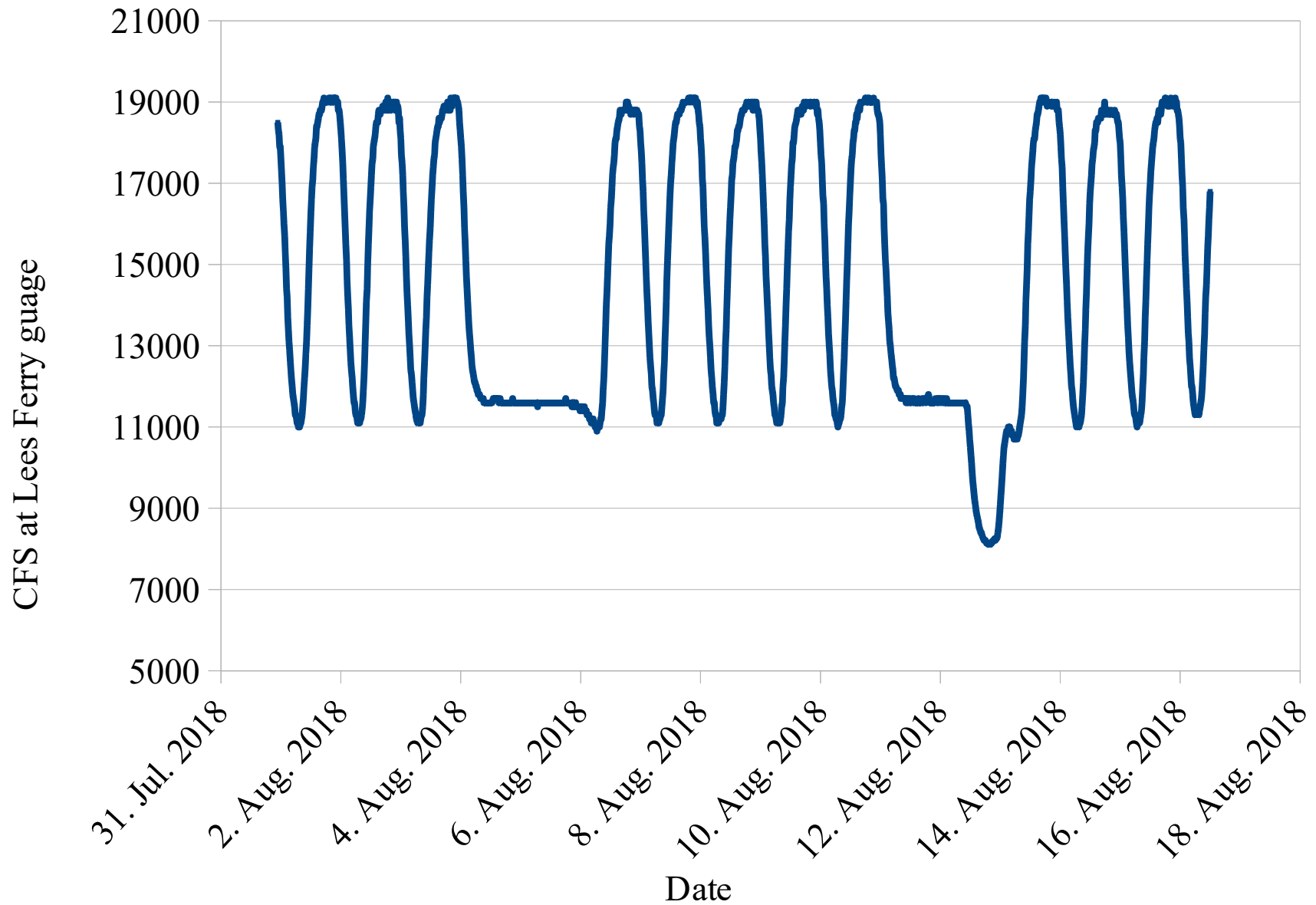


Do bug flows result in better fishing?

David Rogowski

Arizona Game and Fish Department

Is fishing better during bug flows?



AGFD Creel survey

- 6 days a month
 - 2 weekdays
 - 4 weekends
- Both walk-in and boat access
- For this comparison
- boat anglers: April-August
- Years (2015-2018)



Photo by Dale Gauthier 1 July 2018

Analysis

- Linear model
 - **Response variable:**
 - average angler CPUE per day (Rainbow Trout/hour)
 - **Explanatory variables**
 - Day of year (DOY: 91-243, e.g. April-August)
 - Guided (Y/N)
 - Weekend vs weekday
 - Year (2015-2018)
 - Bug flows (Y/N)
 - Conducted a stepwise procedure forward/backward to select best model (based on AIC)



Photo: Jimmy Daniels
5 August 2018

Full model results with interactions

type III sums of squares

	DF	Sum of Sq	RSS	AIC	F value	Pr(>F)
Year	3	0.115	2.22	-998	3.73	0.0123
Day of year	1	0.00569	2.11	-1005	0.553	0.458
Weekend/day	1	0.0152	2.12	-1004	1.48	0.225
Bug flow	1	0.133	2.24	-992	12.9	0.000408
guide	1	1.28	3.39	-900	124	< 0.0001
Year:DOY	3	0.0602	2.17	-1003	1.95	0.122
Year:wkend/day	3	0.0819	2.19	-1001	2.65	0.0497
DOY:bugflow	1	0.120	2.23	-993	11.7	0.000755
Year:guide	3	0.0646	2.17	-1003	2.09	0.102

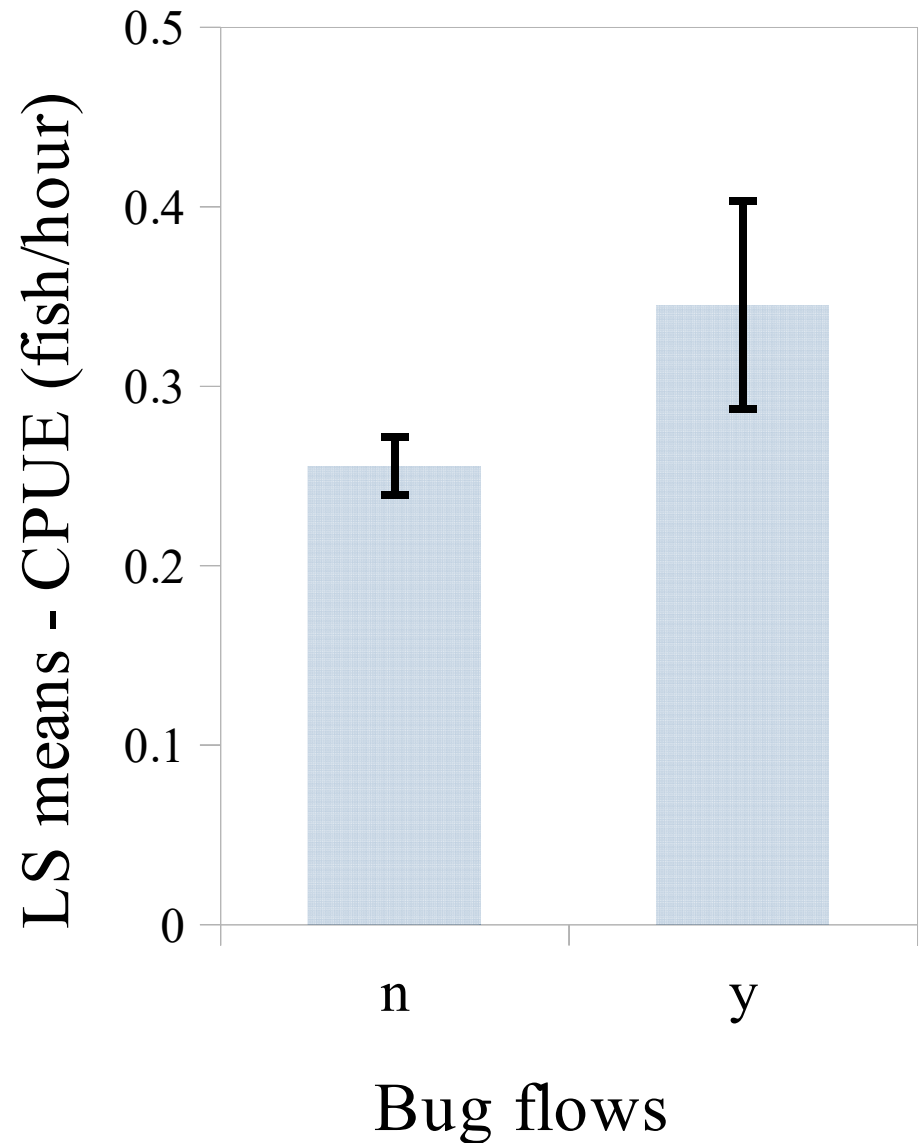
Model results

type III sums of squares

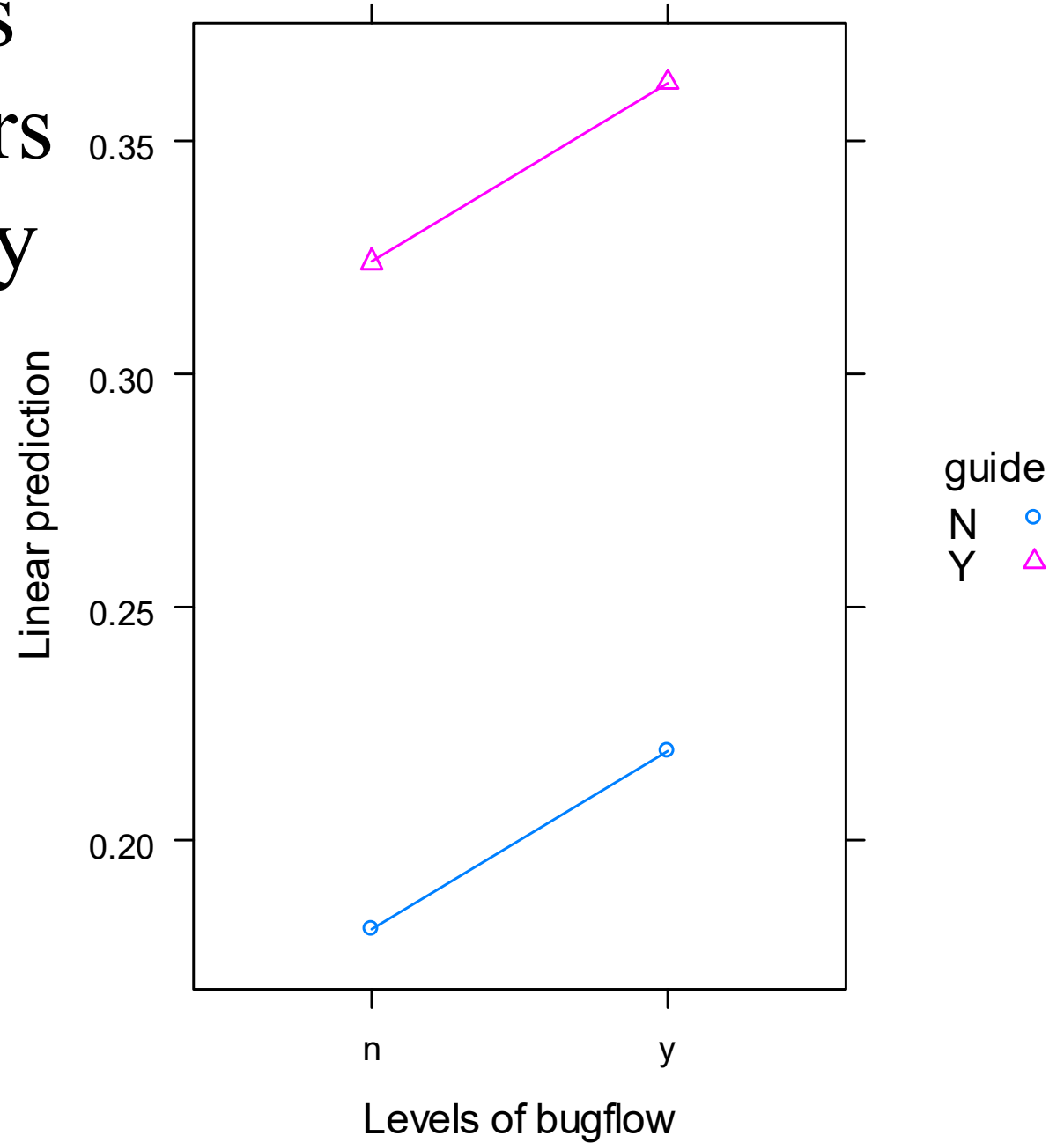
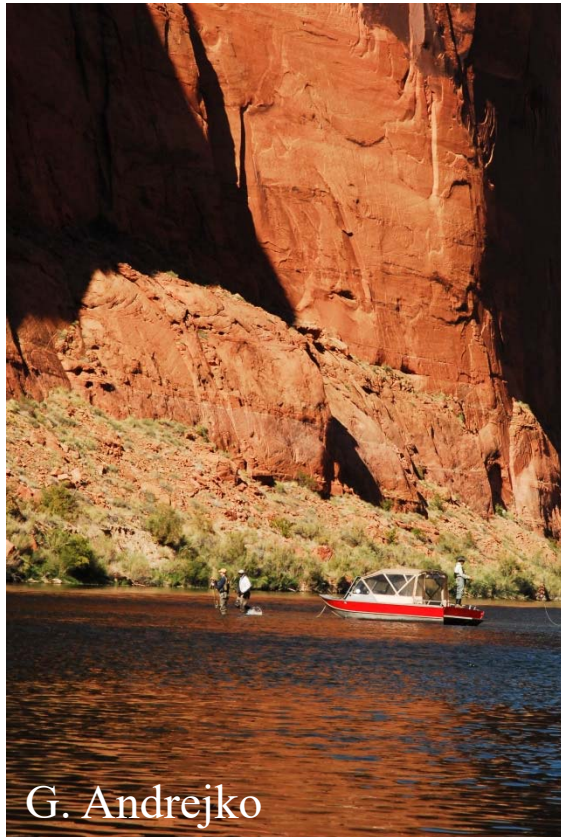
	Df	Sum of Sq	RSS	AIC	F value	Pr(>F)
Year	3	0.372	2.70	-975	11.5	0.0002
Day of year	1	0.300	2.62	-977	27.7	<0.0001
Weekend/day	1	0.100	2.42	-994	9.29	0.00176
Bug flow	1	0.0880	2.41	-995	8.14	0.0248
Guided	1	1.32	3.64	-903	122	<0.0001

Model results

- Least square means – takes into account other variables (e.g. Year, DOY, weekend/weekday, guided)



Model results for boat anglers 2018 data only



Conclusions

- Preliminary results indicate fishing is better during bug flows
- Why?
 - **Response of fish**
 - Behavior – movement, more accessible?
 - Less insects to eat in drift, trout hungrier, more likely to strike a lure?
 - **Response of anglers**
 - Change in behavior/technique (guides?)
 - Accessibility to certain riverine features

