

Pond Consumptive Use Calculations
Climate Station: Leadore 2, Idaho 105177
Jerry Blackburn Application

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Annual FWW Evaporation (inches)*	30	30	30	30	30	30	30	30	30	30	30	30	30
Monthly Distribution (%)*	1	2	4	7	12	15	19	16	11	6	4	3	100
Monthly FWS Evaporation (in/mo)	0.3	0.6	1.2	2.1	3.6	4.5	5.7	4.8	3.3	1.8	1.2	0.9	30
Avg. Total Precipitation (in/mo)**	0.34	0.17	0.41	0.67	1.35	1.18	0.82	0.7	0.83	0.53	0.45	0.41	7.86
Pond Loss (Evap. - Precip., in)	0	0.43	0.79	1.43	2.25	3.32	4.88	4.1	2.47	1.27	0.75	0.49	22.18
Pond Surface Area (acres)	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
Total Pond Loss (ac-in)	0.0	1.6	3.0	5.4	8.6	12.6	18.5	15.6	9.4	4.8	2.9	1.9	84.3
Total Pond Loss (ac-ft)	0.0	0.1	0.3	0.5	0.7	1.1	1.5	1.3	0.8	0.4	0.2	0.2	7.0

Note: for months where precipitation exceeds evaporation, the resultant pond loss is set to zero

Irrigation Consumption		Crop
Mean Irrig. Requirement (in/seas.)***	28.9	Pasture
Mean Irrig. Requirement (ft/seas.)***	2.40	
Acres to dry up for pond use	2.92	

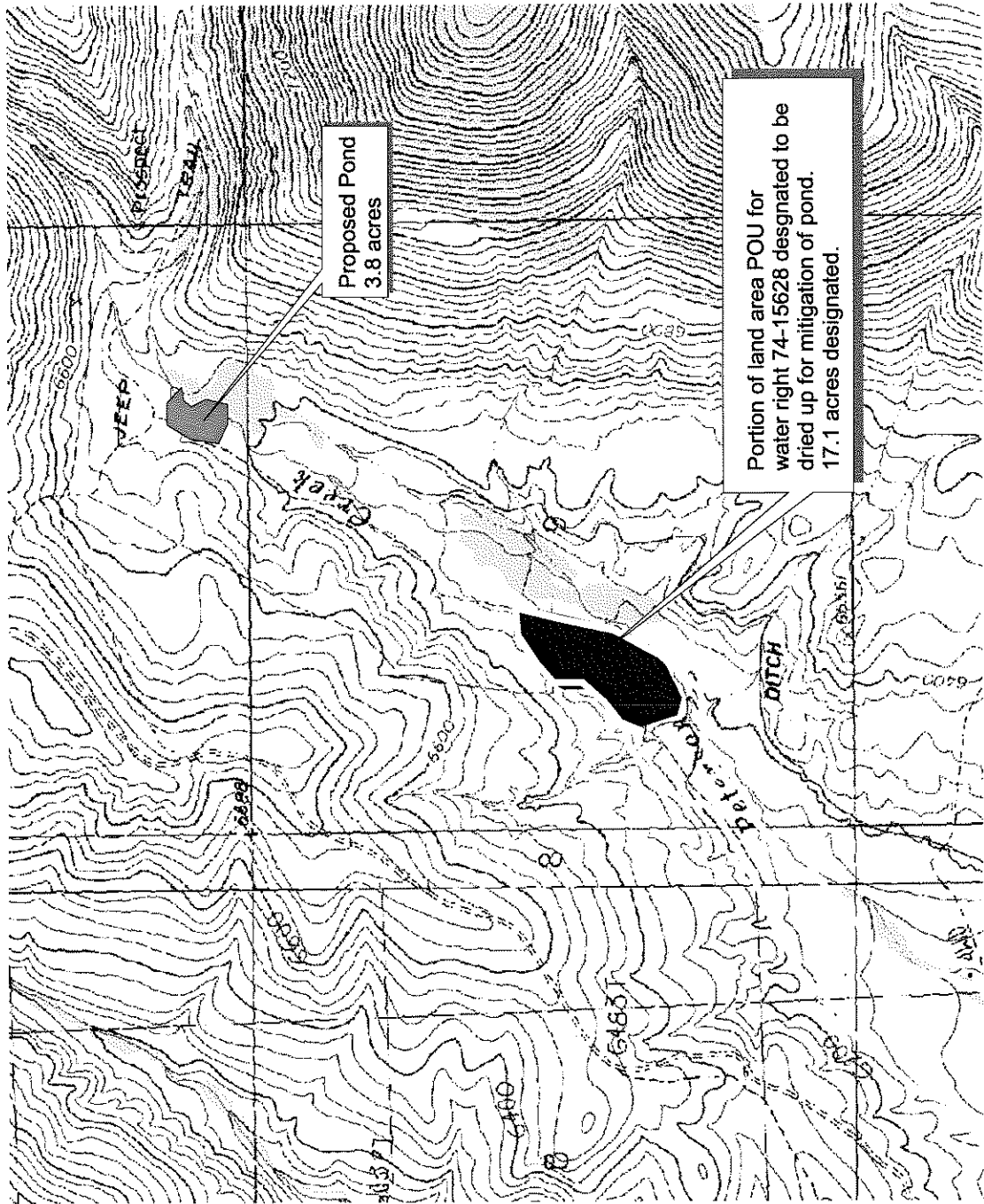
Note: Pasture irrigation requirement was used rather than alfalfa hay since it was shown to be higher and that pasture was more likely to be present at the actual location.

*Molnau, Myron, Kpordze, Kojo C.S., and Craine, Katherine L., 1992. Monthly shallow pond evaporation in Idaho. ASAE paper PNW 92-111.

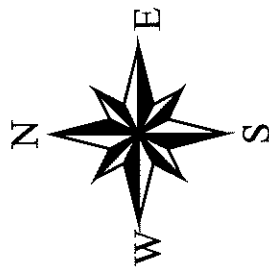
**Data obtained from the Western Regional Climate Center, Monthly Climate Summary, Period of Record 9/1/1905 to 5/31/1974. See attached.

***Appendix E of the University of Idaho report: "Estimating Consumptive Irrigation Requirements for Crops in Idaho" published in 1983 by R. G. Allen and C. E. Brockway. See attached.
Used 733 mm from the Salmon 1 N Station

Blackburn 74-15628



Pond.shp
74-15628.shp
Dried-up Area.shp



*Blackburn Application***LEADORE 2, IDAHO (105177)****Period of Record Monthly Climate Summary****Period of Record : 10/1/1965 to 3/31/2005**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	30.3	35.5	42.2	52.6	63.5	73.0	84.3	82.4	71.2	58.8	41.0	30.8	55.5
Average Min. Temperature (F)	3.8	8.1	16.5	23.2	30.8	37.7	41.2	40.0	32.6	24.9	16.4	5.8	23.4
Average Total Precipitation (in.)	0.34	0.17	0.41	0.67	1.35	1.18	0.82	0.70	0.83	0.53	0.45	0.41	7.85
Average Total SnowFall (in.)	3.4	1.8	2.6	2.1	0.3	0.4	0.0	0.0	0.2	0.6	2.0	3.4	16.9
Average Snow Depth (in.)	2	2	1	0	0	0	0	0	0	0	0	1	0

Percent of possible observations for period of record.

Max. Temp.: 57.8% Min. Temp.: 56.9% Precipitation: 61.6% Snowfall: 59.3% Snow Depth: 48.9%

Check [Station Metadata](#) or [Metadata graphics](#) for more detail about data completeness.*Western Regional Climate Center, wrcc@dri.edu*

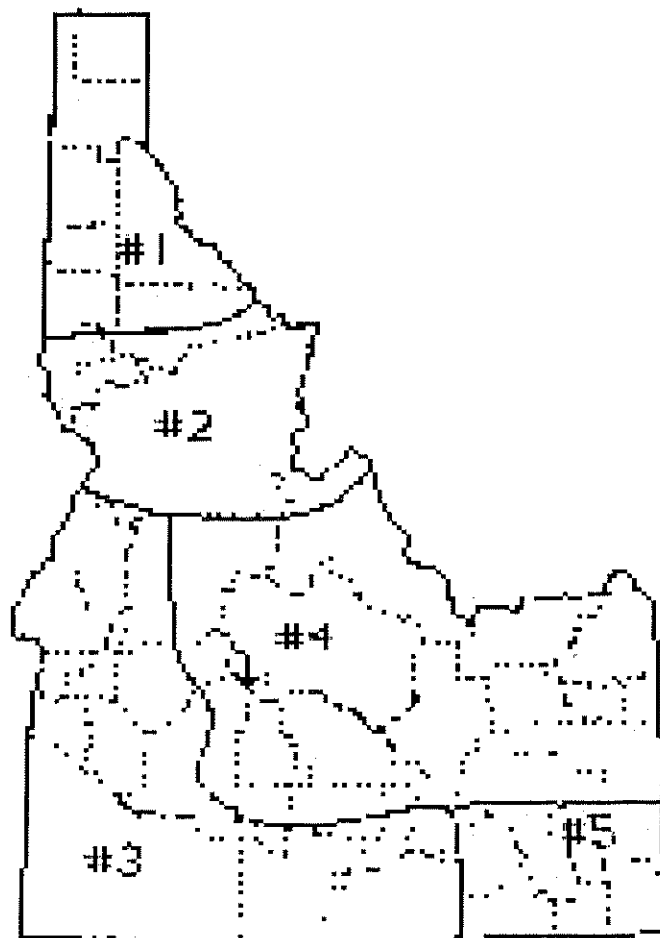
Blackburn Application

MONTHLY SHALLOW POND EVAPORATION IN IDAHO

Molnau, Myron, Kpordze, Kojo C.S., and Craine, Katherine L., 1992. Monthly shallow pond evaporation in Idaho. ASAE paper PNW 92-111
http://snow.ag.uidaho.edu/publications/pond_evap/pond.html#TABLE%201

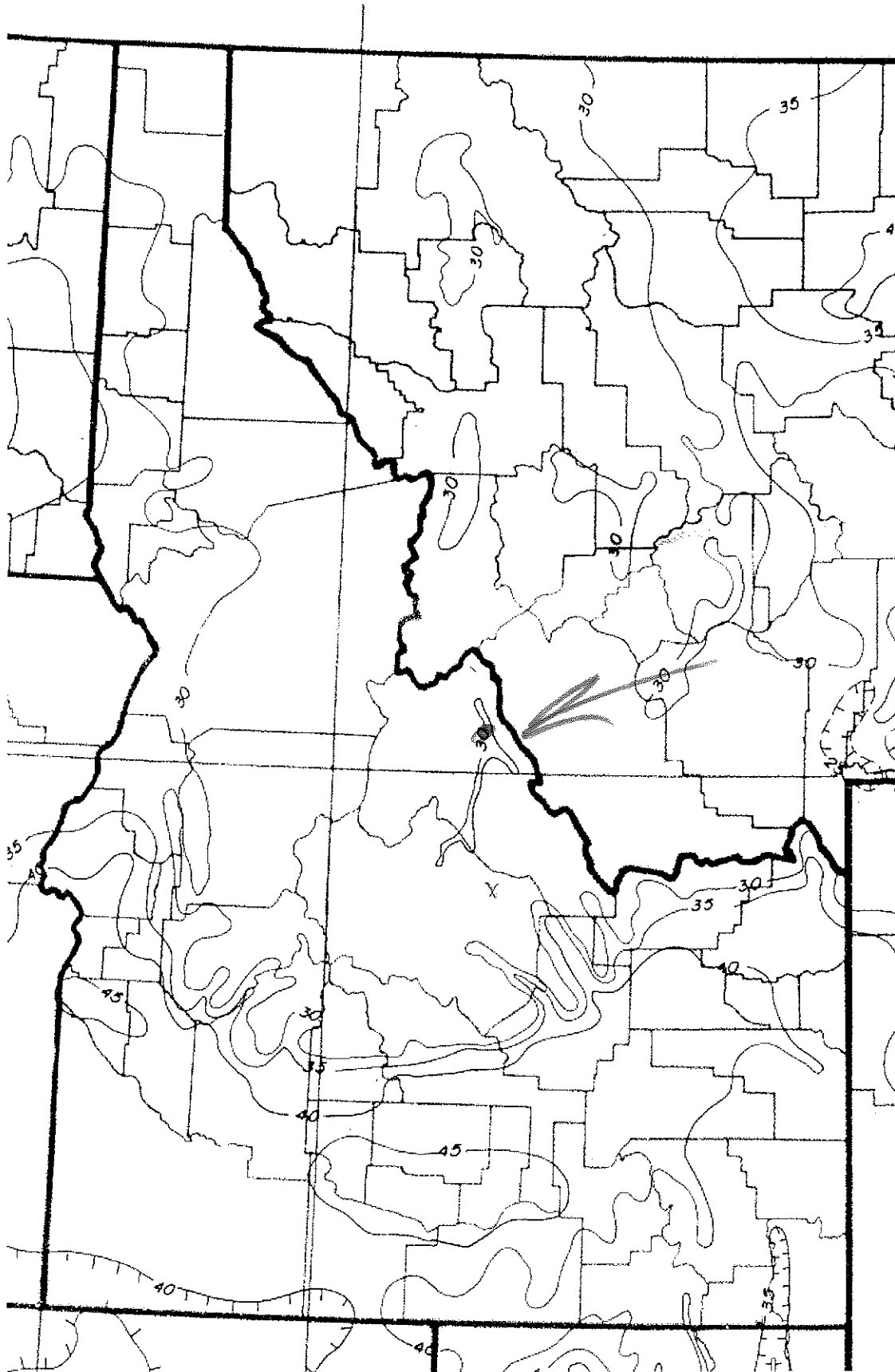
TABLE 1. Monthly shallow lake evaporation percentages for Idaho to be used with the map showing regions of monthly FWS evaporation

Area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1.0	1.5	3	9	12	14	19	18	11	6	4	1.5
2	0.5	1.5	3	8	12	15	19	17	11	6	4	3
3	0.5	1.5	4	8	14	15	17	16	10	6	5	3
4	1.0	2.0	4	7	12	15	19	16	11	6	4	3
5	1.0	3.0	5	10	12	14	16	15	10	6	5	3



Regions of Monthly FWS Evaporation

Blackburn Application
Annual FWS Evaporation Map



Blackburn Application

Salmon 1 N Consumptive Use from Allen and Brockway 83

** Monthly average daily (mm/day) and Seasonal Totals (mm) **

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
ETr									
MEAN ETr	1.48	4.33	5.80	7.52	7.93	6.16	4.40	2.69	1233.
STDV ETr	0.33	0.50	0.36	0.42	0.27	0.35	0.38	0.30	35.
Alfalfa Hay									
MEAN CU		1.42	5.06	6.68	6.50	4.62	2.53	0.80	845.
MEAN IR		0.98	4.20	5.59	5.78	3.99	2.11	0.52	710.
STDEV CU		0.16	0.31	0.38	0.22	0.26	0.22	0.09	20.
STDEV IR		0.51	0.60	0.61	0.69	0.58	0.47	0.26	53.
Silage Corn									
MEAN CU			1.74	2.38	5.65	5.85	3.76		595.
MEAN IR			1.08	1.60	4.99	5.20	3.32		497.
STDEV CU			0.11	0.13	0.19	0.33	0.32		13.
STDEV IR			0.38	0.37	0.63	0.65	0.55		43.
Spring Grain									
MEAN CU		1.30	2.23	6.86	7.91	3.54			669.
MEAN IR		0.92	1.62	5.92	7.23	3.04			574.
STDEV CU		0.15	0.14	0.39	0.27	0.20			14.
STDEV IR		0.44	0.38	0.57	0.68	0.46			40.
Winter Grain									
MEAN CU	0.49	3.31	5.75	7.52	7.76	2.20			827.
MEAN IR	0.19	2.85	4.91	6.45	7.03	1.71			708.
STDEV CU	0.11	0.38	0.35	0.42	0.26	0.12			22.
STDEV IR	0.26	0.68	0.62	0.63	0.72	0.39			48.
Pasture									
MEAN CU		1.63	4.40	5.79	6.10	4.74	3.39	2.07	862.
MEAN IR		1.21	3.61	4.81	5.43	4.14	2.96	1.78	733.
STDEV CU		0.19	0.27	0.33	0.21	0.27	0.29	0.23	22.
STDEV IR		0.52	0.54	0.54	0.65	0.57	0.53	0.30	52.
Orchard									
MEAN CU			2.69	5.36	6.70	5.24	3.74	2.08	791.
MEAN IR			1.99	4.41	6.00	4.61	3.30	1.79	677.
STDEV CU			0.17	0.30	0.22	0.29	0.32	0.23	18.
STDEV IR			0.44	0.52	0.68	0.61	0.55	0.30	48.

← use this

End of Data Set

Blackburn Application

Salmon Consumptive Use from Allen and Brockway 83

** Monthly average daily (mm/day) and Seasonal Totals (mm) **

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
ETr									
MEAN ETr	1.31	4.37	5.78	7.12	7.61	5.92	4.31	2.75	1196.
STDV ETr	0.40	0.37	0.48	0.43	0.27	0.27	0.35	0.28	37.
Alfalfa Hay									
MEAN CU		1.43	5.04	6.32	6.24	4.44	2.48	0.82	817.
MEAN IR		1.04	4.12	5.20	5.70	4.05	2.04	0.48	690.
STDEV CU		0.12	0.42	0.38	0.22	0.20	0.20	0.08	23.
STDEV IR		0.35	0.72	0.90	0.53	0.47	0.48	0.33	45.
Silage Corn									
MEAN CU			1.73	2.25	5.42	5.62	3.68		572.
MEAN IR			1.03	1.43	4.94	5.22	3.23		484.
STDEV CU			0.14	0.14	0.19	0.25	0.30		17.
STDEV IR			0.45	0.58	0.47	0.52	0.55		37.
Spring Grain									
MEAN CU		1.31	2.22	6.49	7.60	3.41			642.
MEAN IR		0.97	1.57	5.51	7.09	3.10			557.
STDEV CU		0.11	0.18	0.39	0.27	0.15			18.
STDEV IR		0.30	0.45	0.82	0.54	0.37			39.
Winter Grain									
MEAN CU	0.43	3.35	5.73	7.12	7.45	2.12			799.
MEAN IR	0.22	2.93	4.84	6.02	6.91	1.81			693.
STDEV CU	0.13	0.28	0.47	0.43	0.26	0.10			27.
STDEV IR	0.22	0.47	0.75	0.92	0.56	0.33			47.
Pasture									
MEAN CU		1.65	4.39	5.48	5.86	4.56	3.32	2.12	836.
MEAN IR		1.27	3.55	4.46	5.36	4.19	2.88	1.76	716.
STDEV CU		0.14	0.36	0.33	0.21	0.21	0.27	0.22	23.
STDEV IR		0.35	0.65	0.81	0.49	0.46	0.53	0.41	44.
Orchard									
MEAN CU			2.68	5.08	6.43	5.03	3.66	2.13	765.
MEAN IR			1.93	4.08	5.91	4.65	3.22	1.77	658.
STDEV CU			0.22	0.31	0.23	0.23	0.29	0.22	21.
STDEV IR			0.52	0.78	0.52	0.49	0.55	0.41	42.

End of Data Set