Adjusting and Forecasting Herbage Yields in the Intermountain Big Sagebrush Region of the Steppe Province

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CONTENTS

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ADJUSTING AND FORECASTING HERBAGE YIELDS IN THE INTERMOUNTAIN BIG SAGEBRUSH REGION OF THE STEPPE PROVINCE

Forrest Sneva and C. M. Britton

FOREWORD

In preparing this report (an update of Oregon State University Station Bulletin 588, published in 1962), the authors reassessed the precipitation-herbage yield relation within the sagebrush-bunchgrass zone in Washington, Idaho, Oregon, Utah, Nevada, and California. Data from Bulletin 588 plus subsequent data gathered at Squaw Butte and that published by others were used as a basis for this report. The report extends the use of precipitation-yield relations to those areas; the precipitation tables provide a uniform 30-year base. Extension of the point estimate is improved through the use of a modified Thiessen grid. Additionally, the authors discuss the precision and reliability of the relation and the applicability of the precipitation-yield relation to 1) the area, 2) the vegetation, 3) yield forecasting, 4) yield adjustment, and 5) adjusting utilization estimates.

INTRODUCTION

The wide fluctuation in forage yield from one year to another has been and still is a major stumbling block in managing the western rangelands. On the public ranges, since management became a reality (somewhere in the late 1940s), the grazing capacity was set, based upon the normal or average forage production. Even so, that estimate was frequently challenged. Whether the judgments made then were right or wrong, the point is made that during the subsequent 30 to 40 years only in about 50 percent of the years has the carrying capacity been about right while in 25 percent of those years the range has been grossly overgrazed, and in another 25 percent of the years the range has been extremely underutilized. The obvious result has been range setbacks in dry years and loss of beef production in the excellent years. Management, beyond that of setting the normal or average carrying capacity, has been primarily adjustments after the fact.

As a result of laws passed in the 1970s, the agencies managing the public ranges are faced with allocating the forage resource much more precisely than before and with monitoring grazing use such that no resource damage occurs. Therefore, a dire need exists for knowledge or relationships which will provide the range manager and the producer with reliable preliminary estimates of forage production so management alternatives can be considered and enacted if needed before or during a particular grazing period.

It is the intent of this bulletin to provide a precipitation-yield relation which can provide reliable and effective information for use in forecasting and adjusting range forage estimates. The simplicity of this model and its associated errors will be a disappointment to those working on sophisticated crop yield models or those familiar with crop yield estimates of corn, wheat, or soybeans. For those people we would point out that on the western range the research in climatological-yield relations is 20 to 30 years behind the corn-wheat-soybean research. Additionally, the network of temperature and precipitation stations is extremely sparse and for vast areas our soils are not classified; thus, the data are very thin. Despite these weaknesses, and remembering that previously no before-the-fact adjustments were the rule, application of this relationship can be of assistance to the range manager and the producer particularly as they implement alternatives to protect the range in and after dry years and effectively utilize abundant forage resources in the excellent years.

It is also hoped that publication of this relationship will encourage other range scientists to initiate new research, research that ultimately will provide the basis for an even better prediction of range forage yield.

PRECIPITATION-YIELD RELATIONS

The basic precipitation-yield model is shown in Figure 1. It is the result of a pooled regression analysis of 100 precipitation-yield points from four diverse locations in the sagebrush-bunchgrass zone spanning 1924 to 1980. The yield series used will be discussed in detail later.

The derivation of the model follows the procedures set forth by Sneva and Hyder (1962). The sequence for that: 1) reevaluate each yield series relation using a September-June inclusive precipitation total (all further references to monthly periods will be inclusive) for each respective yield year, 2) determine the long-term median precipitation amount for the September-June period for each location (in this report all such long-term medians were developed from the 30-year period 1946 to 1975, inclusive or adjusted to that period, Appendix, Part I), 3) express each location's yield and precipitation values as a percent of its long-term median yield (estimated from the regression line developed in step 1), respectively, and 4) pool the resulting yield series values and conduct simple linear regression analysis. The outcome is presented in Figure 1.

There are three fundamental concepts that undergirds the precipitation-yield model.

The first is, "In a single growing season herbage growth depends largely on the amount of precipitation received immediately before and during the growing season." Therefore, the crop-year precipitation amounts are not the same as calendar year amounts (Sneva and Hyder, 1962). The selection of the September 1 to June 30 period as the precipitation crop-year for this model will be discussed later. The crop-year is designated by the calendar year in which the crop-year terminates.

The second concept is, "The herbage produced on an area with a median amount of crop-year precipitation may be defined as the sustained-herbage-yield capacity," but is referred to in this bulletin as the median herbage yield.

The third is, "That yield fluctuations below and above the median year yield in response to variations in crop-year precipitations are similar across the semi-arid environment." It is this similarity that requires the response relation to be expressed in percentages for 1 inch of precipitation may produce as little as 10 pounds of herbage on some ranges or as much as 100 pounds per acre on others. Thus, ranges may differ in production yet have similar response relations. The justification or verification of the above will be considered in subsequent sections.

There are two terms associated with the model that need defining. The precipitation index (PI) expressed as a percent is obtained by dividing the crop-year precipitation (CYP) amount in question by its long-term median (LTM) amount, mathematically this is: $PI = \frac{CYP}{LTM} \times 100$. The Yield Index (YI) is the regression estimate for a given PI. For both PI and YI, 100 percent reflects the median point. For practical considerations, that amount can be construed as the normal, average, or mean. Although the model is presented with outcomes in percent, the conversion to quantitative values is simple when estimates of yield, or yield portions, are available for known years (this will be demonstrated in the application section).

Precipitation-yield series description

Two yield series result from investigations from the U.S. Sheep Experiment Station near Dubois in eastern Idaho. The first was reported by Craddock and Forsling (1938) and consists of nine consecutive years from 1924 to 1932. Herbage yield of two, 80-acre pastures was measured in days of sheep grazing. Time of grazing and stocking level were controlled such that the investigators assumed none or little influence on mature yield expectations. The second yield series was reported by Blaisdell (1958) and presents data for 13 years during the 19-year period 1936 to 1954. Mean yields were derived from weight estimates (Pechanec and Pickford, 1936) of 125 permanent plots in three ungrazed exclosures made in late June or early July. Sample variation within years for total yield was reported to be 20 percent. Though speaking directly of the area-mapping samples, Blaisdell (1958) noted that numerous personnel changes during the study occurred and that subjective errors arose. This type error may have influenced the weight estimates as they, too, require training and are highly subjective.

The vegetation of the U.S. Sheep Experiment Station is described as predominately shrubs with an understory of perennial grasses and forbs, consisting of 49, 28, and 23 percent composition by weight, respectively (Blaisdell, 1958). Although shrub species comprise almost half of the total production by weight, grasses and forbs provide about 96 percent of the palatable portion of the vegetation complex (Craddock and Forsling, 1938). Thus, following Blaisdell (1958), only the yield of grasses and forbs is utilized herein.

Hutchings and Stewart (1953) report a nine-year yield series from investigations conducted on the Desert Experiment Station in western Utah from 1938 to 1947. Total herbage yield in October or November of each year was obtained by the weight estimate procedure on 48 or 64, 200-foot^2 plots in each of 20 pastures. The investigators did not present any expression of an error term regarding the precision of the yearly estimate. This location represents the most divergent vegetation type reported here, described by Hutchings and Stewart as salt-desert shrub, and on the Desert station is represented by the shadscale-grass, shadscale-winterfat-grass, winterfat-small rabbitbrush-grass, and pure winterfat types. They also report that 64, 31, and 5 percent of the total herbage production are represented by shrubs, grasses, and forbs, respectively, and that each provides 59, 36, and 5 percent of total forage utilized in the same order. Total yield in this series is comprised of all three plant groups.

From Benmore Experimental Area in central Utah, Frischknecht and Harris (1968) report 11 years of consecutive yield data in the 1948 to 1958 period, inclusive. Total yield of crested wheatgrass was obtained from weight estimates on permanent and temporary plots, caged and uncaged, and verified or corrected by the double sampling procedure. The crested wheatgrass stands were established in the mid-1930s. Previous to that time, the study site supported a sagebrush-rabbitbrush-bunchgrass complex with some forbs and varying amounts of cheatgrass. Herbage yields for considerations herein are predominately crested wheatgrass. An expression of sample precision was not given but the authors noted that in 1959, the year after study termination, close agreement between similar estimated and clipped yield plots was high (r=0.91). Grass yields in the present report are those from pastures receiving light use (53 percent) and were taken from Figure 14 of the Benmore report. Because of a discontinuity in the precipitation record at Benmore during the study period, the precipitation recorded at Eureka was used. Based upon interstation correlation analysis, that station's precipitation was judged to give the best available estimate of precipitation fluctuations at the study site.

The remaining two yield series are derived from the Squaw Butte Experiment Station in southeastern Oregon. The first series consists of mature yield estimates from crested wheatgrass plots beginning in 1952 and continuing through 1980 (29 years). The seeding was established in the mid-1940s. The annual yield estimates (taken on August 1) were the mean of five, 48-foot^2 harvest plots which serve as control units to a larger study. The annual mean yield was estimated within ±6 percent at the 95 percent confidence interval. The study area was grazed or mowed yearly after plot harvest.

The second series is from a 40-acre native range pasture in fair to good condition that was treated in 1952 with 2,4-D for sagebrush control. Brush mortality in 1953 was estimated to be greater than 95 percent. This yield series, begun in 1952, also continued through 1980 for 29 years; however, yield adjustments were made, beginning in 1969, to compensate for increased brush competition resulting from increased brush presence. Mean annual yield was estimated from 300 random 9.6-foot^2 plots in 1952-1954, thereafter from 60, 48-foot^2 plots. Hand clipping for yield was done in July or August after grass maturity; vegetative separation by groups was done by hand at the time of harvest. The precision of the yearly mean for total yield varied from 10 to 17 percent and averaged 13 percent at the 95 percent confidence level. Vegetation of this 40-acre pasture is typical sagebrush-bunchgrass. Herbage yield considered herein consists of perennial native grasses (66 percent), broadleaf succulents (11 percent) and cheatgrass (23 percent). The latter, an exotic and annual, fluctuated from 2 to 60 percent of the composition depending upon year favorableness. The 40-acre plot was grazed moderately in every year except 1976 and 1977 after grass maturity and grazing is believed not to have had a strong impact on the subsequent year's herbage production. (Scientific names for species named in the foregoing are listed on Page 19. For greater detail concerning vegetation description or sampling technique, see the cited literature.)

The primary purpose of the previous summaries is to call to attention that the model presented in Figure 1 represents a response line of similar yet different vegetation types of varying amounts of shrubs, grass, and broadleaf succulents growing in various environments that are dominated by winter and spring precipitation, cold winters, and hot, dry summers. The locations included in this study are within the boundaries of the Intermountain big sagebrush region of the Steppe Province as described by Bailey (1978), Figure 2.

The precipitation crop-year period

Almost any precipitation crop-year period selected from the studies reported within the intermountain area can be contradicted or refuted from another study conducted elsewhere or from the same area but from a different time frame (Table 1). Some of these differences can be attributed to the short time sequence involved or the years represented in that specific time frame. For example, in Figure 1 we see that the yield series at Dubois, Idaho, examined by Blaisdell (1958) is closely structured around the median. This contrasts to that reported by Frischknecht and Harris (1968) at Benmore, Utah, and Craddock and Forsling (1938) at Dubois which are heavily oriented to the drier years. Additionally, the yield series of Hutchings and Stewart (1953) at the Desert Station in Utah contains an extreme wet year that undoubtedly biases their short term study.

Differences among studies also might be anticipated because of the precision and adequacy of the sample to estimate the individual year mean. Yearly means of native vegetation at Squaw Butte were estimated within ±13 percent at the 5 percent probability level while that of crested wheatgrass averaged 6 percent. The sampling at Squaw Butte was quite intensive and all samples hand harvested. The other researchers did not always report the precision of the reported mean. Blaisdell reports an error term of about 20 percent. However, most data were the result of either visual estimates or of a double sampling techniques which generally are less accurate than clipping. In some instances, the sample size and number of samples may have been inadequate. It is not the intent to find fault in some of the reported literature but rather to point out that because of the inherent difficulty to measure precisely an extremely variable component such as range yield, the differences between and among studies may be the result of sampling attributes rather than real crop-year period differences. Additionally, precipitation was not always recorded at or near the site of yield collections. The use of a nearby station for weather records does not invalidate the data because fluctuations in precipitation over a general area are similar. Nevertheless, we must be cautious in discriminating between differing results between studies when the base data may have considerable variation within it.

Those researchers who have examined the yield-precipitation relation of the Intermountain region in some detail (Craddock and Forsling, 1938; Hutchings and Stewart, 1953; Blaisdell, 1958; Passey et al., 1964; Sneva, 1977; Sneva, in press) are in general agreement that summer precipitation (July, August, and sometimes September is included) is relatively ineffective in promoting yield of cool-season plants. In Idaho, Pearson (1966) reported vegetation response to July and August irrigations but the primary increase came from sagebrush rather than the herbaceous components. Thus, we have chosen to eliminate the precipitation in July and August from the precipitation crop-year period as not being a primary determinant of either the current year's or subsequent year's yield. Precipitation in those months will not be totally ignored because in a few years, precipitation in those months, as it has in the past, will influence the yield outcomes. It is believed, however, that it is better to handle those situations outside of the basic prediction relation.

This leaves us with September to June, a 10-month period, and the question is, "Does the precipitation of each month include all significant contributors to the estimation of subsequent yield?" We believe so on the strength of the Squaw Butte data and our interpretation of that published elsewhere. Blaisdell (1958) terminated the crop year in March because correlation coefficients decreased with relations that considered April, May, or June precipitation; however, as previously mentioned, his data did not measure either extreme dry or wet years. His results are also in disagreement with Craddock and Forsling (1938) from the same location whose crop year included growing season precipitation, that of Sharp (1970) in southern Idaho who stressed the importance of spring precipitation and that of Fetcher and Trlica (1981) in Utah where significant correlations were found only with growing season precipitation. However, in the latter study only individual yield was correlated and the data derived from utilization estimates. Robertson et al. (1970) also considered spring precipitation and particularly precipitation in June to be important; Sneva (1977 and in press) also shows growing season precipitation to be important.

The precipitation received in June is particularly difficult to assess as to its importance. Over most of this semi-arid area, some of the early growing species have matured in June while others are approaching maximum yield and growth is slowing down. Climatically, the area is warming up and is shifting in precipitation pattern from frontal storm systems to convective storm systems, a consequence of intense land surface heating. Plant response may be hindered both by physiological maturation and by a high soil temperature. Yet, despite those negative considerations it seems illogical that in a semi-arid region where moisture is a limiting factor that plants would adapt which could not react to precipitation in a growing season month that constitutes one of the wetter months of the year. Thus, the inability of some data to show the importance of June precipitation to subsequent yield is believed caused by our inability to properly assess its value because of other confounding factors.

Only a few of the major studies have considered a crop period that exceeds more than 12 months. Hutchings and Stewart (1953) reported close association of some individual grasses with precipitation in the preceeding 15 months. Springfield (1963) suggested a predictive equation based upon the previous two years crop-year period (October to March, inc.). In Oregon, the addition of precipitation amounts for the previous two or three years resulted in non-significant relations (Sneva, in press). Thus, the evidence to support a crop-year period exceeding 10 months is not great. Yet, it is clear from experience and the recorded data that there are occurrences of particular year sequences when precipitation, either an abundance or a lack of it, influences later yield outcomes. Generally, these are consecutive years of extremely wet or dry years or a combination of a drought year followed by a wet year or visa versa. Here again, we find the rarity of such sequences so low that in the time frame sampled we have little opportunity to devise schemes for assessing them. The only reasonable alternative is to ignore such in the analysis; thus, these deviations contribute to the error term and when such situations arise, deal with them outside the described relation. Thus, we infer that the precipitation crop year period, September to June, inclusive, is the most desirable period as a base for adjusting and predicting the subsequent plant yield.

The effective area

The model as described was developed from seeded grass, sagebrush-grass, and salt desert shrub types. Some supplemental studies (not included) suggest that the relationship has broad application embracing similar vegetation types in southwestern Montana, southern Idaho, eastern Washington, and Oregon, northeastern California, Nevada, western Utah, and the sagebrush type in northern New Mexico. However, within this general region there are some areas where elevation and environmental constraints which the model does not fit well. Even on these exclusions the tabular data in the Appendix and the literature may be of some benefit in predicting or adjusting yields on those particular sites.

One such area to which the model is not directly applicable is our higher forested ranges. These areas are typically watershed zones and are most often are characterized by a leached soil system. The research by Garrison (1953), Pumphrey (1980), and Hanson et al. (in press) relate to these areas. The research of the latter two suggest quite clearly that fluctuation in spring precipitation at these higher elevations is more critical to subsequent yield than the previous winter or fall precipitation. Such areas normally receive more moisture than the soil profile can hold during the fall-winter period and rarely enter the spring growing season with soil moisture deficits. Subsequent production fluctuations primarily depend upon replenishment during the spring and early summer period. It is only the most extreme dry fall and winter when the model shown here might apply to the production on such areas. Thus, for those areas the precipitation medians for the May to June period also have been extracted as a single unit and shown in Appendix, Part I.

The model is not well suited for yield predictions of low areas receiving supplemental runoff from elevated areas surrounding it, such as flood meadows. Flood meadow production is determined by the time, duration, and depth of flooding (Rumberg and Sawyer, 1965). There is, of course, a general relationship between the fall-winter-spring precipitation received with runoff onto flood meadows; however, other factors enter which influence the depth, duration, and time of flooding. However, there is reasonable agreement between the Precipitation Index of this report and forecasts of "Water Supply" (Water Supply Outlook for the Western U.S. National Weather Service, NOAA, Silver Spring, Md. 20910) because the basic precipitation accumulation period is similar and expressions of deviations from "normal" are computed from long-term precipitation medians in both.

The semi-arid and arid deserts are generally recognized as soil-vegetation systems operating at a low fertility level. For the most part, the nutrient level therein is not limiting the response of the native grasses. However, the more efficient introduced grasses do place a greater stress on the moisture and nutrient supply, particularly nitrogen. Therefore, in some areas and in some years, production of introduced species may be governed more by nutrient supply than moisture. The works of Sneva (1977) and Pumphrey (1981) discuss more fully the effects of fertility on the precipitation-yield relation.

Conversely, there are sites within the Intermountain area where a particular element is overabundant. Most commonly these are on saline/alkaline soils which influence not only the type of vegetation but also their yield.

The vegetation

The model describes the relationship between fluctuations in precipitation with resultant changes in the yield of the herbaceous portion community; however, it is not quite that simple. The investigations of Hutchings and Stewart (1953) and Craddock and Forsling (1938) are based upon the yield of browse as well as grass and palatable broadleaf succulents. That reported by Garrison (1953) and Kinchey (in press) concern browse only; Fetcher and Trlica (1981) considered individuals of both browse and grass species. Blaisdell (1958) also reported on brush yield relations but built his regression analysis on grass and broadleaf succulent yield. Thus, we conclude that the relation is also valid for estimating woody shrub yield response.

For the most part, the model reflects the response of perennial plants. Yet, at Squaw Butte, the cheatgrass component varied from as little as 2 percent to as much as 60 percent of the total annual weight harvested from a range where sagebrush had been controlled. In a subsequent analysis of those yields with cheatgrass yield removed, the correlation coefficient was essentially unchanged. However, the annual yield of cheatgrass over the years was poorly correlated with the precipitation crop year amounts. High correlation coefficients were obtained when cheatgrass yields were related with 1) September-November precipitation, 2) February-April mean temperature, 3) March to June precipitation, and 4) mean May temperature (Sneva, 1979). In an earlier paper, Sneva et al. (1965) reported strongest yield dependency of cheatgrass yield in Idaho with combinations of fall and spring precipitation. Murray et al. (1978) accounted for 99 percent of annual cheatgrass variation with climatic factors of 1) April precipitation, 2) mean April temperature, 3) February mean temperature, 4) mean May temperature, and 5) May precipitation. The importance of temperature as a factor influencing yield of cheatgrass has also been demonstrated by Uresk et al. (1979). We conclude that the presence of cheatgrass in a community dominated by perennials does not exclude the use of the model; but, it is clear that the model is not suited for areas that are dominated by cheatgrass and this perhaps also applies to other annuals such as Medusahead, mustard, and Russian thistle. Sufficient data are currently available to provide a model similar to Figure 1 for cheatgrass but the mechanics of extending both precipitation and temperature formats will require a tremendous amount of time and effort.

Blaisdell (1958) emphasizes that it is the total community that is responsive to the fluctuations in total moisture received and that as some portion of the community falters in a particular year another segment of that community compensates for it. The Squaw Butte data of Sneva (1977) support that conclusion. This is not meant to convey the concept that the yield of species within a community is not significantly related with precipitation fluctuations, for some are. But we seldom see individual species yield relationships as closely related with the precipitation crop-year amount as the total community yield is. For the present, based on the research at DuBois and Squaw Butte, we infer that yield of individual species may have slightly different precipitation crop-year period responses than the total community yield. Also, some species may be less responsive to precipitation fluctuations. In particular, the yield of needlegrasses at both DuBois and Squaw Butte were poorly correlated with precipitation fluctuations. However, in Nevada during wet years, Eckert and Spencer (1982) reported increases in basal area, reproductive stem number, and seed yield of Thurber needlegrass when fertilized competing vegetation was reduced.

Our concern here is how the model is applied within normal management standards. If a range area of mixed vegetation is managed on a "key species" or "key area" concept and the model applied to an individual plant species with the correction extended to the total there may well be a question of "reasonable doubt."

It is also necessary to separate the differences between the response of the individual in a mixed community and that of a single species community. In the model, the latter is represented by crested wheatgrass seedings at Squaw Butte and Benmore. In an earlier study, Sneva and Hyder (1962) included introduced grasses other than crested wheatgrass (all have been recommended as species suited for semi-arid environments). For the most part, we found the introduced specie more efficient in forage yield production than the native complex. This efficiency generally results from more complete utilization of the moisture and nutrient supply. Because of this, we would expect their yield relations with precipitation to be closer than that of the mixed vegetation; but, the results suggest lower correlation. The suspected reason is that such stands are more strongly nitrogen dependent as has been shown by their response to nitrogen additions. In particular year sequences, wide variations in available soil nitrogen may hinder or magnify the yield response. In Figure 1, three yield points that are strongly deviant are checked (√). Two of those checked are crested wheatgrass yield from the Squaw Butte series. Lack of yield response in 1958 ($\surd^1$) resulted because it was the third successive year of high crop-year precipitation and available soil nitrogen replenishment from these low organic soils was unable to meet the demand placed upon it (in 1958 the supply of nitrogen was insufficient). The yield point in 1978 ($\surd^2$) is much higher than the regression estimate and here the preceeding year 1977 was characterized by a strong drought (crop year precipitation was only 6.2 inches). In 1978, there was an additional herbage response to carry over nitrogen from the previous year. The elimination of those two years, which could be N-dependent relations rather than moisture dependent, would result in "r" values close to that obtained from the native species.

Annual fertilization with nitrogen can overcome those deficiences, as is shown by Sneva (1977) and Pumphrey (1981). However, on the semi-arid ranges, fertilization with nitrogen increases the slope of the model slightly. This occurs because in the extreme dry years we get no response or a decreased yield with fertilization and this affects the slope of the line.

Of particular concern is a most recent report by Passey <u>et al</u>. (1982) in which the authors conclude, "Production was positively related to precipitation, but the relation was very broad. . . . Neither this relationship nor any other production-precipitation relationship was strong or dependable enough to be of practical interpretive value in range resource management." That report summarizes an extensive study consisting of 17 locations in the Intermountain area over a 10-year period. It is unlikely that "qualitizing" the data reported by Passey et al. by procedures used in the present report would enhance the yield-precipitation relations (this is so because procedures used herein are "adjustments" not manipulations). Thus, the conclusion drawn by Passey et al. which differs drastically from the primary tenent of this report must be the result of differences in the studies per se.

A primary difference is that the data reported by Passey et al. relates to "areas where vegetation had escaped significant disturbance on areas protected long enough . . . to reestablish the climax plant community. Such areas are called 'relicts'." In the present report, data are about rangelands in current grazing use. Passey et al. inferred five factors that may have been responsible for the weak yield-precipitation correlation coefficients. In particular they infer insufficient data to accurately test the relationships; this is borne out by the rather wide standard deviations associated with annual yield estimates of species as reported in Table 5 of that report. They further inferred that ". . . total production and production of individual species in climax plant communities are inherently erratic enought to preclude the development of precise production estimates from precipitation data alone." This latter factor is perhaps the result of what they describe as "natural cycling" and is the result of nonuse and concomittent buildup of dead biomass, stagnation, and subsequent community decline and mortality which leads to retrogression and a cyclic return again to climax. That stagnation leads to lowered productivity was observed by Passey et al. and has been documented or inferred by others: Burton et al. (1951), Kamm et al. (1978), Uresk et al. (1976), and Tueller and Tower (1979). However, stagnation effects have been more thoroughly documented on shrubby than on herbaceous species. Nevertheless, the authors of the present report infer that it is the "stagnation" or "natural cycling" effect directly that is a primary factor causing low yield-precipitation correlation coefficients in that study and that the conclusion drawn by Passey et al. is correct as it relates to unmanaged and mostly unused stagnated climax stands.

The temperature factor

Temperature is not a variable in the development of the model in Figure 1; however, its effect is evident in the error term. On perennial grass ranges the influence of temperature on terminal yield was found to be minor, Blaisdell (1958), Sneva (1977), Sneva (1979). There is some evidence that temperature plays a more important role for specific species, as it does for cheatgrass, Sneva (1979) and Murray et al. (1978). Temperatures play an important role in the growth of range grasses and this indirectly affects the efficiency of soil moisture utilization which affects terminal yield.

The long-term median as a focal point

It is quite clear from the literature that it is the fall-winter-spring precipitation immediately preceding the yield year that determines the amount of herbage produced. Those who have looked at the influence of more than one year preceding the yield year have found their influence to be small. However, ecologically, in an extended dry or wet cycle one would suspect that area's median yield is also decreasing or increasing and if management is to be closely responsive to the yield fluctuations, then the precipitation crop-year median ought to be developed from a shorter time frame more closely in line with the current year.

This effect is real, for in developing the model the relations were expressed on the basis of the LTM, whereas, in the original regressions the relation is an expression of each studies' period mean and most often the former relation was the weaker of the two. However, if a shorter precipitation crop-year median were to be used, one would be faced with 1) the constant need for updating the median amount and 2) the problem of interpreting change over time with differing median amounts used as the reference point. Thus, a 30-year period for the development of the LTM has been chosen and when station records are less than that the median obtained is adjusted to that of the 30-year base.

Model Precision and Reliability

The standard error ($S_{y.x}$) of the regression shown in Figure 1 is 25 percent. This suggests that at the 95 percent confidence level our precision at the regression mean is about ±50 percent. That is not very palatable. However, in Figure 1 there are four deviant yield points checked (√). Three have been discussed.

The fourth deviant yield occurred in 1978 in the native range series at the Squaw Butte Station. Herbage yield in that year was contaminated with old growth, as in the previous two years no grazing occurred in that 40-acre pasture. Removal of the old growth at the time of sampling was done with difficulty and the yield estimates perhaps are biased upward. The deviant yield of crested wheat in 1978 has been inferred to be the result of carryover of nitrogen resulting from the extreme drought year of 1977. It is tempting to also use this relation as an explanation for the deviant yield of the native range. It may well be that carryover nitrogen from 1977 is partially responsible for the exceptional high yield on native range in 1978. Investigations of native range grasses' response to N fertilizer suggest only limited increases (Harris, 1966; Sneva, 1978); however, in 1978, about 50 percent of the total yield was derived from downy bromegrass which does respond to nitrogen and may explain the high yield in 1978.

The authors infer that these four deviant yields are largely responsible for the wideness of the standard error. Recomputation of the data with those four data sets removed had only minor impact on the slope and intercept but reduced the standard error to 14.5 percent. At the 95 percent confidence level, the precision of the estimate was subsequently reduced to ±30%. We might also be willing to accept a lower confidence level, say 90 percent. If so, at that level the precision of the estimate was about ±24 percent. The latter is a tolerable level of confidence and precision, particularly so when the diversity of the source of data is considered.

A precision of ±25 percent would not be acceptable to intensive agriculture; however, the management of rangeland can be enhanced with this information. We can predict, with reasonable assurance, whether forage production will be low, normal, or high for a given season. There is then opportunity to protect our range resource in dry years and to take advantage of its abundance in good years through management alternatives available to the ranch and range manager.

Other Models

In addition to the simplistic investigations of yield relations with monthly mean precipitation amounts and mean monthly temperatures, there have been some attempts to model range productivity with greater detail. Issas (1974), working with bluebunch wheatgrass yield data of the Dubois station, devised a computerized analytical model that intergrated herbage yield, crude protein, and crude fiber to predict total digestible nutrients. The herbage yield model utilized beginning soil moisture and evapotranspiration components. However, its applicability to plants other than bluebunch wheatgrass and to other areas remains untested. Weisol (1981) examined six published regression models relating annual yield to precipitation, temperature, or derived variable. She compared model estimates with observed yield from 38 rangeland sites on five continents. Her results suggest an accuracy of 18 percent of the observed yield with time series versions of multiplicative or step-function models incorporating past-year yield and present climate. Thus, research suggests possible means for the solution of yield estimation but the field data needed to drive such models are not now generally accessible or readily obtainable.

MODEL APPLICATION

YIELD ADJUSTMENT TO THE MEDIAN YEAR

Step 1: Obtain Long Term Crop Year Median (LTM)

This is obtained from Appendix I. Select the most representative station and use the median value for the September-June crop-year period. If the station needed is not listed in the Appendix, the derivation of the median is presented in Part 1. Example, Picabo, Idaho. From Appendix, Part I the median precipitation is shown to be 12.75 inches.

Step 2: Sum Current Precipitation for the Crop-year Year

Current precipitation by months at all stations is published monthly and in an annual summary prepared by the U.S. Department of Commerce. The publication, "Climatological Data" is compiled on a state basis and may be received by mail for a nominal charge from: National Oceanic and Atmospheric Administration, National Climatic Center, Asheville, North Carolina 28801.

Step 3: Compute the Precipitation Index (PI)

The PI is obtained by dividing the total crop-year precipitation (CYP) amount for the crop year desired by the LTM amount and expressing the result as a percentage. Mathematically this is $PI = \frac{CYP}{LTM} 100$. Example; In 1981, the sum of monthly precipitation from September to June, inclusive at Picabo, Idaho, was 10.80. That amount divided by its LTM of 12.75 (Step 1) and multiplied by 100 estimates a PI of 85%.

Step 4: Sample Range Production

Reliable yield data must be obtained in at least one year to permit the estimation of median yield. The yield estimate should be a reliable sample of mature yield expressed on a dry weight basis (air or oven dried). Animal-days-of-grazing or animal-unit-months, when stocking is proper, can be used as a measure of forage production.

Step 5: Look up the Yield Index

Table 2 presents the corresponding YI for each PI from 40 to 169 percent. This table is a computation of the regression Y = -23 + 1.23X where Y is the YI and X = PI. For PI values smaller than 40 or greater than 169, the YI needs to be computed by the regression formula. Example; Using the PI (85 percent) computed in Step 3 and entering Table 2 we obtain an YI of 82 percent.

Step 6: Estimate Median Range Herbage Production

The median yield estimate is obtained by dividing the yield estimate obtained in Sept 4 by the YI obtained in Step 5 with the YI expressed in decimal form, i.e., a YI of 130 percent = 1.30 or an YI of 75 percent = 0.75. Assume that in 1981 a range near Picabo was sampled and the yield estimated 365 lb/acre. Then 365/0.82 = 445 lb/acre which is an estimate of median year yield, i.e. the expected yield in a year which receives the median September to June precipitation of 12.75 inches.

ADJUSTING UTILIZATION ESTIMATES

The YI can also be used to adjust a utilization estimate in a given year to an estimate of utilization in the median year. In this case, the adjusted utilization value is obtained by the cross-product of the utilization estimate with the yield index with both expressed in the decimal form; i.e., Adjusted utilization = Utilization estimated X YI X 100. For example, assume 80 percent utilization in a year with an YI of 70 percent. The adjusted utilization is estimated as 0.70 X 0.80 X 100 or 56 percent. This is telling us that the pounds per acre of forage removed under 80 percent use in a year providing 70 percent of the median year amount of forage is equal to the amount of forage removed under 56 percent use in a median (normal) year. Please note that this is equalizing only the quantitative relation. It should not be inferred from this that 80 percent use in a 70 percent of median forage year is ecologically the same as 56 percent use in a median or normal year. Also, because forage production can exceed more than 100 percent of its median year yield, it is possible to get unreal figures when percentages are used. For example, assume 80 percent utilization in a year with an YI of 150 percent. The adjusted utilization values for the median year is 120 percent. This, of course, is impossible. This doesn't invalidate the adjustment procedure for this purpose but it may produce some biases that are not yet fully understood at this time. It is important that caution should be used in how adjusted utilization values are interpreted and, more importantly, we should always keep in mind that animals eat pounds of forage not percentages.

FORECASTING RANGE PRODUCTION

The forecast, as applied through the model presented in Figure 1, provides a qualitative expression (YI) in percent of the median year. To obtain a quantitative estimate expressing pounds per acre or animal unit months, apply the qualitative expression (YI) to known median year amount.

Forecasts should not begin until a reasonable portion of crop-year precipitation has been received. On the basis of the literature, predictions for this area before April 1 are likely to be very speculative.

Step 1: Obtain long term crop-year median (LTM). (See Step I for yield adjustment)

Step 2: Sum the current crop-year precipitation for the year

Since we are now in a forecasting mode, we do not have all the precipitation that will occur through June. Therefore, we must assume some precipitation amounts for the months to come. For this purpose, we use the median monthly amount determined from records. Such amounts, with their first and third quartile limits for each station, are also presented in the Appendix. Total crop-year precipitation amount is estimated by adding median amounts for the months remaining to the amounts received. Example: Assume that at Picabo, Idaho, precipitation from September 1, 1980, to April 1, 1981, totaled 7.62. The median amounts expected for Picabo during April, May, and June are, from Appendix I: 0.79, 0.84, and 1.07 inches, respectively. These amounts added to that already received (7.62) = 10.32 inches.

Step 3: Compute the PI. This is done as previously described.

That is: 10.32/12.74 X 100 = 81 percent

Step 4: Look up the YI. This is obtained from Table 2.

That is: PI of 81 percent = YI of 77 percent

Step 5: Forecast current range production.

The YI is the qualitative estimate of the year's production. If the median year amount is known then the current year's estimate is obtained by multiplying it by the YI in decimal form. If the median year yield estimate is, as derived previously, 445 lb/acre: Then the yield forecast as of April 1, and assuming "normal" precipitation for the remainder of the crop year is 445 X 0.77 = 343 lb/acre.

Application considerations

At this point, the precipitation amounts for July and August should be considered. Although they have previously been ignored as being unimportant determinants, in some unusual seasons they can influence yield. In the Appendix, Part I, the median monthly amounts for these months, as well as the other months, are presented along with first and third quartile amounts. If precipitation in either of those months exceeds the third quartile amount, some influence upon either the current season's yield (July) or upon subsequent season's yield (August) might be suspected.

The forecast can be updated at the end of each month as new precipitation amounts are obtained. In each instance the forecast is saying "this is what is expected based upon what we have already received and, assuming 'normal' precipitation amounts in the remaining months." If we choose, we can use the first and third quartile amounts presented in the Appendix and develop a forecast that will bracket "normal" precipitation amounts and estimate the best and worst possibilities.

The question is also raised, "Is there any characteristic of dry or wet years that will help us in providing a more reliable forecast?" We examined this by extracting the five driest and five wettest crop years on record for five locations in Oregon and comparing their monthly precipitation amounts with that of the long-term monthly median. The stations were Lakeview (86 years), Dayville (76 years), Prineville (75 years), Burns (56 years), and Umatilla (76 years). The five station monthly mean deviation in percent of the median for each month is presented in Table 3. We infer from those results that in the dry years, almost all months of the crop year receive below normal precipitation amounts and in the wet years, almost all months receive above normal precipitation. Thus, the use of the LTM amount for monthly precipitation expected in our forecast may be underestimating the YI in the wet years but overestimating the YI in the drier years.

Those managing forested ranges at the higher elevations might consider utilizing the spring months' median values alone or in combination with fall-winter precipitation (see Hanson et al. (in press) or Pumphrey, 1980).

EXTENDING THE ESTIMATE

The purpose of the preceding sections, and particularly the expression of the yield-precipitation relation in qualitative terms, is to show and support the premise that the yield response is similar among and between locations where both precipitation and yield have been measured. From this we infer that the relationship also exists throughout the area even though it has not been so measured and that if we can obtain a measure of crop-year precipitation for a given locality and know that area's LTM, we can obtain a yield index for it. The problems now facing us are, 1) for any given area for which we do not have a precipitation record, how do we estimate crop-year precipitation, or 2) for a known weather station with a past precipitation record to what area surrounding it can we extend that information? There are a number of ways by which this can be done. We have selected to utilize the "Theissen grid" method (Theissen, 1911) as modified by Sneva and Calvin (1978).

For this report, interstation correlation analysis of crop year precipitation amounts and subsequent multiple regression analysis of the correlation coefficients with distance and bearing between stations was conducted as described by Sneva and Calvin (1978). Approximately 25 to 28 stations with complete 30-year records (1946-1975) were grouped for, 1) western Utah - eastern Nevada, 2) western Nevada-northeastern California, 3) central Oregon, 4) eastern Oregon, 5) eastern Washington, 6) western Idaho, 7) eastern Idaho, as well as for a composite group of 25 stations scattered over the entire area. The resulting regression equations (all highly significant ($P<0.01$)) describing each area's isohometrope along with its maximal bearing angle and coefficient of determination (CD) are presented in Table 4. The coefficient of determination (CD), which ranged from .31 to .76, is an estimate of the variation associated with similarities in precipitation fluctuations between stations that is accounted for by the regression model. Testing of the b_3 and b_4 regression coefficients between all possible area combinations revealed that no one regression model differed significantly ($P>0.05$) from another. However, one or the other of the b_3 or b_4 coefficients for each area was significantly different from zero ($P<0.05$). This is interpreted to mean that an oriented ellipse is significantly better to describe the precipitation gradient over this area than a non-directional circle as used by Theissen (1911). Thus, the "overall" regression model has been selected to be used thoughout the area to describe areas of crop-year precipitation similarities. The graphic outcome of the "overall" regression model is shown in Figure 3 and is referred to as an isohomeotrope diagram. It describes the similarities of crop-year precipitation fluctuations over this five station area. The model has a maximal bearing of 39.4° and accounts for 76 percent of the variation of fluctuations in crop-year precipitation between stations.

As presented, the isohomeotrope is a scaled drawing and the lines marked with their respective "Z" values. "Z" is a transformation of "r", which is a measure of correlation between arrays of two items. For the use intended herein, the level of "Z" has little importance, i.e., the primary goal is to describe the most representative area surrounding a given station or selecting the most representative station or stations for a particular point; it is not necessary to know to what degree the representation is, only that it is the best available representation. Thus, the isohomeotrope figure (Figure 3) may be enlarged or made smaller as needed without destroying its integrity; however, the absolute values of "Z" for their respective lines will no longer be valid.

The procedure for constructing a precipitation grid for an area is:

Step 1: Select precipitation stations that provide an estimate of the long-term median and are in operation.

Step 2: Using a transparency cut out of the isohomeotrope in Figure 3 center it on each station and orient the diagram such that the long axis of the ellipse is oriented to a 39.4° bearing. Mark the intersections of isolines having the same Z value between stations. Connect the intersections with a straight line (Figure 4). The line drawn between two stations describes a division line that is of equal correlation between the two stations. Note that the line is always of equal correlation between the two stations at any point on that line, but the level of correlation along that line is constantly changing. Also, any larger isoline and its intersections produced from two adjoining stations produce the same division line. The above procedure is repeated for each adjacent station until all divisional lines needed have been determined. The resulting polygons surrounding each station then describe the area most similar in precipitation fluctuations to that of the enclosed station.

In some instances it is only desired to know which precipitation station is the best to represent an area. For this, a transparency of the isohomeotrope is centered on the area of concern and the long axis of the diagram oriented to a 39.4° bearing. The most representative precipitation station for that area is that which is first enclosed by the most inward isoline or line of highest correlation ("Z").

Because fluctuations in precipitation between stations are more strongly correlated along the maximal bearing of 39.4°, the nearest station in horizontal distance away from an area may or may not be the most representative station; its representation depends not only on its distance but also its direction.

Finally, a word about elevation influences. It is confusing to some, at first, that elevation is not a variable in this determination of precipitation similarities. In any given area, precipitation amount nearly always increases as elevation increases. However, the fluctuations in precipitation of higher stations about their normal amount is not different from fluctuations in precipitation of lower stations about their normal amount. The actual amounts of precipitation may differ, but their relative fluctuations are similar. Thus, elevation influences on the similarity of precipitation fluctuations between station are small and not a determining factor between or among stations.

For further information on the assessment of area rainfall see Pierrehumbert (1976), who summarizes and evaluates methods of precipitation assessments.

PLANT NAMES

Common	Scientific
Cheatgrass	Bromus tectorum
Crested wheatgrass	Agropyron desertorum
Medusahead	Taeniatherum caput-medusae
Mustard	Cruciferae spp.
Needlegrass	Stipa spp.
Rabbitbrush	Chysothamnus spp.
Russian thistle	Salsola kali tenuuifolia
Sagebrush	Atremisia spp.
Shadscale	Atriplex confertifolia
Winterfat	Eurotia lanata

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Table 1. Crop year periods associated with grass or gain per acre yield

Researcher	Location	Vegetation	No. Years	Crop-year
Garrison (1953)	Ore-Wash	Forest-shrub	5	Oct-Sept
Pingrey (1959)	New Mexico	Sagebrush-grass	4	Oct-May
Springfield	New Mexico	Sagebrush-grass	8	Oct-May
Passey & Hughie (1963)	Idaho	Sagebrush-grass	4	Dec-April
Passey et al. (1964)	Idaho	Sagebrush-grass	5	Oct-March
Robertson et al. (1970)	Nevada	Crested wheat[1/]	17	Nov-June
Pumphrey (1980)	Oregon	Forest-grass	9	Sept-June
Mueggler & Stewart	W. Montana	Grass	3	Oct-Sept
Godfrey et al. (1979)	Idaho	Crested wheat	15	April-June
Sharp (1970)	Idaho	Crested wheat	15	April-June
Frischknecht & Harris (1963)	Utah	Crested wheat	11	Nov-May
Hanson et al. (in press)	Idaho	Sagebrush-grass		Sept-June
Kindchey (in press)	Oregon	Shrub		-
Craddock & Forsling (1938)	Idaho	Sagebrush-grass	9	Oct-June
Hutchings & Stewart (1953)	Utah	Desert-shrub	9	Oct-Sept
Fetcher & Trlica (1980)	Utah	Desert-shrub-grass	7	March-June
Rickard et al. (1976)	Wash	Grass	4	None
Sneva (1977)	Oregon	Crested wheat	14	July-May
Sneva & Hyder (1962)	Oregon	Grass	6-8	Sept-June
Blaisdell (1958)	Idaho	Sagebrush-grass	13	July-March
Sneva (in press)	Oregon	Sagebrush-grass	18	Sept-June

1/ Yield from spring-summer grazed pasture.

Table 2. Herbage yield indices for precipitation indices of 40-169%*

	Precipitation indices (percent of median)									
	0	1	2	3	4	5	6	7	8	9
	Yield indices (percent of median)									
40	26	27	29	30	31	32	34	35	36	37
50	38	40	41	42	43	45	46	47	48	50
60	51	52	53	54	56	57	58	59	61	62
70	63	64	66	67	68	69	70	72	73	74
80	75	77	78	79	80	82	83	84	85	86
90	88	89	90	91	93	94	95	96	98	99
100	100	101	102	104	105	106	107	109	110	111
110	112	114	115	116	117	118	120	121	122	123
120	125	126	127	128	130	131	132	133	134	136
130	137	138	139	141	142	143	144	146	147	148
140	149	150	152	153	154	155	157	158	159	160
150	162	163	164	165	166	168	169	170	171	173
160	174	175	176	177	179	180	181	182	184	185

* Yield indices computed for precipitation indices from the regression equation $y = -23 + 1.23x$, where y = yield index and x = precipitation index.

Table 3. Mean monthly precipitation deviation of 5 driest and wettest years expressed as a percent of the long-term median of 5 stations in eastern Oregon

Year classification	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
	----------	----------	----------	----------	% of median	----------	----------	----------	----------	----------
Dry	103	78	70	59	56	83	80	84	71	66
Wet	157	263	163	205	175	146	131	187	187	212

Table 4. Regression models, maximal bearing, and coefficients of determinations by areas describing the isohomeotrope for each

Area	Intercept	b_1 1/	b_2 2/	b_3 3/	b_4 4/	Maximum Bearing 5/	CD 6/
E. Washington	1.60465	-0.0061484	9.147486-06	9.5649780-05	-0.0072426	3.8	0.59
W. Idaho	0.949180	-0.0020324	1.9860809-06	0.00034901	-0.00011286	36.0	0.31
E. Idaho	1.05708482	-0.00426913	7.2185161-06	0.00040070	-0.00011617	36.9	0.41
Central Oregon	1.44123464	-0.00397878	4.1976303-06	0.00063634	0.00028037	33.1	0.55
E. Oregon	1.12173106	-0.00321523	3.5341399-06	0.00049310	0.0010099	39.2	0.44
Cal-Nev	1.27374881	-0.00341355	4.2019838-06	0.00016250	2.5989323-05	40.5	0.49
Nev-Utah	1.15662757	-0.00365642	4.5527213-06	0.00025146	6.6245184-05	44.2	0.48
Overall	0.94258333	-0.00125958	2.9058513-07	0.00034701	6.8805673-05	39.4	0.76

1/ Distance in km
2/ $Distance^2$ in km
3/ Distance (km) X sin (2 bearing (°))
4/ Distance (km) X Cos (2 bearing (°))
5/ Degrees
6/ Coefficient of Determination.

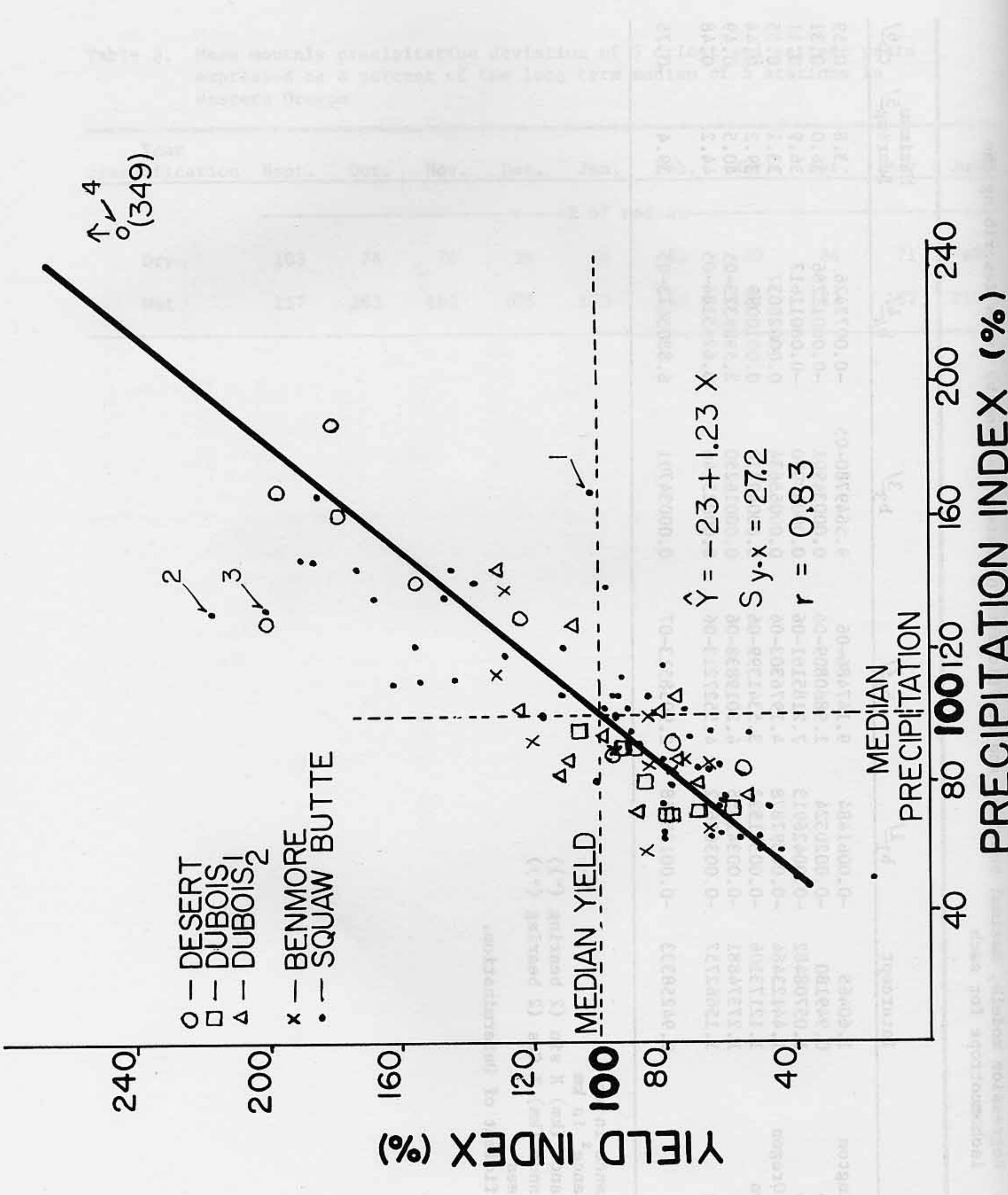

Figure 1. Herbage yield (Y) response to variations in precipitation (X) when Y and X are expressed in percent of the median year.

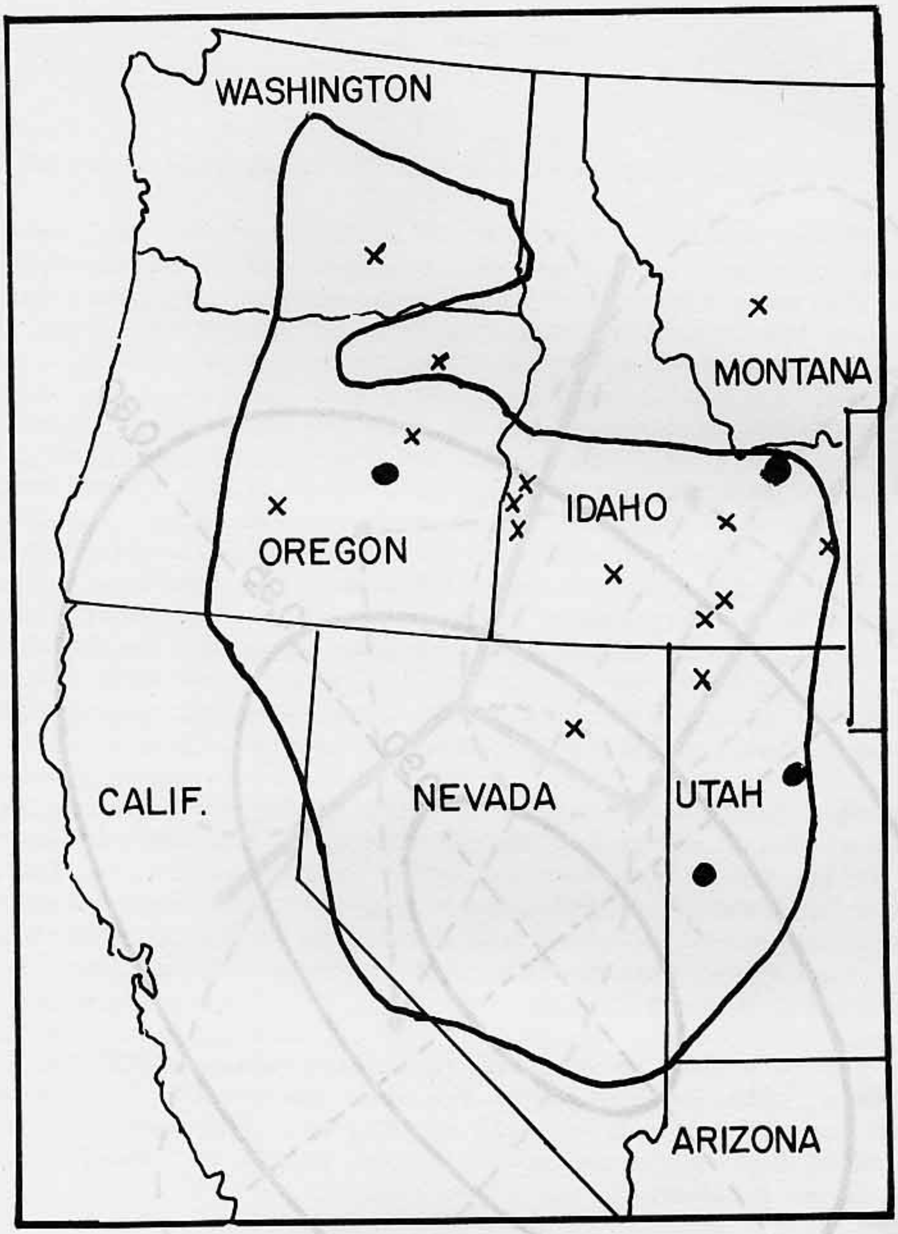

Figure 2. The intermountain big sagebrush region of the Steppe Province (Bailey, 1978). Yield series location used in developing the precipitation-yield model (•) and locations of other precipitation-yield relation research reported in Table 1 (X).

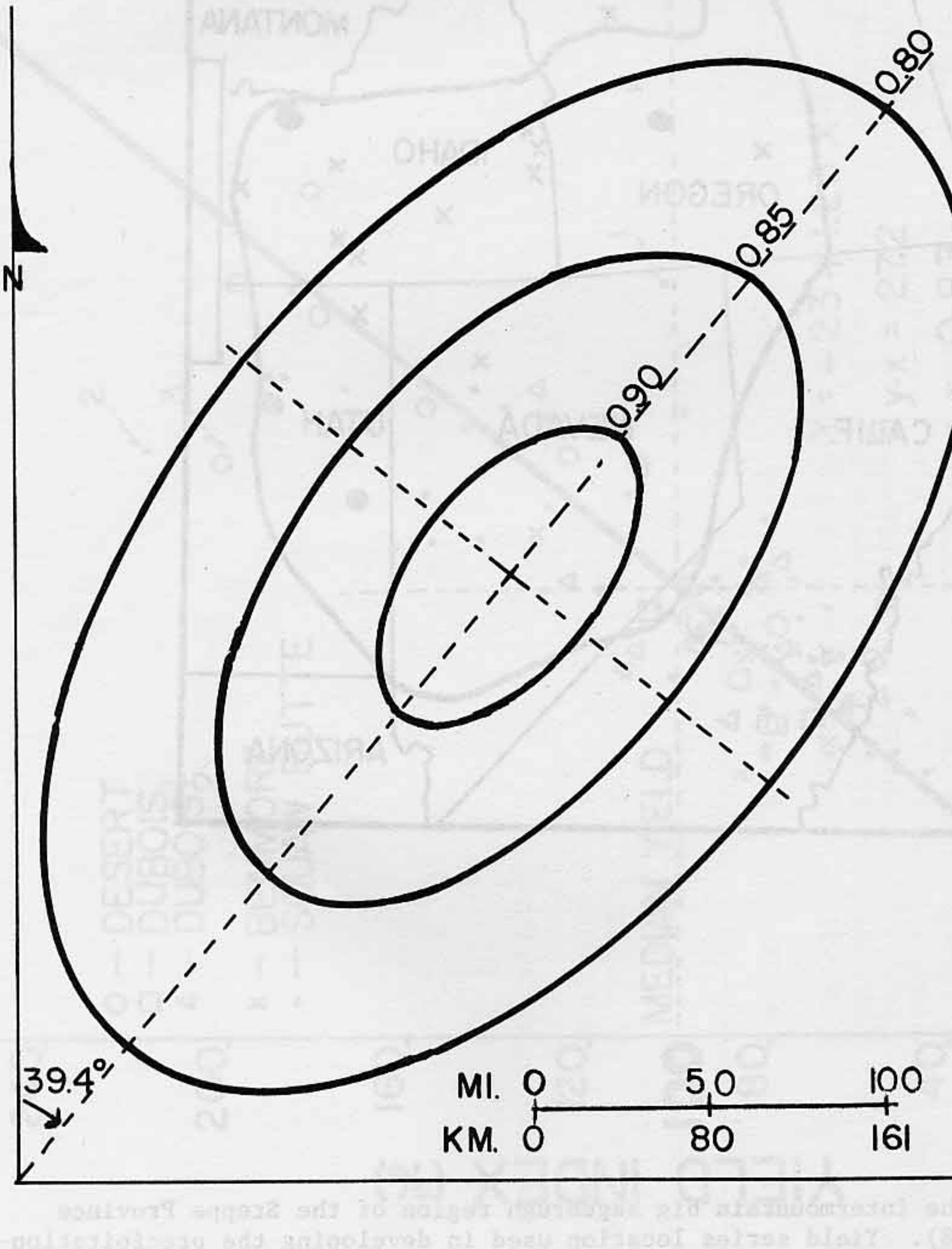

Figure 3. Isohomeotropes in the Intermountain big sagebrush region based on September to June precipitation.

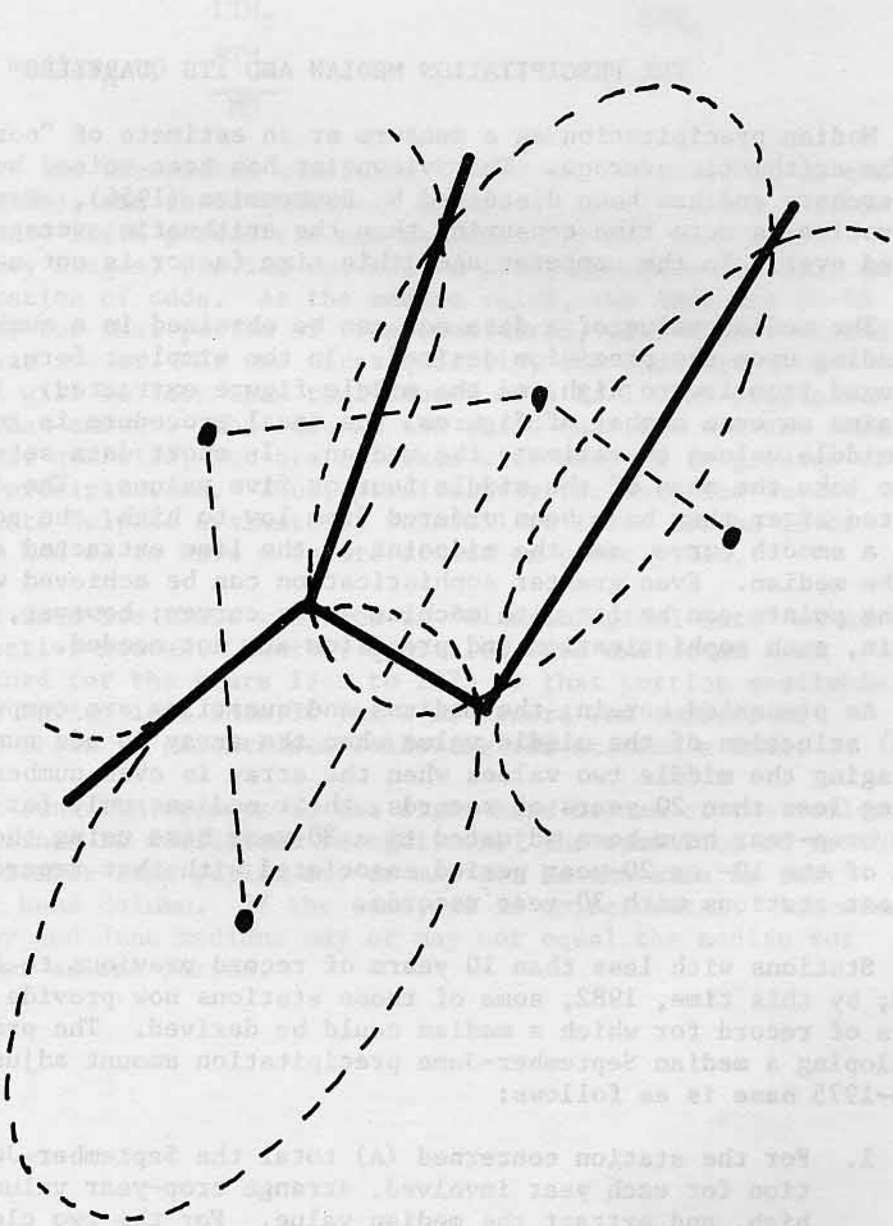

Figure 4. Derivation of a modified Theissen grid using isohomeotropes.

APPENDIX
Part I

THE PRECIPITATION MEDIAN AND ITS QUARTILES

Median precipitation as a measure or an estimate of "normal" is superior to the arithmetic average. That viewpoint has been voiced by a number of researchers and has been discussed by Daubenmire (1956). However, because its derivation is more time consuming than the arithmetic average, it is often passed over. In the computer age, this time factor is not nearly as critical.

The median value of a data set can be obtained in a number of ways, depending upon the precision desired. In the simplest form, a data set is arranged from low to high and the middle figure extracted. If the array contains an even number of figures, the usual procedure is to average the two middle values to estimate the median. In short data sets, an option is to take the mean of the middle four or five values. The data can be plotted after they have been ordered from low to high, the points fitted with a smooth curve, and the midpoint of the line extracted as the estimate of the median. Even greater sophistication can be achieved with the computer so the points can be fit with machine drawn curves; however, for purposes herein, such sophistication and precision are not needed.

As presented herein, the medians and quartiles are computer derived by 1) selection of the middle value when the array is odd numbered and 2) averaging the middle two values when the array is even numbered. For stations having less than 20 years of records, their medians only for the September-June crop-year have been adjusted to a 30-year base using the average deviation of the 10- or 20-year period associated with that record for the two closest stations with 30-year records.

Stations with less than 10 years of record previous to 1975 were not used; by this time, 1982, some of those stations now provide 10 or more years of record for which a median could be derived. The procedure for developing a median September-June precipitation amount adjusted to the 1946-1975 base is as follows:

1. For the station concerned (A) total the September-June precipitation for each year involved, arrange crop-year values from low to high, and extract the median value. For the two closest stations (B and C) with 30-year medians shown in this Appendix, extract a similar median value from the same years involved at station A. The short-term medians (STM) of stations B and C are then evaluated against the LTM amount obtained from this Appendix. Their mean deviation (MD) is then applied to the median obtained for station A to obtain the adjusted LTM for station A. The formula is:

$$\text{Mean deviation} = \frac{STM_B}{LTM_B} + \frac{STM_c}{MTN_c} / 2$$

$$\text{Adjusted median}_A = \frac{STM_A}{MD}$$

The median and the associated quartiles (sometimes referred to as the first, second (median), and third quartiles or as the twenty-fifth, fiftieth (median), and seventy-fifth percentile and collectively are sometimes referred to as Tukey hinges) provide not only a point estimate but also an interpretive evaluation of odds. At the median value, the odds are 50-50 that precipitation, for that period of time considered, will either exceed or be less than that amount. At the first quartile, the odds are 1 to 4 that precipitation will be less than that amount or 4 to 1 that precipitation will exceed that amount. The odds at the third quartile are the same as that as the first quartile, but are reversed with respect to greater or lesser amounts of precipitation. Thus, particularly for July and August, these quartile points help to evaluate if rainfall in those months is of such level to have had or to have a future effect on plant yield.

Station names used are those recorded in "Climatological Data" as of 1975 for the respective states. Monthly quartiles were extracted from each station's record for the years 1946 to 1975 or that portion available, for those stations having less than 30 years of record the numbers of years available is shown in parentheses following the station's name.

The September-June LTM appears in the right-hand column of the following table and is underlined to facilitate recognition. The summation of monthly values for the September-June period may or may not be the same as that shown in the right hand column. If the same, it is coincidental. Likewise, the addition of May and June medians may or may not equal the median for the two months shown as one period.

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
CALIFORNIA															
Adin Ranger Station	1st Q	.00	.00	.06	.39	1.11	1.27	1.58	.74	1.06	.66	.92	.37	1.48	13.11
	Median	.04	.04	.31	.87	1.93	1.90	1.91	1.50	1.54	.99	1.21	.92	2.44	14.70
	3rd Q	.23	.21	.66	1.93	2.35	2.54	2.56	2.15	1.94	1.73	2.25	1.73	3.25	19.13
Alturas Ranger Station	1st Q	.00	.00	.09	.40	.88	.91	.72	.58	.61	.48	.64	.26	1.20	9.53
	Median	.14	.12	.22	.72	1.37	1.38	1.48	1.03	1.22	.88	1.11	.84	2.26	11.62
	3rd Q	.39	.40	.65	1.24	1.91	1.72	1.89	1.60	1.52	1.16	1.76	1.78	3.64	14.02
Boca	1st Q	.00	.00	.11	.26	1.53	1.33	1.58	1.24	1.07	.61	.29	.23	.85	16.21
	Median	.12	.20	.26	.84	1.78	4.00	3.50	2.30	2.20	1.35	1.14	.45	1.92	20.98
	3rd Q	.35	.65	.57	1.78	3.11	5.23	4.61	3.32	3.71	1.76	1.82	.70	2.67	25.03
Burney	1st Q	.00	.00	.14	.42	2.03	2.63	2.78	1.75	1.90	.73	.40	.22	1.21	22.13
	Median	.00	.02	.38	1.24	3.33	4.62	4.96	3.64	3.10	1.60	1.41	.72	2.00	26.41
	3rd Q	.06	.11	.71	2.61	4.47	6.60	7.36	4.76	4.27	2.40	1.67	1.37	2.89	35.60
Canby Ranger Station (22)	1st Q	.01	.02	.08	.46	.97	1.08	.88	.76	.59	.38	.43	.12	1.51	10.07
	Median	.06	.11	.22	.77	1.64	1.84	1.66	1.18	1.17	.86	.96	.58	1.95	11.45
	3rd Q	.27	.27	.52	1.21	1.87	2.34	2.66	1.99	1.62	1.13	1.55	1.34	2.56	15.97
Cedarville	1st Q	.00	.04	.11	.36	.99	1.06	1.19	.55	.82	.40	.52	.30	1.28	9.94
	Median	.08	.14	.24	.88	1.62	1.58	1.55	.89	1.26	.92	.94	.70	1.88	11.77
	3rd Q	.45	.34	.49	1.52	2.29	2.20	2.39	1.85	1.80	1.05	1.30	1.51	2.63	14.40
Doyle (16)	1st Q	.04	.02	.00	.10	.62	.93	.70	.33	.48	.25	.33	.25	.65	6.68
	Median	.08	.19	.14	.32	1.06	1.58	1.48	.84	.88	.38	.68	.50	1.39	9.89
	3rd Q	.46	.34	.35	1.00	2.22	2.52	4.21	1.22	1.73	.84	1.34	.80	2.42	13.25
Fort Bidwell	1st Q	.00	.00	.10	.42	1.07	1.29	1.39	1.11	1.02	.47	.55	.26	1.28	12.24
	Median	.16	.15	.40	.94	1.74	2.18	1.90	1.44	1.48	.88	.90	.93	2.06	14.37
	3rd Q	.30	.39	.64	1.45	2.71	2.96	3.55	2.26	1.98	1.17	1.31	1.64	2.54	17.16
Hat Creek Ph 1	1st Q	.00	.00	.07	.22	1.25	1.77	1.81	1.24	1.29	.49	.41	.18	1.01	13.83
	Median	.00	.03	.31	1.07	1.96	2.86	2.62	2.26	1.88	1.06	1.06	.72	2.06	17.22
	3rd Q	.26	.27	.75	1.77	2.53	4.12	4.02	2.99	2.87	1.32	1.80	1.16	2.83	23.51
Hilts	1st Q	.00	.02	.08	.46	1.24	2.22	2.82	1.27	1.33	.45	.49	.17	1.16	16.88
	Median	.14	.12	.37	1.39	2.94	4.00	4.66	2.22	1.90	.73	.79	.72	1.50	20.33
	3rd Q	.38	.72	.70	2.04	4.60	5.36	6.01	3.15	2.24	1.22	1.17	1.09	2.06	25.95
Jess Valley	1st Q	.00	.05	.23	.57	1.10	1.56	1.05	.73	1.30	.85	1.18	.44	2.29	14.35
	Median	.16	.28	.46	1.14	1.87	1.91	1.81	1.34	1.71	1.77	1.88	1.66	3.60	17.34
	3rd Q	.50	.52	.90	1.46	2.67	2.44	2.73	1.90	2.38	2.20	2.72	2.44	5.27	18.65
Lava Bed Nat. Mon. (15)	1st Q	.01	.05	.02	.53	.77	1.14	.48	.45	.73	.38	1.01	.17	1.79	11.64
	Median	.09	.18	.23	.87	1.54	1.75	1.28	1.14	1.22	.69	1.49	1.13	2.77	13.12
	3rd Q	.34	.56	.46	1.42	3.19	2.23	2.97	1.69	1.51	1.34	1.75	1.59	3.79	17.43
Mt. Hebron Ranger Station	1st Q	.01	.07	.08	.19	.68	.89	.82	.60	.41	.27	.36	.27	1.20	8.56
	Median	.18	.19	.36	.81	1.54	1.64	1.37	.86	.86	.58	.98	..98	1.70	10.86
	3rd Q	.49	.45	.69	1.14	2.07	2.20	1.66	1.46	1.35	.77	1.21	1.52	2.46	13.41
Portola	1st Q	.00	.00	.00	.12	1.03	1.42	1.63	.71	1.17	.53	.39	.08	1.18	16.49
	Median	.06	.18	.11	.67	1.82	2.60	3.66	2.18	2.46	1.32	1.24	.42	1.74	18.40
	3rd Q	.32	.30	.48	1.10	3.11	4.88	4.83	2.87	3.68	1.81	1.56	.92	2.42	25.35
Red Bluff WSO AP (22)	1st Q	.00	.00	.01	.08	.91	1.65	2.90	1.09	1.27	.39	.06	.05	.33	15.08
	Median	.00	.01	.15	.66	2.91	3.44	3.84	2.60	2.26	1.14	.39	.26	1.03	19.89
	3rd Q	.00	.10	.54	1.91	5.17	4.61	5.82	4.27	2.70	1.61	..98	.58	1.33	21.06
Susanville Airport	1st Q	.00	.00	.02	.16	.61	1.00	.82	.66	.70	.25	.34	.20	.72	9.97
	Median	.12	.10	.21	.47	1.24	2.00	2.04	1.22	1.09	.57	.70	.44	1.26	12.02
	3rd Q	.39	.21	.59	1.34	2.47	3.39	3.66	2.47	1.40	.80	.97	.80	1.71	17.57
Termo (13)	1st Q	.08	.03	.11	.32	.76	1.19	.56	.44	.56	.38	.49	.51	1.15	8.67
	Median	.20	.05	.22	..62	1.73	1.39	1.66	.58	1.07	.86	1.06	.96	1.85	9.56
	3rd Q	.41	.17	.25	.74	2.11	1.96	2.05	.88	1.17	.92	1.16	1.46	2.61	11.60
Tulelake	1st Q	.00	.04	.09	.34	.63	.90	.57	.40	.55	.32	.45	.42	1.00	8.23
	Median	.06	.12	.22	.74	1.01	1.26	1.12	.90	.98	.52	.94	.80	2.24	10.28
	3rd Q	.31	.20	.50	1.19	1.59	1.86	1.41	1.23	1.35	.73	1.71	1.43	2.90	11.37
Weed Fire Dept. (18)	1st Q	.00	.03	.15	.81	1.65	2.42	2.04	1.10	1.26	.57	.57	.49	1.44	20.27
	Median	.08	.10	.42	1.18	3.52	3.80	3.16	3.63	2.71	1.83	1.44	1.08	2.66	25.25
	3nd Q	.23	.65	.57	1.73	5.62	5.26	4.13	6.02	3.71	2.44	1.91	1.24	3.22	27.92
Yreka	1st Q	.02	.01	.08	.36	1.06	1.88	2.25	.70	.82	.32	.33	.27	.88	13.80
	Median	.14	.32	.24	1.01	2.26	3.47	3.24	1.45	1.56	.58	.60	.62	1.39	17.98
	3rd Q	.35	.62	.78	1.72	2.86	4.53	5.23	2.46	2.29	1.21	.89	1.21	1.89	21.88

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
IDAHO															
Aberdeen Exp. Stn.	1st Q	.05	.12	.16	.29	.35	.41	.42	.32	.35	.30	.60	.33	1.17	5.74
	Median	.14	.34	.43	.54.	.70	.81	.62	.52	.58	.65	.96	.76	2.03	8.10
	3rd Q	.33	.55	.74	.94	.95	1.07	.90	.75	.84	1.05	1.61	1.29	2.49	9.07
American Falls 1SW	1st Q	.12	.17	.17	.48	.48	.43	.52	.45	.42	.44	.66	.42	1.60	6.96
	Median	.25	.38	.47	.70	.85	.69	.84	.60	.85	.87	1.20	.98	2.04	10.00
	3rd Q	.52	.83	.98	1.15	1.33	.93	1.12	.92	1.08	1.29	1.66	1.20	2.73	11.28
Anderson Dam	1st Q	.09	.10	.23	.32	.95	1.09	2.02	.79	.75	.39	.66	.56	1.30	13.29
	Median	.21	.26	.42	.79	2.48	2.45	3.20	1.64	1.73	1.01	.92	.80	2.19	19.97
	3rd Q	.49	.44	.77	1.19	3.04	4.03	4.34	2.86	2.45	1.34	1.35	1.39	2.66	21.24
Arbon 2NW	1st Q	.19	.27	.24	.57	1.21	.93	1.26	.69	.79	.85	.81	1.16	1.85	12.48
	Median	.44	.40	.67	.88	1.43	1.34	1.58	1.00	1.17	1.41	.98	1.85	2.66	13.66
	3rd Q	1.15	.49	.97	1.16	1.85	1.61	2.36	1.32	1.59	1.56	1.36	2.07	3.36	15.26
Arco 3SW	1st Q	.14	.09	.23	.15	.34	.39	.44	.27	.25	.19	.64	.77	1.50	6.63
	Median	.36	.32	.43	.31	.64	.79	.74	.58	.45	.44	.96	.99	2.07	7.46
	3rd Q	.47	.65	.75	.75	.95	1.02	1.13	.96	.89	1.09	1.53	1.78	3.45	10.65
Arrowrock Dam	1st Q	.01	.02	.12	.48	1.73	1.81	1.78	1.04	1.00	.66	.70	.44	1.86	16.58
	Median	.10	.10	.39	1.00	2.85	2.50	2.69	2.14	1.90	1.14	1.01	.97	2.26	19.34
	3rd Q	.19	.33	.78	1.74	3.31	4.05	4.26	3.11	2.39	1.66	1.59	1.57	2.78	21.09
Bliss	1st Q	.00	.00	.04	.14	.87	.44	.68	.36	.47	.25	.31	.15	.66	7.41
	Median	.06	.07	.18	.44	1.14	1.00	.98	.74	.76	.58	.76	.54	1.40	9.22
	3rd Q	.15	.20	.37	.61	1.56	1.89	1.61	1.21	1.18	.81	1.21	1.26	2.61	10.10
Boise WSO AP	1st Q	.00.	.05	.10	.42	.95	.84	1.00	.55	.57	.43	.54	.27	1.22	8.73
	Median	.06	.12	.36	.64	1.42	1.39	1.33	.96	1.06	.94	.90	.80	1.89	11.52
	3rd Q	.25	.26	.70	.99	1.67	2.08	2.04	1.58	1.50	1.47	1.27	1.20	2.48	12.57
Burley FAA AP	1st Q	.08	.05	.14	.32	.53	.60	.52	.38	.44	.39	.69	.41	1.42	7.93
	Median	.22	.24	.40	.56	1.02	1.02	.96	.68	.86	.80	1.01	.71	1.88	9.20
	3rd Q	.38	.42	.64	.83	1.14	1.24	1.51	1.11	1.29	1.19	1.70	1.44	2.84	10.17
Caldwell	1st Q	.00	.00	.13	.37	.71	.83	.68	.48	.55	.29	.41	.30	1.09	8.75
	Median	.06	.10	.29	.77	1.34	1.39	1.36	.66	.90	.74	.80	.72	1.79	10.09
	3rd Q	.13	.21	.51	1.05	1.74	1.80	1.78	1.35	1.15	1.17	1.10	1.32	2.47	11.69
Castleford 2N (12)	1st Q	.00	.02	.13	.10	.94	.72	.65	.28	.52	.18	.42	.56	1.40	7.98
	Median	.15	.29	.28	.50	1.34	1.64	.96	.44	.92	.91	.82	1.34	2.22	10.02
	3rd Q	.38	.78	.52	.72	1.76	2.52	2.40	1.18	1.33	1.56	1.14	2.22	3.58	10.82
Challis	1st Q	.16	.34	.21	.13	.22	.25	.33	.12	.21	.15	.43	.84	1.59	5.27
	Median	.39	.46	.40	.26	.36	.34	.47	.31	.32	.34	1.08	1.11	2.23	6.39
	3rd Q	.62	.68	.84	.51	.55	.60	.61	.44	.44	.66	1.22	1.42	2.76	7.41
Deer Flat Dam	1st Q	.00	.00	.12	.32	.56	.59	.74	.32	.43	.36	.55	.33	1.13	8.05
	Median	.04	.13	.27	.62	1.16	1.20	1.12	.62	.90	.58	.82	.73	1.72	9.52
	3rd Q	.14	.30	.42	.94	1.59	1.69	1.53	1.16	1.22	1.23	1.18	1.37	2.34	10.41
Dubois Exp. Stn.	1st Q	.33	.29	.23	.22	.45	.48	.35	.22	.27	.38	.82	1.24	2.65	8.69
	Median	.52	.72	.61	.58	.86	.90	.52	.56	.63	.70	1.36	1.98	3.31	9.76
	3rd Q	.75	1.21	1.24	1.08	1.15	1.12	.92	.89	1.13	1.06	1.91	2.46	4.71	10.51
Glenns Ferry	1st Q	.00	.00	.05	.24	.85	.77	.68	.48	.43	.23	.39	.17	1.09	7.15
	Median	.05	.10	.16	.50	1.22	1.00	1.37	.63	.74	.61	.66	.50	1.32	8.90
	3rd Q	.17	.20	.40	.63	1.73	1.60	2.19	1.49	1.41	.90	.84	1.16	1.85	10.71
Grace	1st Q	.40	.42	.32	.53	.74	.81	.82	.62	.69	.79	1.01	.80	2.64	10.86
	Median	.70	.74	1.22	.92	1.18	1.06	1.06	1.00	1.11	1.18	1.51	1.56	3.39	12.27
	3rd Q	.98	1.27	1.66	1.41	1.45	1.47	1.49	1.51	1.52	1.48	2.04	2.59	4.45	14.53
Grand View 2W (25)	1st Q	.00	.00	.01	.15	.39	.37	.45	.28	.32	.31	.37	.26	.85	5.30
	Median	.00	.08	.20	.35	.61	.65	.75	.46	.54	.49	.64	.93	1.68	6.06
	3rd Q	.10	.18	.57	.59	.82	.90	.98	.63	.75	.71	.85	1.31	2.42	6.78
Grouse	1st Q	.13	.21	.24	.16	.58	.33	.63	.45	.29	.28	.68	.69	1.85	7.49
	Median	.38	.66	.52	.54	.83	1.22	.82	.82	.66	.66	1.24	1.08	2.71	10.44
	3rd Q	.75	1.01	.89	1.01	1.36	1.64	1.64	1.04	1.10	1.31	1.74	1.89	3.58	12.46
Hailey Ranger Station	1st Q	.04	.10	.08	.20	.62	1.39	1.18	.76	.43	.37	.58	.28	1.57	12.44
	Median	.23	.30	.36	.58	1.46	1.82	2.35	1.45	1.28	.71	1.32	.94	2.42	14.26
	3rd Q	.65	.55	.86	1.46	2.25	3.01	3.33	2.36	1.88	1.08	1.72	2.01	3.37	16.72
Hamer 4NW (26)	1st Q	.15	.31	.12	.12	.28	.37	.19	.17	.14	.24	.77	.89	1.81	5.51
	Median	.27	.42	.40	.42	.50	.56	.43	.32	.35	.59	1.10	1.54	2.40	7.33
	3rd Q	.73	.65	.79	.93	.84	.86	.62	.69	.62	.71	1.32	1.69	2.93	8.25

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
IDAHO															
Hazelton	1st Q	.03	.08	.12	.31	.56	.67	.67	.30	.41	.29	.63	.22	1.34	7.31
	Median	.14	.14	.30	.62	1.16	.86	1.06	.78	.74	.72	.94	.84	2.10	9.68
	3rd Q	.41	.33	.78	.79	1.49	1.64	1.45	1.20	1.11	1.11	1.62	1.22	2.63	10.93
Hill City	1st Q	.00	.00	.10	.30	1.22	1.05	1.60	1.10	.62	.41	.60	.47	1.34	12.25
	Median	.12	.12	.34	.78	1.88	2.12	2.38	1.50	1.34	.76	.93	.83	2.22	15.20
	3rd Q	.28	.28	.64	1.24	2.59	3.09	3.60	2.37	1.68	1.26	1.31	1.55	2.79	17.44
Hollister	1st Q	.00	.11	.17	.37	.51	.64	.52	.28	.61	.49	.65	.50	1.74	8.15
	Median	.35	.33	.40	.64	.10	.86	.82	.64	.95	.78	1.28	1.34	2.34	9.45
	3rd Q	.63	.67	.75	.83	1.38	1.35	1.05	.82	1.17	1.16	1.97	1.74	3.68	11.27
Idaho City	1st Q	.00	.02	.21	.79	2.25	2.59	2.19	1.69	1.64	.93	.71	.62	2.31	22.34
	Median	.08	.24	.65	1.52	3.42	3.93	4.42	2.89	2.40	1.45	1.16	1.62	2.80	25.26
	3rd Q	.31	.61	1.00	1.99	4.54	5.09	5.96	4.56	3.16	1.97	1.68	2.05	3.94	28.69
Idaho Falls FAA AP	1st Q	.10	.30	.20	.26	.40	.57	.41	.29	.21	.41	.65	.60	1.62	6.27
	Median	.34	.52	.62	.54	.60	.90	.57	.54	.56	.57	1.18	1.24	2.08	7.93
	3rd Q	.41	.89	1.08	.83	.96	1.01	.77	.79	.89	.96	1.33	1.83	2.98	9.70
Jerome	1st Q	.03	.01	.07	.25	.57	.76	.78	.44	.65	.27	.57	.21	.97	8.31
	Median	.12	.10	.22	.52	1.03	1.12	1.11	.75	.88	.68	.80	.86	1.88	9.54
	3rd Q	.24	.20	.47	.76	1.59	1.56	1.37	1.24	1.22	1.05	1.12	1.26	2.68	10.68
Kuna 2NNE	1st Q	.00	.00	.11	.24	.80	.50	.59	.32	.27	.38	.56	.26	1.12	8.18
	Median	.03	.06	.27	.62	1.19	.88	.99	.68	.76	.87	.96	.76	2.06	9.70
	3rd Q	.19	.28	.55	.83	1.63	1.45	1.46	1.30	1.14	1.27	1.43	1.41	2.38	10.60
Lifton Pumping Station	1st Q	.23	.27	.28	.45	.36	.46	.42	.37	.33	.54	.57	.68	1.75	7.13
	Median	.35	.81	.77	.76	.52	.63	.62	.50	.63	.83	.93	1.10	2.21	8.71
	3rd Q	.59	1.10	1.38	1.27	1.04	.77	.92	.81	.96	1.30	1.50	1.43	2.82	9.82
MacKay Ranger Station	1st Q	.29	.27	.19	.12	.29	.45	.42	.22	.18	.17	.54	.68	1.49	6.54
	Median	.46	.62	.53	.26	.53	.68	.68	.46	.37	.41	.94	1.26	2.48	7.51
	3rd Q	1.18	1.14	.98	.71	.76	.99	.99	.75	.59	1.04	1.41	1.64	2.95	9.35
Malad	1st Q	.23	.26	.30	.54	.93	1.01	1.04	.69	.78	.75	.70	.62	1.89	10.74
	Median	.44	.42	.69	.97	1.12	1.38	1.55	1.28	.98	1.00	1.28	1.04	2.73	13.19
	3rd Q	.92	.93	1.67	1.42	1.40	1.74	2.05	1.46	1.58	1.34	1.78	1.93	3.34	14.31
May	1st Q	.30	.26	.32	.15	.18	.27	.20	.11	.08	.14	.72	.85	2.18	5.05
	Median	.46	.57	.57	.34	.31	.40	.40	.23	.24	.34	1.26	1.42	2.50	6.72
	3rd Q	.69	1.08	1.12	.45	.51	.55	.62	.35	.35	.76	1.53	2.06	3.42	7.31
McCall	1st Q	.12	.14	.60	1.07	2.12	2.63	2.78	1.74	1.97	1.03	1.44	1.15	3.07	24.75
	Median	.26	.64	1.18	1.56	3.06	3.82	3.80	2.92	2.61	1.65	1.92	1.87	4.00	27.36
	3rd Q	.49	1.07	1.76	2.65	4.07	4.48	5.38	3.49	3.41	2.60	2.60	2.90	5.27	28.98
Montpelier Ranger Station	1st Q	.21	.50	.43	.47	.66	.83	.81	.82	.88	.75	.94	.86	2.54	11.66
	Median	.52	.71	.85	.96	1.06	1.18	1.29	1.13	1.26	1.13	1.31	1.52	2.90	12.56
	3rd Q	.89	1.14	1.71	1.60	1.56	1.46	1.56	1.47	1.58	1.75	1.55	2.18	3.59	14.20
Mountain Home	1st Q	.00	.00	.05	.17	.73	.60	.91	.46	.52	.17	.40	.37	.91	7.91
	Median	.04	.10	.28	.50	1.16	1.00	1.14	.74	.80	.70	.60	.70	1.76	9.04
	3rd Q	.18	.19	.44	.75	1.56	1.63	1.50	1.05	1.22	1.01	1.14	1.48	2.44	10.20
Oakley	1st Q	.28	.23	.23	.34	.49	.49	.60	.37	.58	.64	.81	.74	1.82	8.27
	Median	.46	.58	.51	.60	.92	.90	.87	.55	1.00	1.08	1.52	1.20	2.70	9.82
	3rd Q	.94	1.06	.92	.80	1.09	1.11	1.12	.69	1.26	1.44	2.07	1.50	3.27	11.69
Parma Exp. Stn.	1st Q	.00	.03	.10	.33	.70	.77	.78	.41	.59	.38	.59	.29	1.36	7.44
	Median	.09	.08	.26	.74	1.08	1.38	1.09	.76	.82	.62	.92	.96	1.81	9.80
	3rd Q	.18	.16	.63	1.03	1.57	1.79	1.52	1.42	1.30	1.07	1.24	1.40	2.81	12.18
Paulene	1st Q	.10	.03	.06	.32	.53	.53	.65	.28	.50	.34	.59	.37	1.24	7.73
	Median	.22	.22	.40	.63	.88	.86	.88	.62	.72	.58	1.02	.71	1.86	8.77
	3rd Q	.30	.51	.71	.88	1.48	1.23	1.29	1.05	1.04	.96	1.60	1.32	2.95	10.16
Payette	1st Q	.00	.02	.12	.31	.86	.91	.86	.32	.51	.29	.38	.18	1.19	8.46
	Median	.06	.10	.28	.60	1.16	1.40	1.44	1.01	.84	.62	.82	.74	1.80	10.86
	3rd Q	.15	.30	.50	.80	1.83	1.80	1.72	1.49	1.10	1.15	1.26	1.22	2.36	11.70
Picabo (15)	1st Q	.00	.08	.08	.43	.81	.90	1.00	.23	.62	.49	.46	.63	1.43	11.33
	Median	.21	.31	.43	.66	1.58	1.46	1.62	.75	1.06	.79	.84	1.07	2.14	12.75
	3rd Q	.22	.51	1.11	1.08	2.24	2.04	2.35	1.01	1.71	.87	1.28	1.99	3.27	13.90
Pocatello WSO AP	1st Q	.09	.13	.13	.40	.63	.72	.71	.43	.52	.48	.59	.41	1.53	8.23
	Median	.24	.48	.52	.68	.84	.92	1.01	.81	1.11	1.02	1.08	1.19	2.14	9.90
	3rd Q	.44	.78	.96	1.17	1.32	1.14	1.39	1.00	1.29	1.46	1.41	1.48	3.00	11.30

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
IDAHO															
Reynolds (13)	1st Q	.01	.05	.15	.41	.92	.74	.67	.29	.28	.46	.24	1.11	1.47	9.71
	Median	.08	.39	.39	.80	1.38	1.04	1.14	.49	.55	.83	.53	1.73	2.24	11.25
	3rd Q	.26	.53	.47	1.07	1.52	1.24	1.72	.75	1.04	1.22	.77	2.12	2.46	12.40
Richfield	1st Q	.05	.08	.08	.18	.63	.80	1.10	.52	.61	.32	.46	.18	.75	8.40
	Median	.13	.24	.26	.62	1.09	1.24	1.54	1.07	.89	.44	.81	.42	1.56	10.98
	3rd Q	.26	.38	.58	.72	1.69	2.09	2.27	1.46	1.26	.97	1.14	1.03	2.19	11.97
Shoshone 1WNW	1st Q	.02	.00	.03	.29	.80	.65	.82	.41	.63	.21	.37	.17	1.01	8.07
	Median	.08	.10	.22	.48	.98	1.16	1.46	.86	.90	.44	.84	.53	1.54	9.45
	3rd Q	.23	.28	.57	.74	1.62	1.94	2.16	1.36	1.20	.79	1.11	.96	1.84	11.09
Strevell	1st Q	.32	.48	.21	.46	.41	.40	.26	.28	.34	.56	.72	.63	1.90	7.08
	Median	.59	.89	.54	.70	.58	.80	.56	.58	.72	.84	1.40	1.09	2.70	8.54
	3rd Q	.98	1.32	1.11	.92	.89	.92	.86	.94	1.09	1.31	1.96	1.68	3.55	9.97
Sugar	1st Q	.10	.25	.34	.40	.54	.92	.42	.47	.57	.41	.93	.82	2.23	9.14
	Median	.44	.57	.76	.90	1.09	1.21	.86	.90	.96	.87	1.40	1.74	3.22	11.85
	3rd Q	1.17	.88	1.56	1.34	1.31	1.51	1.30	1.23	1.08	1.33	1.92	2.40	4.43	12.59
Swan Falls Powerhouse	1st Q	.00	.02	.11	.27	.51	.35	.34	.19	.29	.44	.42	.27	1.00	5.86
	Median	.04	.10	.29	.46	.78	.60	.70	.37	.60	.64	.82	.63	1.86	7.12
	3rd Q	.19	.32	.43	.61	1.17	.88	1.04	.59	.97	1.17	1.23	1.27	2.47	8.02
Swan Valley (15)	1st Q	.12	.55	.80	.54	.92	.83	.65	.68	.43	.92	1.02	1.12	2.18	11.09
	Median	.61	1.10	1.55	1.13	1.36	1.54	1.53	.96	.94	1.34	1.67	2.51	4.48	14.59
	3rd Q	1.79	1.22	2.68	1.80	1.93	1.70	2.04	1.75	1.24	1.74	2.07	3.06	5.30	15.37
Tetonia Exp. Station	1st Q	.32	.50	.52	.79	.72	.84	.80	.56	.51	.56	1.02	1.17	2.14	10.18
	Median	.72	.78	1.02	1.00	.87	1.29	1.02	.86	.98	.89	1.60	1.74	3.49	13.25
	3rd Q	1.23	1.33	1.89	1.71	1.41	1.61	1.53	1.12	1.30	1.35	1.92	2.29	4.14	14.34
Three Creek	1st Q	.13	.11	.11	.57	.58	.77	.74	.52	.79	.73	1.00	.75	2.06	9.98
	Median	.39	.33	.56	.76	1.12	1.14	.94	.91	1.06	1.08	1.58	1.51	3.40	11.82
	3rd Q	.59	.79	.87	1.29	1.62	1.34	1.35	1.08	1.45	1.63	2.34	2.43	4.27	13.67
Twin Falls 3SE	1st Q	.04	.05	.11	.33	.51	.66	.54	.33	.47	.26	.48	.27	.98	7.17
	Median	.12	.12	.32	.56	1.10	1.00	.74	.56	.86	.73	.86	.78	1.84	8.66
	3rd Q	.22	.39	.86	.80	1.34	1.48	1.41	1.14	1.28	1.10	1.53	1.13	2.79	11.16

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
NEVADA															
Arthur 4NW	1st Q.	.10	.12	.15	.47	.95	.65	.96	.65	.79	.78	.66	.64	1.61	11.68
	Median	.45	.33	.53	.98	1.42	1.47	1.35	.98	1.14	1.20	1.38	1.20	2.88	13.85
	3rd Q.	.83	.84	.91	1.34	1.95	2.27	2.22	1.47	2.06	1.77	2.39	1.73	3.89	15.38
Austin	1st Q.	.14	.09	.06	.11	.48	.80	.50	.70	.46	.61	.51	.28	1.34	8.74
	Median	.46	.38	.36	.76	.98	1.30	.89	.90	1.16	1.18	1.08	.88	2.05	10.79
	3rd Q.	.63	.68	.77	1.29	1.36	1.61	1.05	1.20	1.79	2.25	1.61	1.68	3.26	12.00
Battle Mountain AP	1st Q.	.06	.00	.05	.20	.37	.44	.30	.25	.21	.30	.25	.37	.85	5.45
	Median	.14	.08	.16	.56	.56	.74	.52	.44	.58	.56	.58	.65	1.62	6.66
	3rd Q.	.35	.22	.45	.88	1.02	.99	.72	.58	.92	.99	1.43	1.40	2.31	8.13
Beowawe	1st Q.	.05	.01	.01	.06	.36	.43	.30	.21	.23	.25	.27	.26	.99	5.20
	Median	.18	.19	.21	.42	.68	.78	.72	.43	.60	.63	.71	.90	1.68	6.49
	3rd Q.	.40	.31	.46	.75	.90	1.05	1.01	.76	.82	1.08	1.39	1.32	2.80	8.35
Carson City	1st Q.	.00	.00	.02	.12	.58	.66	.88	.43	.42	.04	.19	.02	.39	6.89
	Median	.12	.08	.22	.24	.90	1.64	1.50	.78	.82	.38	.64	.18	1.03	10.67
	3rd Q.	.38	.32	.51	.84	1.46	2.99	2.29	1.61	1.43	.90	.89	.36	1.47	12.58
Contact (22)	1st Q.	.26	.19	.14	.25	.32	.59	.37	.27	.39	.41	.55	.92	2.34	6.56
	Median	.31	.43	.58	.54	.74	.71	.74	.41	.51	.58	1.62	1.58	3.33	9.33
	3rd Q.	.52	.75	.87	.88	1.02	1.38	.96	.67	.73	.84	2.29	1.89	4.50	10.69
Deeth 2SW (22)	1st Q.	.04	.08	.18	.19	.50	.51	.48	.29	.34	.50	.56	.81	1.66	7.17
	Median	.26	.22	.32	.60	.87	.84	.88	.60	.64	1.10	1.10	1.16	2.58	9.30
	3rd Q.	.56	.30	.43	.86	1.40	1.24	1.01	.88	1.34	1.27	2.15	1.86	4.17	10.52
Denio (20)	1st Q.	.00	.00	.01	.19	.34	.51	.42	.18	.39	.33	.28	.22	.93	6.06
	Median	.08	.10	.29	.38	1.02	.84	.74	.56	.72	.48	.84	.49	2.22	7.93
	3rd Q.	.34	.22	.58	.72	1.84	1.08	.92	1.01	1.21	.84	1.70	1.46	2.64	9.66
Dufurrena (15)	1st Q.	.08	.03	.05	.14	.23	.26	.34	.14	.12	.14	.30	.40	.84	4.90
	Median	.30	.20	.23	.31	.88	.57	.53	.42	.29	.26	.54	1.01	1.57	5.75
	3rd Q.	.48	.46	.52	.85	1.14	.90	.61	.80	.56	.65	.78	1.41	2.41	6.51
Elko WSO AP	1st Q	.14	.09	.09	.27	.58	.53	.62	.37	.44	.31	.37	.36	.91	6.73
	Median	.24	.26	.22	.60	.78	.86	.94	.62	.66	.62	.83	.57	1.62	8.46
	3rd Q	.49	.52	.44	.79	1.07	1.57	1.27	1.03	.97	.94	1.15	1.21	2.29	9.77
Ely WSO AP	1st Q	.17	.19	.10	.23	.23	.30	.17	.14	.34	.45	.38	.21	.92	5.59
	Median	.45	.48	.40	.53	.54	.60	.58	.52	.67	.72	.72	.47	1.38	7.22
	3rd Q	.84	.74	.99	.88	.84	.92	.94	.76	1.14	1.20	1.21	.92	2.10	8.20
Fallon Exp. Sta.	1st Q	.00	.00	.00	.03	.15	.09	.10	.12	.13	.11	.21	.07	.56	2.91
	Median	.08	.04	.06	.20	.34	.33	.30	.23	.32	.21	.46	.40	.91	4.66
	3rd Q	.29	.41	.45	.57	.47	.48	.49	.41	.55	.40	.88	.59	1.81	5.16
Gibbs ranch (22)	1st Q	.07	.13	.09	.20	.41	.62	.66	.31	.26	.18	.56	.85	1.49	6.81
	Median	.37	.26	.21	.36	.70	.90	.92	.48	.56	.53	1.09	1.14	2.63	8.28
	3rd Q	.58	.57	.45	.64	1.07	1.34	1.15	.72	.76	.83	1.39	1.71	3.07	9.41
Glennbrook	1st Q	.00	.00	.00	.21	1.00	.80	1.25	.73	1.06	.21	.50	.06	.79	13.12
	Median	.08	.06	.29	.61	2.06	2.46	2.58	1.88	1.93	1.23	.98	.35	1.76	15.70
	3rd Q	.62	.33	.70	1.18	2.87	4.48	3.60	2.80	2.46	1.93	1.90	.69	2.18	19.54
Golconda	1st Q	.00	.00	.00	.22	.34	.41	.25	.22	.21	.19	.28	.15	.82	4.32
	Median	.06	.02	.20	.30	.66	.74	.62	.44	.50	.52	.42	.44	1.30	6.07
	3rd Q	.35	.22	.31	.75	.96	.94	.82	.60	.91	.80	.92	1.32	1.74	8.08
Imlay	1st Q	.00	.00	.00	.00	.28	.51	.23	.13	.18	.28	.29	.20	1.00	4.59
	Median	.00	.10	.16	.36	.54	.70	.64	.37	.66	.46	.60	.58	1.58	6.84
	3rd Q	.31	.24	.38	.85	.95	1.02	.92	.79	1.01	.80	1.24	1.33	2.22	7.93
Kings River Valley (19)	1st Q	.02	.02	.00	.13	.37	.60	.52	.37	.37	.16	.30	.18	1.11	7.25
	Median	.10	.14	.34	.33	1.39	1.08	.94	.65	.67	.54	.76	1.18	1.78	8.82
	3rd Q	.19	.25	.62	.60	1.69	1.50	1.39	.99	.86	.86	.97	1.59	2.60	9.97
Lehman Caves Nat. Mon.	1st Q	.31	.34	.10	.61	.43	.39	.30	.29	.67	.48	.29	.16	1.20	8.58
	Median	.84	1.04	.40	.98	.88	.72	.75	.70	1.18	.87	1.02	.62	1.88	10.58
	3rd Q	1.12	1.42	1.06	1.51	1.38	1.43	1.07	1.24	1.76	1.62	1.69	1.05	2.35	12.19
Leonard Creek Ranch (20)	1st Q	.04	.02	.03	.12	.38	.39	.49	.20	.23	.27	.24	.16	.82	6.08
	Median	.13	.10	.22	.34	.89	.83	.85	.57	.46	.50	.50	.70	1.32	7.18
	3rd Q	.44	.34	.64	.88	1.49	1.51	1.54	1.20	.64	.99	.94	1.42	2.14	8.04
Lovelock	1st Q	.00	.00	.01	.00	.17	.22	.21	.15	.32	.20	.19	.06	.50	3.43
	Median	.08	.10	.12	.16	.40	.53	.36	.26	.42	.34	.39	.38	.93	4.40
	3rd Q	.28	.36	.59	.50	.74	.76	.67	.58	.66	.67	.67	.70	1.38	5.50

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
NEVADA															
McGill	1st Q	.24	.32	.06	.17	.24	.21	.13	.13	.17	.35	.32	.25	1.07	5.01
	Median	.52	.66	.47	.48	.50	.38	.36	.28	.58	.66	.72	.50	1.55	6.08
	3rd Q	.99	1.22	.95	.74	.65	.82	.61	.61	.85	1.03	1.06	1.12	2.54	7.60
Montello	1st Q	.14	.20	.06	.12	.21	.33	.31	.10	.11	.28	.36	.44	1.17	4.51
	Median	.43	.40	.28	.29	.50	.54	.44	.28	.27	.46	.79	.85	1.49	5.96
	3rd Q	.67	1.01	.50	.65	.86	.73	.55	.42	.57	.67	1.20	1.37	2.32	6.92
Orovada	1st Q	.00	.00	.00	.33	.52	.69	.59	.37	.46	.53	.54	.32	1.29	8.44
	Median	.01	.14	.27	.71	1.08	.98	1.08	.66	1.07	1.10	1.28	.94	2.28	10.76
	3rd Q	.27	.34	.38	1.26	1.59	1.40	1.18	1.20	1.52	1.54	1.81	1.45	3.73	11.61
Owyhee	1st Q	.05	.00	.15	.54	.72	1.01	1.04	.55	.95	.78	.85	.92	2.75	12.28
	Median	.23	.16	.54	.88	1.44	1.52	1.34	1.11	1.29	1.33	1.66	1.44	3.38	13.06
	3rd Q	.47	.42	.97	1.53	1.77	1.75	1.55	1.48	1.87	1.82	2.63	2.22	4.48	15.03
Pahute	1st Q	.00	.00	.00	.08	.76	.54	.24	.06	.16	.33	.26	.41	.98	5.82
Meadows	Median	.02	.10	.12	.18	1.06	1.02	.92	.44	.28	.45	.42	.86	1.15	7.18
Ranch (12)	3rd Q	.40	.20	.30	.73	1.61	1.69	1.88	.78	.88	.54	.70	1.46	1.91	8.90
Paradise	1st Q	.00	.01	.01	.21	.53	.61	.73	.38	.28	.16	.34	.24	.74	6.74
Valley 1 NW	Median	.08	.09	.18	.50	.92	1.20	1.04	.62	.84	.30	.67	.54	1.38	8.14
	3rd Q	.42	.29	.55	.87	1.46	1.71	1.57	1.10	1.12	.62	1.06	1.26	2.10	9.58
Pequop (16)	1st Q	.20	.18	.33	.42	.42	.56	.54	.57	.46	.57	.66	.77	1.71	8.64
	Median	.48	.47	.50	.89	.92	1.20	.77	.76	1.16	1.05	.98	1.66	2.93	11.15
	3rd Q	1.08	1.32	1.24	1.36	1.58	1.52	1.28	1.44	1.51	1.60	1.58	2.53	4.25	12.33
Rand Ranch	1st Q	.07	.08	.05	.15	.46	.61	.57	.55	.38	.37	.40	.71	1.24	6.62
Palisade (18)	Median	.20	.25	.27	.64	1.07	1.00	.86	.76	.64	.60	.85	1.19	2.41	8.75
	3rd Q	.43	.52	.47	.93	1.24	1.41	1.08	.93	.94	1.39	1.22	1.86	3.00	9.98
Reno WSO AP	1st Q	.04	.01	.01	.04	.17	.24	.64	.30	.19	.10	.20	.04	.42	4.98
	Median	.19	.09	.10	.17	.60	.96	.84	.47	.66	.27	.59	.17	.98	6.22
	3rd Q	.35	.17	.37	.56	1.07	1.52	1.54	1.09	.97	.60	1.03	.56	1.49	8.37
Ruby Lake	1st Q	.17	.09	.15	.54	.59	.79	.76	.57	.62	.67	.52	.29	1.10	8.90
	Median	.42	.30	.38	.75	.95	1.26	1.14	.94	1.06	1.08	.88	.73	1.89	11.14
	3rd Q	.64	.86	.76	1.06	1.29	2.11	1.44	1.42	1.74	1.45	1.61	1.06	2.85	12.93
Rye Patch	1st Q	.01	.00	.02	.06	.25	.30	.19	.18	.28	.37	.37	.22	.80	4.52
Dam	Median	.08	.10	.24	.28	.72	.55	.53	.34	.55	.58	.48	.58	1.76	6.63
	3rd Q	.29	.30	.40	.72	.81	.87	.70	.64	.89	.89	1.24	1.41	2.51	7.93
Tuscarora (23)	1st Q	.10	.03	.25	.33	.50	.86	.95	.30	.51	.40	.67	.84	2.16	8.34
	Median	.30	.16	.40	.77	1.10	1.20	1.25	.81	.93	.72	1.05	1.48	2.84	9.94
	3rd Q	.68	.39	.55	1.22	1.63	1.42	1.61	1.00	1.22	1.28	1.88	1.70	3.51	11.73
Vya (16)	1st Q	.04	.00	.10	.30	.86	.56	.80	.65	.82	.78	.74	.36	1.48	9.63
	Median	.28	.28	.34	.76	1.79	1.52	1.36	1.04	1.10	.94	1.02	.86	2.14	11.75
	3rd Q	.50	.56	.60	1.08	2.18	1.94	1.98	1.74	1.96	1.22	1.92	1.94	3.32	13.37
Wells	1st Q	.05	.14	.18	.41	.57	.43	.67	.36	.40	.50	.51	.53	1.10	7.37
	Median	.24	.24	.35	.68	.88	.92	.90	.59	.64	.88	1.06	1.03	2.29	9.02
	3rd Q	.67	.39	.70	.86	1.29	1.12	1.06	.96	1.03	1.03	1.51	1.51	3.12	10.67
Winnemucca	1st Q	.00	.01	.03	.17	.46	.45	.34	.33	.34	.35	.25	.29	1.00	5.72
WSO AP	Median	.07	.10	.20	.53	.80	.96	.85	.53	.78	.58	.64	.52	1.63	8.24
	3rd Q	.29	.38	.42	.72	1.08	1.16	1.06	.85	1.08	1.02	1.33	1.50	2.39	8.93
Yerington	1st Q	.05	.00	.00	.00	.13	.18	.24	.08	.08	.07	.28	.11	.72	3.78
	Median	.25	.00	.08	.18	.30	.33	.40	.32	.26	.14	.60	.26	1.10	4.43
	3rd Q	.50	.24	.25	.50	.52	.63	.70	.66	.41	.39	1.12	.76	1.89	5.53

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
OREGON															
Adel (12)	1st Q.	.00	.00	.09	.14	.54	.82	.60	.16	.12	.28	.28	.50	1.01	6.61
	Median	.22	.13	.35	.39	.96	1.16	1.11	.42	.58	.51	.52	1.00	1.74	8.70
	3rd Q	.32	.42	.88	.70	1.98	1.45	2.06	.90	.88	.88	.70	1.87	2.88	9.48
Alkali Lake (14)	1st Q	.00	.08	.09	.31	.51	.38	.23	.22	.38	.29	.42	.29	1.12	5.56
	Median	.20	.11	.36	.41	.71	.55	.64	.43	.66	.50	.94	.88	1.73	8.52
	3rd Q	.41	.50	.63	.50	1.03	.90	1.09	.50	.77	.71	1.17	1.90	3.57	10.69
Antelope 1N	1st Q	.00	.00	.23	.62	.83	.78	.76	.44	.58	.33	.51	.52	1.52	9.52
	Median	.22	.20	.58	.74	1.87	1.38	1.61	.90	.91	.64	1.14	1.00	2.18	12.48
	3rd Q	.54	.52	.90	1.34	2.19	2.07	1.94	1.27	1.31	.87	1.55	1.32	2.66	13.71
Arlington	1st Q	.00	.00	.12	.23	.63	.78	.78	.45	.31	.16	.16	.07	.51	6.95
	Median	.12	.07	.30	.55	1.48	1.34	1.31	.78	.60	.39	.40	.31	1.06	8.70
	3rd Q	.19	.14	.46	.74	1.75	1.82	2.15	1.13	1.01	.65	.68	.74	1.43	9.53
Austin 3S	1st Q	.06	.12	.36	.77	1.23	2.02	1.84	1.37	1.29	.76	.67	.64	2.25	16.82
	Median	.29	.54	.71	1.27	2.65	2.97	3.08	1.92	1.97	1.10	1.56	1.36	3.22	19.22
	3rd Q	.66	.78	1.16	2.11	3.13	3.69	3.51	2.37	2.44	1.71	2.78	2.35	4.02	21.94
Baker KBKR	1st Q	.12	.15	.15	.25	.74	.71	.67	.36	.47	.48	.80	.56	1.83	8.28
	Median	.28	.37	.41	.44	1.18	1.09	1.16	.70	.82	.72	1.26	1.26	2.66	9.78
	3rd Q	.50	.69	.70	.86	1.52	1.59	1.34	.86	1.26	1.21	1.67	1.99	3.73	11.66
Barnes Station (13)	1st Q	.23	.03	.09	.38	.55	.68	.91	.28	.35	.24	.67	.44	1.36	6.63
	Median	.39	.24	.26	.56	1.50	1.29	1.15	.56	.55	.37	.86	.79	1.54	10.15
	3rd Q	.62	.43	.28	.78	1.77	1.33	1.37	.78	.66	.66	.94	.88	1.80	10.76
Bend	1st Q	.05	.01	.05	.32	.59	.76	1.09	.41	.52	.13	.30	.26	.93	8.25
	Median	.22	.21	.18	.53	1.42	1.60	2.10	.88	.67	.29	.68	.80	1.98	11.59
	3rd Q	.32	.77	.45	.91	2.16	2.17	2.95	1.44	1.12	.50	1.30	1.44	2.29	13.08
Beulah	1st Q	.01	.04	.26	.41	.88	.84	1.07	.44	.42	.17	.40	.31	1.15	9.09
	Median	.17	.24	.42	.58	1.36	1.60	1.31	1.03	.98	.54	.84	1.16	1.88	10.66
	3rd Q	.37	.41	.64	1.12	1.85	1.89	1.97	1.38	1.31	.95	1.11	1.56	2.12	11.98
Brothers(16)	1st Q	.08	.01	.06	.48	.56	.58	.61	.16	.34	.16	.58	.30	1.38	6.62
	Median	.27	.18	.20	.68	1.08	.86	1.10	.50	.46	.40	.92	.78	1.86	7.94
	3rd Q	.62	.52	.51	.98	2.66	1.16	2.14	.86	.89	.80	1.22	1.40	2.22	10.16
Buena Vista Station (18)	1st Q	.11	.09	.11	.23	.44	.33	.37	.21	.25	.27	.33	.16	1.11	4.34
	Median	.23	.24	.55	.46	.86	.63	.88	.34	.33	.57	.80	1.07	1.96	6.86
	3rd Q	.33	.39	.68	.72	1.16	.80	1.05	.56	.67	.66	1.06	1.56	2.43	8.19
Burns WSO CI	1st Q	.01	.10	.15	.31	.74	1.02	.99	.72	.59	.23	.40	.21	1.10	8.50
	Median	.18	.26	.44	.53	1.32	1.70	1.48	.91	.96	.44	.76	.83	1.62	11.17
	3rd Q	.53	.53	.61	1.03	1.76	2.45	2.09	1.47	1.66	.80	1.25	1.24	1.93	13.01
Chemult	1st Q	.06	.12	.19	.89	1.65	2.64	3.30	1.93	1.48	.50	.32	.41	1.24	20.16
	Median	.36	.31	.40	1.42	4.35	4.34	5.62	3.06	2.40	.82	.82	.89	1.94	25.34
	3rd Q	.51	.69	.71	2.48	4.98	6.53	6.35	3.91	3.42	1.38	1.87	1.36	2.90	30.11
Chiloquiln 1E	1st Q	.00	.00	.16	.68	1.11	1.65	1.89	.78	.98	.32	.52	.20	1.11	13.31
	Median	.16	.12	.28	1.24	2.35	2.63	2.56	1.65	1.68	.75	.98	.90	1.96	17.60
	3rd Q	.49	.25	.71	1.96	3.36	4.04	4.12	2.31	1.99	1.02	1.33	1.58	3.05	20.11
Condon	1st Q	.01	.00	.25	.52	1.04	1.00	.98	.67	.82	.45	.50	.32	1.69	9.67
	Median	.12	.18	.54	.78	1.92	1.64	1.37	1.14	1.05	.70	1.16	.94	2.21	11.99
	3rd Q	.68	.30	.82	1.21	2.27	2.04	1.73	1.37	1.50	1.15	1.64	1.60	3.29	14.34
Danner	1st Q	.02	.03	.11	.40	.75	.99	.72	.53	.56	.57	.57	.39	1.55	9.27
	Median	.08	.22	.46	.74	1.30	1.34	1.25	.81	1.08	.95	1.22	1.00	2.47	11.90
	3rd Q	.25	.30	.85	1.24	1.51	1.67	1.91	1.20	1.46	1.40	1.72	1.81	3.39	12.62
Dayville	1st Q	.02	.09	.13	.43	.78	.72	.72	.45	.74	.41	1.01	.42	1.84	8.95
	Median	.16	.32	.52	.68	1.20	1.20	1.16	.69	.89	.82	1.46	.84	2.54	10.30
	3rd Q	.49	.60	.68	1.07	1.48	1.71	1.58	1.08	1.31	1.39	2.14	1.83	3.19	13.16
Dufur	1st Q	.00	.00	.19	.54	1.07	.74	1.10	.51	.71	.17	.42	.17	.90	10.30
	Median	.10	.18	.40	.73	1.88	1.73	2.02	1.10	1.12	.60	.66	.64	1.34	11.42
	3rd Q	.20	.28	.51	1.10	2.19	2.44	2.64	1.57	1.54	.98	1.02	1.06	1.71	13.11
Durkee 3NNW (22)	1st Q	.08	.07	.33	.32	.56	.61	.74	.28	.52	.45	.75	.35	1.79	7.61
	Median	.20	.39	.48	.63	1.19	1.12	.90	.72	.76	.69	1.34	1.06	2.51	9.43
	3rd Q	.57	.61	.59	.77	1.45	1.59	1.16	.93	1.34	.97	1.92	1.68	3.23	11.27
Elgin	1st Q	.14	.22	.58	1.11	2.18	2.17	1.81	1.46	1.47	.93	1.05	.97	2.91	19.83
	Median	.39	.46	.89	1.95	3.19	3.24	2.58	2.15	2.14	1.54	1.59	1.43	3.31	23.02
	3rd Q	.70	.77	1.22	2.88	4.47	4.51	3.23	2.68	2.76	2.16	2.39	1.95	3.56	25.35
Enterprise	1st Q	.26	.40	.54	.54	.56	.67	.59	.40	.62	.61	1.08	.96	2.82	9.45
	Median	.52	.54	.88	.89	.88	1.00	.84	.62	.94	1.06	1.58	1.94	3.88	11.67
	3rd Q	.90	1.33	1.22	1.42	1.41	1.27	1.19	.79	1.31	1.28	2.43	2.73	4.38	12.96

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
OREGON															
Fossil	1st Q	.00	.00	.19	.48	.72	1.04	1.22	.60	.71	.48	.53	.44	1.73	12.11
	Median	.20	.15	.60	1.02	2.09	1.65	1.82	.92	1.14	1.02	1.25	1.02	2.62	13.42
	3rd Q	.49	.50	1.19	1.57	2.38	2.20	2.17	1.58	1.72	1.37	1.74	1.75	3.38	15.10
Fremont	1st Q	.02	.04	.10	.30	.67	.70	1.11	.34	.46	.21	.41	.18	.95	7.96
	Median	.16	.15	.28	.50	1.38	1.31	1.82	.91	.79	.37	.74	.76	1.62	10.35
	3rd Q	.47	.38	.50	.88	1.70	2.08	2.38	1.24	1.19	.77	1.21	1.11	2.24	12.27
Friend (25)	1st Q	.00	.00	.11	.65	1.23	1.86	1.97	.95	.82	.18	.31	.32	.85	13.18
	Median	.07	.16	.38	.98	2.48	2.76	2.82	1.22	1.57	.58	1.00	.53	1.53	15.96
	3rd Q	.14	.22	.66	1.48	3.05	3.29	3.93	2.28	1.97	1.28	1.21	.82	2.00	17.55
Grizzly	1st Q	.05	.04	.19	.53	.58	.70	.93	.36	.63	.31	.52	.38	1.91	10.49
	Median	.14	.26	.46	.96	1.72	1.46	1.40	.82	1.03	.71	1.32	1.41	2.42	12.90
	3rd Q	.34	.61	1.02	1.23	2.21	2.07	1.87	1.55	1.59	1.07	1.76	1.88	3.96	14.04
Halfway (23)	1st Q	.10	.12	.28	.29	1.20	2.31	2.09	1.41	1.15	.77	.50	.60	2.06	18.15
	Median	.26	.33	.75	1.02	2.86	3.88	3.63	1.76	1.86	1.33	1.16	1.36	2.77	19.80
	3rd Q	.49	.65	1.16	1.85	3.82	4.49	4.41	2.35	2.32	1.70	2.32	1.71	3.60	21.33
Hardman (13)	1st Q	.15	.06	.75	1.00	.91	1.17	1.01	.57	.65	.47	.57	.64	1.56	10.34
	Median	.50	.36	.98	1.26	1.71	1.30	1.18	.75	.92	1.20	.98	1.19	2.55	12.89
	3rd Q	.77	.44	1.22	1.46	2.19	1.84	1.38	.92	1.13	1.39	1.32	1.71	2.91	16.74
Harper (21)	1st Q	.00	.09	.20	.08	.32	.76	.93	.25	.31	.16	.32	.33	.64	6.48
	Median	.05	.22	.30	.47	.91	1.21	1.40	.39	.48	.43	.61	.64	1.45	8.01
	3rd Q	.13	.33	.39	.78	1.27	1.87	1.64	1.07	1.02	1.12	1.06	1.22	2.28	8.63
Hart Mtn. Ref.	1st Q	.03	.02	.18	.43	.61	.56	.59	.19	.65	.59	.88	.34	1.76	8.27
	Median	.24	.26	.39	.72	.74	.72	.74	.68	.99	.86	1.51	1.22	3.14	9.88
	3rd Q	.48	.52	.80	.98	1.19	1.25	1.35	.93	1.24	1.04	1.92	2.04	4.15	11.72
Heppner	1st Q	.06	.08	.30	.73	.96	.87	.82	.57	.95	.65	.71	.38	1.35	10.87
	Median	.18	.21	.68	1.11	1.68	1.70	1.19	1.00	1.16	.92	1.24	.98	2.55	12.76
	3rd Q	.67	.43	1.14	1.40	2.15	2.02	1.56	1.39	1.38	1.34	2.01	1.61	3.23	14.22
Hermiston 2S	1st Q	.00	.01	.10	.38	.79	.76	.67	.50	.39	.22	.32	.22	.63	6.52
	Median	.09	.08	.36	.60	1.22	1.20	.94	.79	.62	.44	.59	.46	1.34	8.86
	3rd Q	.25	.21	.74	.88	1.46	1.70	1.82	.91	.85	.64	.91	.77	1.65	9.51
Hood River Exp. Stn.	1st Q	.02	.03	.47	1.49	2.73	3.57	3.69	2.16	1.88	.94	.63	.33	1.37	27.08
	Median	.08	.20	.76	2.44	5.28	5.58	6.09	3.12	3.20	1.44	.96	.54	1.83	31.15
	3rd Q	.18	.36	1.56	3.64	6.28	7.09	7.94	4.26	4.33	1.93	1.22	1.25	2.15	34.56
Huntington	1st Q	.00	.03	.11	.20	.80	1.12	.95	.75	.41	.20	.35	.23	.96	8.49
	Median	.12	.16	.37	.42	1.44	1.84	1.59	1.25	.89	.64	.78	.80	1.82	11.57
	3rd Q	.28	.28	.55	.68	1.98	2.79	2.40	1.60	1.49	1.00	1.21	1.33	2.20	13.54
Ione 18S	1st Q	.00	.00	.20	.47	.88	.65	.98	.66	.76	.36	.60	.34	1.34	9.64
	Median	.11	.18	.54	.76	1.57	1.45	1.16	.87	1.08	.74	1.06	.82	2.35	11.67
	3rd Q	.48	.72	.83	1.07	2.15	1.84	1.63	1.46	1.38	1.29	1.74	1.69	2.97	13.35
Ironside 2W (19)	1st Q	.06	.05	.33	.32	.27	.88	.63	.20	.50	.18	.50	.21	1.46	7.93
	Median	.19	.28	.49	.60	.94	1.49	1.36	.64	1.08	.40	1.00	1.12	2.28	10.73
	3rd Q	.29	.55	.71	1.07	1.87	2.17	1.66	1.40	1.23	1.04	1.28	1.65	2.64	11.80
John Day (22)	1st Q	.15	.13	.25	.47	.79	.81	.87	.50	.54	.63	.91	.52	2.32	9.38
	Median	.46	.42	.50	.82	1.30	1.30	1.24	.72	.80	1.16	1.36	1.16	2.66	11.52
	3rd Q	.58	.98	1.07	1.47	1.69	1.60	1.65	.98	1.17	1.39	1.68	1.46	3.37	13.28
Juntura 9ENE (11)	1st Q	.00	.03	.09	.20	.74	1.07	.77	.16	.38	.26	.20	.47	1.00	7.88
	Median	.08	.24	.27	.52	1.56	1.51	1.18	.34	.80	.46	.39	1.12	1.54	8.97
	3rd Q	.27	.32	.62	.83	1.70	1.76	1.59	.61	1.15	.76	.74	1.31	2.05	10.14
Keno	1st Q	.00	.05	.21	.74	1.26	1.73	1.73	1.20	1.12	.45	.71	.33	1.42	15.44
	Median	.16	.22	.40	1.36	2.32	2.64	2.92	1.68	1.60	.85	1.14	.89	1.88	18.82
	3rd Q	.31	.58	.74	2.15	3.74	3.57	4.51	2.27	2.60	1.23	1.35	1.44	2.81	21.93
Kent	1st Q	.00	.00	.20	.44	.82	.71	.71	.51	.54	.27	.38	.27	1.15	8.84
	Median	.17	.16	.50	.68	1.48	1.36	1.26	.88	.93	.68	.84	.74	1.56	10.71
	3rd Q	.48	.48	.81	.92	2.00	1.96	1.82	1.20	1.41	1.03	1.24	1.21	2.52	12.43
Klamath Falls 2SSW	1st Q	.00	.07	.17	.53	.78	1.29	1.17	.65	.57	.25	.38	.40	1.10	11.27
	Median	.08	.20	.36	.94	1.89	1.80	1.84	1.18	1.09	.49	.86	.86	1.64	14.04
	3rd Q	.20	.56	.55	1.66	2.60	3.07	2.70	1.78	1.62	.79	1.35	1.27	2.40	15.19
LaGrande	1st Q	.11	.13	.39	.81	1.65	1.64	1.41	1.29	1.20	1.14	1.05	.97	2.36	16.69
	Median	.34	.45	.80	1.52	2.20	2.68	2.02	1.70	1.80	1.78	1.62	1.36	3.11	18.78
	3rd Q	.68	.77	1.23	2.29	2.77	3.02	2.55	2.11	2.18	2.33	2.47	2.01	4.07	20.84

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
OREGON															
Lakeview	1st Q	.00	.02	.19	.45	.99	1.41	1.42	.93	.88	.73	.93	.26	1.94	13.04
	Median	.14	.10	.38	.95	1.60	1.80	1.85	1.28	1.50	.88	1.31	1.25	3.06	14.88
	3rd Q	.26	.41	.69	1.50	2.35	2.34	2.81	1.84	1.84	1.32	2.11	2.04	3.71	16.52
Long Creek (17)	1st Q	.04	.04	.25	.77	1.09	1.13	1.16	.46	.64	.52	.70	.09	1.62	8.19
	Median	.11	.17	.70	.97	1.42	1.26	1.36	.67	.90	.69	.98	.88	2.21	11.07
	3rd Q	.33	.30	.86	1.17	1.65	1.69	1.76	.83	1.05	1.26	1.43	1.30	2.72	12.04
Lower Hay Creek	1st Q	.00	.04	.16	.44	.47	.43	.61	.33	.37	.27	.32	.43	1.13	8.08
	Median	.12	.12	.36	.62	1.31	1.42	1.36	.50	.72	.54	.84	.84	1.66	9.38
	3rd Q	.39	.44	.76	.77	1.64	1.74	1.58	.97	1.18	.73	1.22	1.39	2.65	10.85
Madras	1st Q	.00	.00	.14	.39	.41	.34	.67	.38	.36	.17	.34	.43	1.22	7.38
	Median	.13	.17	.33	.50	1.28	1.38	1.28	.70	.68	.38	.86	1.00	1.84	9.56
	3rd Q	.38	.37	.68	.77	1.89	2.02	1.51	1.27	1.06	.62	1.16	1.21	2.18	10.60
Malheur Br. Exp. Stn.	1st Q	.00	.01	.14	.28	.74	.86	.73	.33	.46	.26	.45	.22	1.08	7.28
	Median	.02	.08	.32	.58	1.14	1.22	1.16	.69	.76	.58	.76	.76	1.76	9.50
	3rd Q	.14	.36	.56	1.02	1.54	1.60	1.52	1.28	1.04	.98	1.33	1.33	2.15	10.28
Maleur Refuge Headquarters (16)	1st Q	.00	.11	.12	.32	.36	.60	.58	.26	.33	.22	.56	.29	1.54	6.67
	Median	.15	.35	.52	.42	1.06	1.03	1.04	.48	.74	.45	.92	1.08	1.90	8.35
	3rd Q	.28	.76	.90	.89	1.92	1.32	1.21	1.03	1.26	.78	1.10	1.56	2.33	9.75
Metoilius 1W (25)	1st Q	.00	.02	.11	.40	.35	.48	.91	.30	.33	.13	.27	.33	1.03	7.45
	Median	.07	.20	.27	.48	1.21	1.36	1.38	.54	.53	.33	.87	.66	1.59	10.38
	3rd Q	.27	.39	.69	.61	1.77	1.66	1.66	1.38	1.00	.50	1.43	1.21	2.39	11.19
Mikkalo 6W (24)	1st Q	.00	.00	.18	.36	.76	.70	.74	.34	.52	.28	.40	.20	.88	7.48
	Median	.17	.13	.38	.54	1.37	1.24	1.11	.80	.87	.54	.72	.43	1.42	9.67
	3rd Q	.35	.32	.64	.76	2.00	1.88	1.80	1.27	1.16	.95	1.24	.98	2.14	11.73
Milton-Freewater (22)	1st Q	.03	.02	.20	.53	.92	1.12	.91	.52	.76	.59	.62	.59	1.27	11.05
	Median	.19	.38	.62	1.04	1.44	1.72	1.16	1.04	1.25	.95	.98	1.02	2.04	12.54
	3rd Q	.64	.95	.77	1.40	2.07	2.04	2.64	1.44	1.54	1.25	1.62	1.17	2.67	13.15
Minam 7NE	1st Q	.20	.28	.90	1.68	2.10	2.32	2.12	1.90	1.56	1.14	1.42	1.13	3.02	21.29
	Median	.59	.68	1.39	2.33	3.22	4.12	3.40	2.34	2.35	2.16	1.98	1.46	3.44	25.10
	3rd Q	1.19	1.14	1.92	2.84	4.00	5.04	5.15	3.17	3.17	2.28	2.90	1.98	4.39	28.31
Mitchell (10)	1st Q	.20	.00	.14	.55	.30	.96	.71	.27	.79	.40	.70	.44	1.57	8.66
	Median	.40	.12	.42	.72	1.08	1.06	1.22	.40	1.02	.78	1.22	1.18	2.66	10.74
	3rd Q	.64	.15	.60	.79	2.00	1.33	1.61	.47	1.16	.85	1.53	1.28	2.72	11.89
Monument 2 (14)	1st Q	.04	.09	.27	.73	1.05	1.00	.95	.44	.59	.58	.51	.53	1.71	10.74
	Median	.24	.20	.50	.88	1.66	1.52	1.28	.84	.84	1.06	.87	1.00	2.12	12.61
	3rd Q	.55	.37	.71	1.17	1.92	1.89	1.45	.91	1.15	1.29	1.32	1.60	2.88	13.75
Morgan	1st Q	.00	.00	.11	.31	.85	.83	.75	.51	.41	.15	.22	.14	.59	7.25
	Median	.02	.09	.28	.55	1.16	1.19	.99	.84	.78	.48	.53	.54	1.40	8.54
	3rd Q	.16	.24	.52	.77	1.55	1.73	1.75	1.16	.96	.77	1.04	.94	1.78	9.88
Moro	1st Q	.00	.00	.21	.45	1.20	.90	.96	.54	.69	.19	.34	.16	.79	8.56
	Median	.10	.08	.41	.72	1.86	1.58	1.46	.96	.92	.64	.62	.48	1.54	10.84
	3rd Q	.24	.26	.71	.93	2.24	2.09	2.34	1.20	1.27	.89	.96	1.42	2.01	12.63
Nyssa	1st Q	.00	.00	.12	.32	.77	.93	.59	.39	.49	.23	.48	.21	1.21	7.29
	Median	.04	.10	.32	.62	1.04	1.14	1.13	.82	.70	.55	.80	.80	1.54	9.27
	3rd Q	.16	.28	.52	1.09	1.48	1.77	1.59	1.31	1.02	.91	1.13	1.37	2.16	10.54
Ochoco R.S.	1st Q	.03	.06	.28	.74	1.31	1.58	1.17	.72	1.08	.49	.66	.57	2.00	13.78
	Median	.34	.17	.69	1.14	2.51	2.14	2.28	1.53	1.43	.93	1.40	1.36	2.62	17.64
	3rd Q	.59	1.01	.87	2.06	3.42	3.90	2.85	1.89	2.16	1.31	1.67	2.08	3.88	20.88
Ontario KSRV	1st Q	.00	.03	.15	.28	.69	.79	.69	.37	.50	.20	.37	.27	1.07	6.88
	Median	.05	.11	.30	.50	1.05	1.16	1.20	.76	.68	.50	.68	.67	1.52	8.64
	3rd Q	.10	.29	.44	1.00	1.42	1.70	1.64	1.32	.87	.97	1.02	1.12	2.16	10.00
OO Ranch (22)	1st Q	.00	.00	.05	.24	.35	.64	.73	.19	.29	.21	.59	.22	1.37	5.75
	Median	.16	.26	.34	.48	.88	.80	.88	.44	.56	.52	1.09	.84	1.90	7.10
	3rd Q	.27	.37	.66	.88	1.32	1.01	1.17	.85	1.04	.76	1.54	1.47	2.48	9.58
Owyhee Dam	1st Q	.00	.01	.08	.22	.49	.53	.51	.36	.31	.28	.47	.25	1.25	5.98
	Median	.12	.14	.32	.48	.80	.91	.69	.54	.66	.48	.87	.86	1.92	7.78
	3rd Q	.25	.27	.62	.78	1.16	1.14	1.23	.92	.82	.85	1.35	1.59	2.92	9.69
Paisley	1st Q	.00	.00	.08	.16	.43	.45	.62	.39	.53	.28	.47	.26	1.18	6.95
	Median	.20	.16	.20	.61	.74	1.02	1.24	.70	.71	.44	.84	.90	2.53	9.94
	3rd Q	.51	.40	.53	.87	1.41	1.23	1.98	1.28	1.29	.81	1.79	1.66	3.31	11.55

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
OREGON															
Paulina (13)	1st Q	.04	.05	.13	.52	.81	1.02	.96	.43	.46	.39	.68	.56	1.57	8.28
	Median	.25	.15	.29	.77	1.65	1.42	1.42	.60	.66	.54	.82	.77	1.78	11.55
	3rd Q	.55	.49	.49	.89	2.21	1.64	1.57	.86	.90	.58	1.08	1.39	2.14	11.92
Pelton Dam (17)	1st Q	.02	.00	.12	.35	.43	.69	1.10	.27	.24	.09	.08	.09	.51	6.69
	Median	.12	.11	.27	.44	1.34	1.24	1.47	.57	.76	.30	.51	.39	1.08	7.87
	3rd Q	.21	.20	.40	.58	1.98	1.53	1.72	.68	1.33	.46	.91	.58	1.38	9.17
Pendleton Br. Exp. Stn. (19)	1st Q	.03	.02	.41	.66	1.30	1.02	1.15	.73	1.04	.83	.62	.55	1.42	12.90
	Median	.17	.23	.61	1.24	2.04	2.23	1.76	1.50	1.51	1.28	1.03	.85	2.01	15.14
	3rd Q	.63	.67	.83	1.46	2.41	2.47	2.80	1.70	1.87	1.65	1.64	1.11	2.71	15.87
Pilot Rock (23)	1st Q	.02	.12	.46	.63	.79	.91	.99	.61	.99	.74	.76	.72	1.61	10.35
	Median	.21	.25	.77	.87	1.45	1.70	1.40	1.04	1.05	1.27	1.27	1.15	2.48	13.32
	3rd Q	.52	.85	1.23	1.16	1.83	2.01	1.64	1.15	1.27	1.69	1.68	1.57	3.27	14.94
P-Ranch	1st Q	.03	.00	.12	.35	.77	.58	.53	.33	.56	.35	.79	.40	1.88	8.58
	Median	.13	.20	.46	.55	1.18	.90	.97	.56	.74	.87	1.34	1.09	2.60	10.82
	3rd Q	.27	.54	.79	1.22	1.58	1.63	1.20	1.02	1.44	1.19	1.71	2.14	2.96	12.25
Prineville 4NW	1st Q	.00	.06	.13	.41	.57	.52	.57	.34	.35	.22	.37	.48	1.38	7.55
	Median	.10	.12	.38	.72	1.47	1.48	1.11	.61	.50	.50	.96	1.08	1.96	9.54
	3rd Q	.31	.41	.58	1.11	1.94	1.80	1.50	.85	.70	.70	1.37	1.48	2.67	10.62
Riverside 2E	1st Q	.03	.05	.11	.17	.37	.52	.68	.23	.48	.22	.43	.17	1.20	6.80
	Median	.14	.14	.33	.52	.80	1.02	1.14	.52	.74	.36	.76	.93	1.86	8.21
	3rd Q	.34	.34	.70	.71	1.17	1.46	1.45	1.08	.90	.73	.97	1.73	2.42	9.57
Redmond 2W	1st Q	.00	.00	.07	.26	.30	.36	.54	.25	.22	.07	.32	.24	.83	5.63
	Median	.07	.18	.19	.42	.94	1.02	1.04	.50	.48	.18	.62	.74	1.59	7.90
	3rd Q	.44	.26	.37	.83	1.36	1.65	1.20	1.18	.92	.35	.94	1.14	2.15	9.13
Richland	1st Q	.00	.03	.14	.24	.75	.88	.79	.38	.30	.39	.50	.48	1.69	8.44
	Median	.17	.24	.39	.44	1.30	1.34	1.19	.75	.84	.86	1.14	1.26	2.26	10.70
	3rd Q	.31	.45	.59	1.06	1.81	1.81	1.52	1.06	1.24	1.20	1.72	1.77	3.09	11.89
Rock Creek	1st Q	.26	.29	.40	.61	1.68	1.86	1.84	1.27	1.15	.66	1.09	.90	2.63	17.40
	Median	.66	.70	.68	1.25	2.34	2.87	3.18	1.88	1.92	1.35	1.97	1.62	3.54	20.24
	3rd Q	.90	1.06	1.00	2.10	3.45	3.81	3.62	2.56	2.34	1.71	2.67	2.81	4.64	21.76
Rockville 5N (11)	1st Q	.00	.00	.10	.45	.52	.35	.23	.32	.50	.55	.47	.50	1.19	8.30
	Median	.10	.14	.33	.74	1.25	1.03	.65	.46	.92	1.25	.69	1.99	2.61	9.94
	3rd Q	.29	.25	.73	1.27	1.75	1.57	1.29	.52	1.49	1.58	.73	2.43	3.28	12.01
Rome 2NW (18)	1st Q	.00	.00	.17	.26	.29	.44	.41	.13	.20	.17	.43	.09	1.23	5.42
	Median	.17	.31	.34	.57	.89	.58	.74	.32	.62	.42	.70	.86	2.01	6.90
	3rd Q	.38	.49	.54	.71	1.24	.89	1.16	.77	.95	.76	1.18	1.91	2.64	8.83
Round Grove	1st Q	.00	.03	.22	.66	1.02	1.24	1.36	.95	1.20	.66	.92	.30	2.39	14.58
	Median	.28	.28	.56	1.47	1.98	2.07	1.78	1.56	1.88	1.09	1.63	1.20	3.12	16.22
	3rd Q	.58	.53	.89	2.06	2.65	2.87	2.61	1.83	2.30	1.37	2.33	2.10	4.42	19.46
Seneca (25)	1st Q	.05	.13	.13	.45	.81	1.00	1.13	.40	.72	.50	.54	.23	1.30	9.63
	Median	.22	.30	.35	.70	1.24	1.75	1.44	.84	1.03	.84	1.03	.82	1.97	12.18
	3rd Q	.43	.61	.68	1.16	1.52	2.30	1.54	1.25	1.54	.96	1.31	1.10	2.66	13.12
Sheaville 1SE (22)	1st Q	.00	.00	.00	.25	.78	.76	.80	.36	.36	.47	.32	.24	.86	7.54
	Median	.05	.04	.21	.67	1.06	1.18	1.08	.60	.64	.88	.66	.82	1.92	8.64
	3rd Q	.26	.14	.47	.86	1.78	1.56	1.84	1.06	1.25	1.14	1.37	1.29	2.44	10.65
Squaw Butte Exp. Stn.	1st Q	.04	.07	.08	.28	.68	.70	.75	.44	.50	.27	.85	.31	1.50	7.52
	Median	.14	.23	.30	.72	1.12	1.42	1.15	.70	.94	.49	1.12	.81	2.13	9.68
	3rd Q	.36	.63	.56	1.06	1.54	1.86	1.65	1.10	1.10	.78	1.45	1.56	2.92	11.44
Summerlake 1S (18)	1st Q	.04	.06	.13	.40	.72	.78	.83	.47	.60	.26	.45	.22	1.50	8.28
	Median	.20	.18	.37	.85	1.24	1.28	1.56	.73	.78	.32	.92	.83	1.98	9.95
	3rd Q	.43	.68	.61	1.09	1.49	1.79	1.98	1.22	1.02	.62	1.41	1.31	2.55	11.98
Suntex (13)	1st Q	.03	.02	.05	.34	.82	.81	.63	.19	.32	.17	.49	.29	.99	6.53
	Median	.12	.14	.18	.54	1.52	.86	1.01	.26	.58	.38	.66	.59	1.53	7.59
	3rd Q	.27	.46	.26	.95	1.68	.93	1.26	.38	.80	.49	.89	1.10	2.07	9.86
The Dalles	1st Q	.00	.00	.17	.50	1.36	1.43	1.76	.67	.91	.15	.21	.12	.51	12.07
	Median	.04	.08	.38	.84	2.40	2.84	2.91	1.68	1.32	.52	.40	.37	.75	14.48
	3rd Q	.13	.26	.64	1.34	3.06	3.47	3.31	2.06	1.83	.95	.65	.57	1.21	15.32
Ukiah (25)	1st Q	.06	.19	.40	.82	1.01	1.61	1.68	.92	.83	.73	1.24	.64	2.19	14.44
	Median	.35	.32	.91	1.43	2.02	2.24	2.02	1.19	1.34	1.22	1.38	1.42	2.73	16.02
	3rd Q	.54	.94	1.15	1.68	2.54	2.67	2.49	1.58	1.82	1.62	1.85	1.75	3.79	18.06

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
OREGON															
Union Exp.	1st Q	.15	.13	.36	.51	.86	.79	.58	.66	.79	.74	1.10	.78	2.44	10.90
Stn.	Median	.34	.50	.65	1.16	1.20	1.27	.83	.76	1.24	1.17	1.82	1.54	3.34	12.75
	3rd Q	.70	.92	1.37	1.57	1.65	1.72	1.21	1.03	1.50	1.70	2.29	2.30	4.29	14.24
Unity (23)	1st Q	.04	.07	.20	.24	.38	.88	.82	.24	.43	.25	.52	.86	1.52	7.63
	Median	.25	.36	.46	.52	.99	1.20	1.10	.59	.71	.40	.95	1.22	2.23	9.54
	3rd Q	.62	.50	.74	.90	1.43	1.64	1.49	.90	.96	.68	1.71	1.41	2.61	10.86
Vale (25)	1st Q	.00	.00	.15	.25	.44	.99	.94	.34	.50	.20	.33	.31	1.24	6.42
	Median	.04	.24	.40	.45	1.02	1.25	1.14	.68	.64	.68	.76	.80	1.80	8.20
	3rd Q	.15	.44	.54	.87	1.39	1.39	1.42	1.12	.92	.88	1.39	1.18	2.17	9.69
Valley Falls	1st Q	.00	.03	.06	.29	.75	.72	.97	.70	.75	.50	1.09	.44	2.36	10.32
3SSE	Median	.16	.24	.34	.76	1.14	1.18	1.76	1.13	1.26	.76	1.56	1.70	3.44	12.90
	3rd Q	.44	.48	.81	1.33	1.84	1.83	2.58	1.86	1.70	1.13	1.77	2.51	3.99	15.70
Wagontire (10)	1st Q	.17	.24	.11	.31	.70	.60	.40	.11	.30	.25	.59	.05	.96	6.93
	Median	.20	.36	.44	.50	1.00	.94	.86	.56	.48	.58	1.02	.36	1.65	8.78
	3rd Q	.43	.49	.66	.70	1.36	1.36	1.29	.88	.74	.85	1.23	1.69	2.97	10.44
Walla Walla	1st Q	.04	.33	.80	1.73	3.59	3.59	3.01	2.35	3.03	3.18	1.92	1.49	3.95	32.82
13ESE (21)	Median	.62	.80	1.71	3.26	5.49	6.22	7.88	4.00	5.10	4.04	2.57	2.06	4.95	38.18
	3rd Q	.95	1.64	2.69	4.58	6.41	7.93	8.28	4.86	5.53	4.56	3.12	2.61	5.59	42.55
Wallowa	1st Q	.12	.16	.58	1.07	1.26	1.55	1.00	.89	1.02	.97	1.01	.93	2.63	14.81
	Median	.52	.42	1.10	1.54	1.97	1.98	1.68	1.38	1.48	1.53	1.44	1.35	3.16	17.24
	3rd Q	.73	.85	1.67	2.06	2.46	2.84	2.66	1.74	1.91	1.79	2.39	1.91	3.69	19.24
Wasco	1st Q	.00	.00	.20	.48	1.05	.75	1.07	.46	.68	.25	.26	.20	.83	9.14
	Median	.14	.08	.44	.76	1.98	1.68	1.41	.98	.88	.55	.58	.60	1.32	10.84
	3rd Q	.30	.35	.68	1.22	2.24	2.32	2.57	1.40	1.31	.92	.83	1.20	1.73	12.57
Westfall	1st Q	.00	.05	.18	.20	.68	1.02	.88	.04	.35	.20	.24	.47	1.08	8.31
4NNW (12)	Median	.11	.20	.30	.41	1.35	1.62	1.62	.50	.66	.26	.42	1.26	1.83	9.36
	3rd Q	.18	.40	.66	.82	1.74	2.12	2.05	.96	1.18	.84	1.33	1.76	2.66	10.21
Weston 5ESE	1st Q	.04	.07	.67	1.26	1.97	2.31	1.85	1.12	1.57	1.04	1.05	1.05	3.39	19.94
	Median	.28	.42	1.11	2.22	2.71	2.88	2.68	2.04	2.21	2.20	1.98	1.81	3.94	23.67
	3rd Q	.65	.72	1.48	3.01	4.20	4.01	3.94	2.44	2.73	2.67	2.67	2.56	4.46	25.89
Wickiup Dam	1st Q	.06	.07	.25	.88	1.37	1.80	2.31	1.21	1.12	.39	.33	.55	1.33	16.38
	Median	.14	.26	.40	1.40	3.02	3.14	3.64	2.13	1.65	.80	1.04	.86	1.86	19.60
	3rd Q	.72	.60	.65	2.08	3.79	4.45	4.87	2.96	2.11	1.18	1.57	1.38	3.02	22.28

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
UTAH															
Bear River Refuge	1st Q	.05	.16	.25	.42	.65	.68	.63	.32	.45	.78	.47	.47	1.60	9.68
	Median	.18	.29	.61	.88	1.08	1.08	.94	.82	.76	1.18	.96	.90	2.54	11.13
	3rd Q.	.32	.91	1.52	1.53	1.45	1.41	1.34	1.07	1.25	1.65	1.60	1.87	3.11	12.21
Black Rock (23)	1st Q	.20	.40	.12	.24	.34	.16	.28	.22	.38	.53	.40	.05	.64	5.33
	Median	.57	.70	.47	.66	.46	.35	.46	.44	.86	.93	.61	.52	1.16	6.63
	3rd Q	1.08	1.12	.72	.88	.85	.63	.79	.66	1.10	1.42	.77	1.02	1.57	8.01
Callao	1st Q	.13	.04	.00	.05	.05	.05	.07	.00	.02	.09	.15	.03	.46	2.94
	Median	.31	.30	.17	.22	.26	.16	.21	.12	.16	.36	.48	.40	1.21	3.61
	3rd Q	.45	.54	.38	.48	.66	.39	.43	.38	.50	.63	.86	.66	1.61	5.18
Clear Lake Refuge (11)	1st Q	.21	.30	.26	.14	.26	.70	.18	.10	.25	.51	.07	.20	.98	5.19
	Median	.37	.54	.33	.60	.46	.86	.34	.21	.51	.88	.60	.79	1.13	6.17
	3rd Q	.56	.90	.46	.92	.73	.94	.49	.51	.76	1.40	1.05	1.03	1.84	6.77
Desert	1st Q	.08	.24	.12	.21	.20	.24	.24	.09	.17	.24	.25	.11	.58	4.46
	Median	.31	.50	.38	.52	.38	.58	.34	.23	.59	.68	.56	.36	1.00	5.52
	3rd Q	.54	.73	.69	.84	.93	.81	.60	.55	.83	1.20	.91	.85	1.71	7.20
Desert Exp. Sta. (20)	1st Q	.28	.37	.01	.11	.05	.12	.03	.06	.09	.19	.08	.24	.52	3.29
	Median	.88	.52	.15	.30	.36	.28	.08	.21	.34	.66	.44	.44	.92	3.91
	3rd Q	1.23	1.04	.82	.70	.18	.40	.50	.40	.74	1.06	.73	.77	1.32	5.28
Dugway (23)	1st Q	.06	.04	.08	.17	.25	.20	.15	.09	.14	.33	.25	.04	.44	4.25
	Median	.26	.30	.16	.42	.50	.41	.52	.46	.30	.77	.53	.46	1.32	4.97
	3rd Q	.43	.54	.75	.72	.60	.63	.55	.89	.80	.97	.99	.86	1.84	6.58
Eureka	1st Q	.39	.63	.16	.34	.71	.98	.80	.52	1.05	.83	.46	.26	1.15	10.63
	Median	.96	.94	1.04	.76	1.04	1.68	1.31	.77	1.38	1.45	1.17	1.00	2.36	12.26
	3rd Q	1.38	1.78	1.48	1.63	1.73	2.32	1.90	1.54	1.93	2.25	2.27	1.77	3.62	16.79
Farmington USU Fld Sta	1st Q	.10	.22	.26	.79	1.32	1.36	1.32	1.04	1.00	1.77	1.01	.24	2.49	16.87
	Median	.28	.58	.83	1.48	1.86	2.02	1.78	1.38	1.83	2.64	2.02	1.18	3.59	18.42
	3rd Q	.53	1.71	1.55	2.02	2.61	2.59	2.82	2.11	2.76	3.72	2.72	2.02	4.25	21.56
Fillmore	1st Q	.16	.48	.25	.52	.71	.87	.90	.57	.83	1.10	.61	.08	1.10	10.70
	Median	.52	.84	.57	1.03	1.10	1.34	1.40	1.04	1.84	1.68	.96	.64	1.60	12.72
	3rd Q	.93	1.26	1.03	1.50	1.93	1.89	1.66	2.19	2.29	2.18	1.61	1.03	2.14	15.35
Fish Springs Refuge (15)	1st Q	.15	.08	.10	.23	.16	.19	.06	.13	.21	.41	.30	.11	.75	4.09
	Median	.27	.33	.45	.50	.48	.38	.21	.41	.33	1.01	.85	.72	1.96	5.26
	3rd Q	.58	.48	.97	.78	.68	.53	.43	.59	.54	1.29	1.19	1.46	2.24	6.04
Garfield (23)	1st Q	.14	.11	.28	.72	.94	.76	.73	.51	.59	1.72	.93	.35	1.36	10.37
	Median	.52	.35	.85	1.43	1.35	1.18	1.04	.86	1.24	2.14	1.60	1.40	2.77	13.98
	3rd Q	.56	1.07	1.51	1.86	1.89	1.57	1.26	1.39	1.98	3.41	2.57	1.89	3.88	17.18
Garrison (23)	1st Q	.11	.14	.06	.12	.03	.09	.00	.00	.19	.21	.13	.13	.60	3.96
	Median	.38	.62	.33	.40	.50	.30	.26	.21	.37	.55	.60	.42	1.15	5.31
	3rd Q	.62	1.01	.77	.78	.97	.65	.67	.37	.98	.79	.97	1.03	1.63	5.79
Grouse Creek (10)	1st Q	.23	.17	.18	.28	.39	.83	.70	.33	.31	.15	.08	.73	1.36	6.78
	Median	.50	.38	.34	.42	1.34	1.28	.94	.76	.36	.52	.38	1.36	2.08	8.45
	3rd Q	.63	.45	.51	.86	1.69	1.33	1.16	.87	.60	.64	.85	1.79	3.01	10.03
Ibapah (26)	1st Q	.07	.14	.00	.25	.30	.14	.20	.20	.27	.65	.44	.32	.97	5.89
	Median	.48	.50	.22	.44	.38	.41	.39	.40	.74	.86	1.09	.74	2.35	6.88
	3rd Q	.79	.77	.72	.77	.57	.57	.48	.67	1.08	1.21	1.69	1.29	3.02	7.99
Logan, Utah St. Exp. Sta. (23)	1st Q	.11	.27	.17	.47	.59	1.06	1.20	.76	.91	1.25	.68	.77	2.03	12.75
	Median	.24	.51	.64	1.15	1.24	1.40	1.41	1.01	1.54	1.79	1.50	1.38	3.09	14.97
	3rd Q	.47	.75	1.86	2.11	1.71	1.67	1.93	1.48	1.93	2.20	1.99	2.02	3.85	16.05
Milford WSO AP	1st Q	.12	.29	.07	.22	.27	.33	.28	.32	.59	.59	.29	.06	.58	5.86
	Median	.35	.62	.44	.66	.50	.52	.48	.72	.88	.88	.53	.34	1.10	6.72
	3rd Q	.97	.96	.64	.99	.87	1.00	.71	.87	1.21	1.21	.96	.73	1.82	8.08
Nephi	1st Q	.21	.33	.09	.42	.72	1.00	.72	.56	.56	.90	.41	.35	1.31	9.81
	Median	.65	.78	.76	1.12	1.26	1.24	1.20	.83	1.08	1.38	1.01	.75	2.04	11.15
	3rd Q	.81	1.41	1.34	1.49	1.60	1.79	1.66	1.56	1.82	2.00	1.49	1.33	2.50	13.05
Oak City	1st Q	.15	.36	.27	.42	.59	.68	.58	.53	.41	.73	.43	.21	1.02	8.57
	Median	.31	.72	.62	.82	1.12	1.26	1.02	.83	1.00	1.22	.94	.53	1.70	10.20
	3rd Q	.57	1.22	.83	1.44	1.41	1.50	1.49	1.09	1.75	1.71	1.69	1.04	2.50	12.24
Park Valley	1st Q	.30	.26	.16	.24	.39	.39	.45	.29	.29	.30	.38	.51	1.06	7.08
	Median	.68	.70	.48	.61	.78	.90	.77	.54	.60	.64	.94	1.11	1.95	8.32
	3rd Q	1.32	1.40	.91	.94	1.11	1.08	1.31	.93	1.02	1.01	1.86	1.42	3.10	9.72

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
UTAH															
Partoun (23)	1st Q	.13	.19	.01	.17	.07	.00	.04	.06	.00	.28	.13	.05	.66	3.22
	Median	.35	.49	.20	.37	.23	.24	.24	.22	.35	.53	.72	.46	1.57	3.97
	3rd Q	.76	.59	.63	.68	.56	.41	.39	.54	.55	.97	1.15	1.09	1.81	5.30
Snowville (24)	1st Q	.08	.20	.26	.20	.70	.66	.52	.44	.46	.78	1.00	.54	1.82	8.57
	Median	.18	.50	.57	.66	1.09	.85	1.04	.57	.70	1.07	1.58	.85	2.78	9.67
	3rd Q	.62	1.08	1.32	1.10	1.22	1.28	1.40	.94	1.08	1.46	2.16	2.14	3.93	11.98
Tooele	1st Q	.26	.29	.24	.62	.84	1.06	.77	.73	.77	1.45	.39	.32	1.35	12.22
	Median	.60	.73	.66	1.28	1.52	1.37	1.20	1.08	1.82	2.06	1.44	.96	2.36	15.20
	3rd Q	.89	1.11	1.30	2.04	1.90	1.85	1.65	1.42	2.30	3.00	2.06	2.00	3.70	16.79
Utah Lake Lehi	1st Q	.15	.38	.20	.39	.43	.64	.51	.28	.61	.59	.32	.34	.81	6.99
	Median	.52	.80	.65	.85	.90	.92	.76	.54	.95	1.04	.80	.68	1.56	8.72
	3rd Q	.74	1.17	1.05	1.49	1.28	1.26	1.16	.91	1.16	1.59	1.12	.98	2.35	11.24
Wah Wah Ranch (20)	1st Q	.16	.42	.18	.10	.04	.02	.07	.15	.14	.34	.00	.06	.52	3.49
	Median	.50	1.04	.33	.53	.20	.16	.22	.46	.66	.54	.62	.25	.94	4.75
	3rd Q	.99	1.72	.64	1.17	.80	.43	.59	.57	.90	1.16	.87	.74	1.42	6.20
Wendover WSMO	1st	.05	.03	.00	.27	.06	.14	.11	.10	.12	.10	.26	.17	.49	2.90
	Median	.22	.19	.18	.36	.27	.29	.20	.26	.32	.34	.56	.32	1.10	4.06
	3rd Q	.33	.44	.37	.56	.44	.38	.34	.38	.42	.49	.90	.72	1.56	4.82

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
WASHINGTON															
Anatone (23)	1st Q	.18	.09	.67	.76	1.21	1.56	1.16	.79	1.25	1.19	1.16	1.15	3.17	14.29
	Median	.56	.69	1.03	1.15	2.03	2.25	2.74	1.44	2.33	1.78	1.63	1.90	3.80	19.02
	3rd Q	1.10	1.79	1.33	1.92	2.95	2.79	3.75	1.85	2.44	2.03	2.36	2.37	4.19	21.27
Bickleton	1st Q	.00	.00	.13	.39	1.20	1.15	1.03	.83	.77	.24	.31	.27	.81	10.83
	Median	.10	.10	.36	.84	2.40	2.12	2.38	1.50	.98	.70	.58	.54	1.28	12.74
	3rd Q	.27	.22	.57	1.18	2.64	2.91	3.28	1.99	1.46	1.06	1.21	1.01	2.24	16.14
Colfax 1NW	1st Q	.04	.22	.56	.90	1.75	2.30	1.57	1.12	1.47	.94	.71	.69	1.89	17.04
	Median	.32	.44	.90	1.34	2.35	2.82	2.73	1.85	1.93	1.42	1.12	1.35	2.58	19.42
	3rd Q	.82	1.13	1.40	2.28	3.03	3.47	3.67	2.43	2.34	1.79	1.65	2.02	3.12	21.18
Connell (22) 12SE	1st Q	.00	.05	.10	.40	.80	.95	.68	.33	.40	.28	.49	.35	.94	6.87
	Median	.21	.26	.27	.66	1.17	1.37	1.00	.56	.74	.52	.86	.52	1.47	8.92
	3rd Q	.30	.45	.58	1.00	1.37	1.76	1.35	1.03	1.27	.76	1.05	.95	1.86	9.31
Dallesport FAA AP	1st Q	.00	.00	.15	.43	1.26	1.32	1.69	.66	.66	.07	.17	.11	.41	10.15
	Median	.02	.10	.30	.76	2.26	2.57	2.62	1.47	1.02	.31	.40	.22	.69	12.64
	3rd Q	.10	.23	.53	1.20	2.90	3.06	3.47	1.92	1.63	.76	.57	.49	.97	14.46
Dayton 1WSW	1st Q	.01	.10	.48	.98	1.49	2.07	1.65	.97	1.32	.94	.81	.69	1.80	15.78
	Median	.18	.26	.82	1.40	2.60	2.61	2.28	1.74	1.84	1.34	1.18	1.17	2.62	18.71
	3rd Q	.51	.57	1.31	1.90	3.17	3.31	3.32	2.31	2.18	1.57	1.54	1.53	3.67	20.66
Ellensburg (22)	1st Q	.00	.02	.07	.25	.69	.93	.52	.40	.33	.14	.17	.24	.57	6.32
	Median	.06	.10	.24	.58	1.08	1.21	1.47	.72	.63	.44	.36	.42	.86	8.00
	3rd Q	.20	.31	.56	.87	1.69	1.90	1.82	1.16	.89	.84	.85	.65	1.22	10.39
Ephrata FAA AP	1st Q	.01	.00	.03	.21	.52	.68	.50	.20	.17	.26	.14	.15	.69	5.79
	Median	.13	.14	.26	.48	.90	1.12	.88	.51	.61	.38	.46	.68	1.10	7.36
	3rd Q	.35	.40	.40	1.00	1.43	1.45	1.25	.85	.91	.87	.65	.83	1.71	8.57
Hatton 9ESE	1st Q	.01	.06	.11	.42	.87	.91	.61	.32	.52	.20	.50	.24	1.12	7.07
	Median	.14	.16	.26	.76	1.24	1.34	1.11	.74	.79	.66	.68	.66	1.44	9.48
	3rd Q	.30	.37	.71	1.22	1.53	1.73	1.77	1.29	1.13	.95	1.11	.96	1.74	10.63
Ice Harbor Dam (18)	1st Q	.00	.00	.06	.24	.77	.75	.56	.47	.38	.22	.20	.35	.76	7.38
	Median	.06	.13	.38	.50	1.05	1.38	.83	.60	.70	.58	.73	.56	1.24	8.31
	3rd Q	.30	.36	.46	.75	1.47	1.63	1.78	1.31	1.04	.73	.93	.71	1.89	9.58
Kahlotus 4SW	1st Q	.00	.04	.14	.46	.92	.94	.72	.40	.45	.31	.47	.20	1.01	7.36
	Median	.14	.28	.56	.88	1.32	1.56	1.04	.76	.78	.75	.93	.52	1.40	10.32
	3rd Q	.35	.54	.73	1.37	1.55	1.87	1.69	1.15	1.22	1.04	1.12	.84	2.15	10.94
Kennewick	1st Q	.00	.02	.08	.23	.65	.71	.46	.37	.21	.10	.25	.26	.60	5.67
	Median	.04	.10	.24	.47	.90	1.06	.80	.61	.46	.31	.44	.42	1.00	6.70
	3rd Q	.22	.28	.47	.69	1.22	1.48	1.33	.92	.84	.64	.79	.61	1.30	7.59
LaCrosse	1st Q	.02	.04	.23	.62	1.32	1.28	1.02	.68	.83	.50	.60	.56	1.26	10.60
	Median	.16	.42	.54	.85	1.75	1.99	1.75	1.04	1.06	.70	.94	.90	1.84	12.90
	3rd Q	.58	.61	.92	1.42	2.03	2.32	2.55	1.57	1.48	1.26	1.12	1.21	2.15	14.14
Lind 3NE	1st Q	.01	.03	.13	.36	.79	.81	.61	.33	.31	.26	.44	.26	1.01	7.13
	Median	.14	.24	.44	.78	1.14	1.18	.94	.78	.74	.62	.71	.67	1.44	8.50
	3rd Q	.37	.47	.75	1.10	1.57	1.48	1.35	1.26	1.08	.79	1.03	1.00	1.81	9.73
Little Goose Dam (11)	1st Q	.06	.00	.27	.34	.90	1.08	.87	.62	.71	.26	.41	.29	.83	1.02
	Median	.36	.21	.39	.61	1.69	1.86	1.52	.89	.98	.66	.70	.72	1.26	7.49
	3rd Q	.64	.53	.63	.77	1.95	2.56	2.60	1.22	1.49	1.31	1.01	1.00	2.01	10.40
McNary Dam (20)	1st Q	.03	.02	.07	.21	.52	.59	.58	.38	.27	.16	.18	.09	.43	5.19
	Median	.10	.10	.18	.44	.97	.94	.80	.60	.50	.38	.50	.31	.79	6.52
	3rd Q	.22	.48	.35	.69	1.34	1.48	1.76	1.00	.78	.62	.83	.56	1.36	7.77
Moxee City 10 E (29)	1st Q	.00	.00	.10	.31	.55	.58	.51	.20	.29	.15	.21	.21	.64	5.48
	Median	.11	.13	.26	.55	1.04	.91	.84	.45	.52	.63	.47	.48	1.13	6.75
	3rd Q	.27	.32	.60	.90	1.29	1.02	1.24	.76	.93	.91	.94	1.05	1.59	8.35
Odessa	1st Q	.07	.01	.11	.36	.79	.93	.90	.51	.35	.24	.34	.22	.83	7.48
	Median	.18	.08	.38	.64	1.26	1.38	1.20	.72	.78	.62	.74	.44	1.46	9.26
	3rd Q	.40	.42	.79	.98	1.96	1.64	1.58	1.07	1.10	.87	1.03	.82	2.12	11.04

STATION	QUARTILE LEVEL	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	MAY + JUNE	SEPT. TO JUNE
WASHINGTON															
Othello 6ESE	1st Q	.01	.00	.07	.24	.49	.62	.59	.31	.19	.15	.26	.31	.62	5.86
	Median	.10	.06	.20	.49	.91	1.04	.86	.68	.52	.46	.49	.46	1.02	7.61
	3rd Q	.29	.22	.42	.98	1.39	1.38	1.52	1.07	.94	.56	.78	.95	1.86	8.71
Pleasant View	1st Q	.00	.03	.25	.63	1.17	1.23	.98	.65	.64	.42	.48	.46	1.22	9.89
	Median	.16	.18	.52	.82	1.67	1.60	1.36	1.14	1.11	.78	.88	.77	1.72	12.62
	3rd Q	.41	.50	.70	1.46	2.11	2.09	2.11	1.55	1.67	1.15	1.28	1.28	2.59	13.78
Pomeroy	1st Q	.04	.11	.28	.76	1.12	1.65	1.05	.84	1.03	.64	.82	.46	1.65	12.35
	Median	.24	.35	.64	1.12	1.84	2.04	2.20	1.34	1.34	.99	1.14	.98	2.31	14.80
	3rd Q	.52	.76	1.26	1.90	2.31	2.70	2.79	1.76	1.60	1.45	1.34	1.41	2.88	17.73
Priest Rapids Dam (18)	1st Q	.00	.00	.03	.08	.44	.78	.24	.15	.13	.13	.05	.08	.35	5.12
	Median	.03	.06	.16	.26	.84	1.05	.73	.64	.53	.38	.22	.27	.59	6.25
	3rd Q	.08	.20	.30	.45	1.08	1.27	1.50	1.03	.89	.74	.53	.43	.99	7.19
Pullman 2NW (22)	1st Q	.13	.27	.45	1.01	1.70	2.45	1.96	1.37	1.56	1.13	.91	.79	2.26	17.82
	Median	.40	.66	.95	1.77	2.57	2.95	3.06	1.88	1.90	1.62	1.40	1.60	2.83	21.27
	3rd Q	.76	1.06	1.29	2.24	3.48	3.91	3.86	2.69	2.46	1.86	2.11	1.77	3.23	23.42
Quincy 1S	1st Q	.00	.00	.07	.19	.71	.42	.43	.21	.28	.16	.20	.15	.62	6.22
	Median	.14	.04	.27	.40	1.02	.98	.91	.76	.50	.35	.51	.58	.94	7.62
	3rd Q	.31	.33	.56	.78	1.42	1.66	1.10	.92	.84	.83	.96	.82	1.62	8.83
Richland	1st Q	.00	.00	.04	.20	.57	.52	.50	.22	.21	.08	.17	.25	.45	5.14
	Median	.06	.13	.16	.26	.80	.97	.68	.59	.42	.34	.42	.40	.92	6.18
	3rd Q	.12	.25	.33	.63	1.04	1.43	1.29	.86	.79	.47	.67	.59	1.22	7.69
Ritzville 1SSE	1st Q	.02	.04	.22	.51	.92	1.05	.83	.52	.42	.41	.46	.36	1.18	9.06
	Median	.24	.19	.44	.80	1.45	1.61	1.24	.86	.96	.70	.86	.69	1.52	10.77
	3rd Q	.46	.58	.75	1.21	2.06	2.03	1.89	1.42	1.31	.95	1.06	1.21	2.03	12.48
Rosalia	1st Q	.07	.23	.34	.73	1.49	1.53	1.29	.95	.87	.70	.78	.74	2.02	14.25
	Median	.38	.52	.88	1.19	2.22	2.28	2.28	1.32	1.38	1.07	1.02	1.23	2.54	16.48
	3rd Q	.63	.99	1.31	2.08	2.60	2.54	3.03	2.11	1.76	1.70	1.85	1.82	3.10	18.21
Satus Pass 2SSW (19)	1st Q	.02	.00	.18	.67	1.89	2.13	2.27	.87	1.35	.55	.06	.18	.59	18.81
	Median	.06	.06	.40	1.39	3.51	3.78	4.89	2.35	2.47	.95	.52	.43	1.04	21.00
	3rd Q	.10	.23	1.11	1.87	5.71	4.54	5.94	4.04	3.09	1.82	.93	.58	1.35	23.95
St. John (12)	1st Q	.16	.01	.26	.61	1.44	1.88	1.70	.63	1.04	.58	.68	.76	1.64	13.80
	Median	.56	.19	.64	.76	2.13	2.22	2.76	.92	1.44	1.26	1.12	.96	2.08	15.90
	3rd Q	.94	1.15	1.40	1.56	2.71	2.84	4.00	1.74	2.08	1.78	1.76	1.22	2.92	17.12
Sunnyside	1st Q	.00	.00	.07	.17	.45	.47	.36	.25	.12	.12	.14	.17	.53	4.95
	Median	.10	.12	.24	.40	.72	.82	.82	.49	.32	.27	.36	.42	.81	6.01
	3rd Q	.21	.21	.58	.71	.97	1.18	1.34	.75	.71	.70	.56	.69	1.55	7.19
Walla Walla WSO CI	1st Q	.00	.06	.45	.66	1.38	1.47	1.15	.85	.88	.86	.58	.46	1.60	12.79
	Median	.13	.30	.76	1.28	1.96	1.98	1.78	1.58	1.36	1.22	1.16	.89	2.44	14.92
	3rd Q	.52	.47	1.27	1.62	2.60	2.60	2.36	1.65	1.64	1.77	1.89	1.19	3.03	18.09
Wapato	1st Q	.00	.01	.06	.16	.37	.50	.54	.28	.14	.06	.10	.12	.40	5.22
	Median	.08	.11	.24	.36	.99	.96	1.23	.62	.45	.40	.42	.26	.78	6.46
	3rd Q	.22	.31	.53	.55	1.09	1.15	1.48	.80	.77	.70	.63	.99	1.36	7.52
Yakima WSO AP	1st Q	.00	.01	.05	.16	.52	.55	.60	.25	.22	.04	.14	.19	.56	6.16
	Median	.04	.18	.18	.33	1.13	1.07	1.40	.73	.58	.34	.48	.40	1.10	7.52
	3rd Q	.22	.33	.54	.70	1.25	1.39	1.76	.91	.81	.68	.60	1.18	1.48	8.35

APPENDIX
Part II

The following table presents the yield index for the cropyears 1946-1975 or that portion of years recorded for all stations listed in Appendix:Part I. These yield indices were developed as presented in this bulletin.

CALIFORNIA STATIONS

Cropyear	Adin Ranger Station	Alturas Ranger Station	Boca	Burney	Cedar-ville	Fort Bidwell	Hat Creek Ph 1	Hilts	Jess Valley	Mt. Hebron	Portola	Susan-ville AP	Tulelake
1975	95	78	102	70	84	93	99	96	115	109	115	101	68
1974	132	74	104	169	102	117	165	184	101	133	91	150	88
1973	98	82	104	109	98	99	111	66	100	54	73	122	77
1972	100	99	72	69	143	133	78	133	100	128	67	94	100
1971	174	153	123	150	191	195	158	139	141	177	146	182	114
1970	163	137	132	143	163	133	146	121	104	130	136	184	120
1969	160	125	176	157	114	115	146	110	99	96	186	169	110
1968	91	68	73	94	74	66	101	74	67	62	86	99	52
1967	137	111	164	157	107	118	144	98	106	168	179	179	128
1966	61	59	64	80	42	52	63	77	48	66	112	52	52
1965	102	141	125	130	110	153	112	134	137	158	152	195	146
1964	102	107	84	67	82	82	67	79	110	78	84	79	100
1963	181	157	153	152	168	139	166	150	134	139	165	227	132
1962	86	84	89	86	79	98	84	88	79	126	104	96	94
1961	70	62	47	96	68	69	106	93	61	109	67	70	88
1960	63	78	59	82	94	88	75	84	66	79	88	79	70
1959	54	63	56	72	64	56	68	63	57	61	89	66	46
1958	153	162	131	153	152	153	147	168	132	192	162	168	162
1957	104	123	79	80	118	104	79	101	115	91	95	120	107
1956	152	127	159	175	139	143	165	192	110	182	168	192	173
1955	61	59	58	57	69	67	54	31	61	24	45	57	34
1954	82	98	61	94	80	83	66	116	99	99	43	82	106
1953	95	138	100	121	139	125	115	146	114	74	91	111	110
1952	144	196	188	158	168	162	150	130	142	118	216	157	127
1951	107	101	149	105	120	99	95	147	94	127	150	128	85
1950	91	95	125	80	90	102	85	79	79	67	111	61	56
1949	100	121	73	63	96	93	62	67	104	74	77	42	112
1948	142	121	73	143	127	96	136	94	106	101	88	68	107
1947	83	69	79	79	74	70	75	77	75	66	88	83	75
1946	90	85	114	105	91	104	96	110	89	93	115	99	88

CALIFORNIA STATIONS (continued)

Cropyear	Yreka	Canby	Doyle	Lava Bed	Red Bluff	Termo	Weed Fire Dept.
1975	94	102	89	93	111	112	114
1974	174	155	121	144	134	90	205
1973	56	80	104	83	165	106	83
1972	107	89	62	89	41	79	64
1971	148	174	165	116	118	191	89
1970	128	181	158	131	114	150	100
1969	120	137	168	157	160	118	117
1968	70	98	72	47	79	116	47
1967	109	185	207	158	132	136	106
1966	56	102	35	64	102	67	58
1965	131	150	152	154	115	158	134
1964	74	104	117	104	54	149	79
1963	133	207	222	159	120	169	155
1962	83	70	112	94	106	--	115
1961	106	84	68	89	112	--	137
1960	72	96	63	--	78	--	68
1959	40	75	--	--	57	--	85
1958	155	155	--	--	211	--	238
1957	102	115	--	--	52	--	--
1956	179	180	--	--	152	--	--
1955	20	54	--	--	86	--	--
1954	117	105	--	--	80	--	--
1953	127	--	--	--	--	--	--
1952	122	--	--	--	--	--	--
1951	134	--	--	--	--	--	--
1950	75	--	--	--	--	--	--
1949	63	--	--	--	--	--	--
1948	95	--	--	--	--	--	--
1947	54	--	--	--	--	--	--
1946	95	--	--	--	--	--	--

IDAHO STATIONS

Cropyear	Aberdeen	American Falls	Anderson Dam	Arbon	Arco	Arrow-rock	Bliss	Boise	Burley	Caldwell	Castle-ford	Challis
1975	126	122	115	109	187	99	111	107	106	104	116	85
1974	112	107	125	128	77	102	110	100	101	91	100	109
1973	115	102	72	99	117	69	75	77	114	84	123	94
1972	104	123	118	100	100	126	148	100	110	86	123	99
1971	139	136	159	132	148	134	168	101	155	125	177	100
1970	114	105	147	94	109	112	169	109	117	109	132	79
1969	115	88	107	62	198	95	102	115	67	125	114	134
1968	82	80	74	82	153	59	82	50	77	72	63	118
1967	175	117	98	120	165	83	104	70	112	93	88	127
1966	59	38	50	69	70	53	45	41	43	43	32	48
1965	144	117	137	154	208	147	139	136	125	98	112	141
1964	123	122	105	105	154	88	82	122	100	120	82	128
1963	143	136	102	149	168	88	130	95	117	89	--	126
1962	132	121	104	--	182	106	120	99	99	70	--	120
1961	72	70	53	--	63	68	45	56	69	53	--	88
1960	46	57	102	--	86	105	69	88	84	122	--	57
1959	51	58	83	--	90	83	56	59	83	63	--	51
1958	59	51	105	--	111	128	101	127	99	132	--	111
1957	107	116	110	--	153	105	111	114	114	146	--	111
1956	57	62	125	--	94	127	98	111	94	102	--	102
1955	64	56	58	--	62	68	66	83	79	115	--	67
1954	72	61	72	--	59	77	67	62	77	84	--	52
1953	99	86	67	--	107	104	104	208	130	130	--	94
1952	63	64	23	--	100	112	82	112	94	128	--	83
1951	62	63	106	--	86	118	85	111	101	114	--	121
1950	84	78	58	--	73	105	80	104	110	105	--	63
1949	98	114	23	--	99	93	84	62	134	56	--	78
1948	110	98	10	--	66	96	73	111	63	131	--	126
1947	74	102	23	--	98	86	118	66	115	75	--	126
1946	100	116	64	--	88	118	109	86	99	86	--	58

IDAHO STATIONS (continued)

Cropyear	Deer flat	Dubois	Glenns Ferry	Grace	Grand View	Grouse	Hailey Ranger Station	Hamer	Hazel-ton	Hill City	Holli-ster	Idaho City	Idaho Falls	Jerome
1975	100	120	99	93	78	141	109	137	116	86	79	89	173	123
1974	84	72	83	122	116	109	99	90	111	101	61	120	149	98
1973	90	98	86	84	120	117	82	132	96	74	89	64	102	115
1972	86	77	155	158	121	96	84	115	126	100	77	118	127	118
1971	127	131	144	162	160	115	165	137	127	150	148	133	122	141
1970	107	106	182	93	148	106	118	102	120	126	98	110	144	130
1969	117	147	128	91	117	163	153	109	73	100	69	106	126	100
1968	47	91	74	85	68	126	96	94	63	77	78	67	139	73
1967	104	150	94	139	105	141	171	98	85	83	123	79	125	93
1966	40	46	67	74	40	66	78	47	26	42	50	47	74	35
1965	116	104	148	134	123	180	184	120	122	125	163	139	118	138
1964	130	142	128	144	120	125	128	137	100	105	139	98	133	115
1963	121	91	137	128	106	131	130	133	132	126	154	104	123	130
1962	89	162	125	111	83	144	128	136	105	125	136	99	175	114
1961	69	94	59	66	79	57	66	47	59	63	89	62	53	77
1960	115	78	85	68	98	80	96	62	68	85	102	86	67	85
1959	70	120	75	80	90	75	51	82	68	61	112	74	42	66
1958	147	89	109	91	171	104	100	73	99	104	122	114	74	100
1957	144	138	121	99	141	125	116	115	110	111	152	123	141	117
1956	100	86	116	100	137	114	121	58	99	118	148	141	77	102
1955	82	77	75	95	88	43	52	78	62	52	89	67	79	86
1954	67	79	52	82	95	58	70	47	54	75	68	94	56	64
1953	104	89	86	79	98	58	99	69	69	89	83	104	95	112
1952	111	101	137	118	169	98	155	106	100	162	99	136	82	111
1951	110	68	101	98	90	63	98	43	123	125	118	127	98	91
1950	75	105	95	146	--	53	101	112	85	90	101	112	98	84
1949	48	102	75	122	--	84	117	--	105	98	112	93	136	143
1948	100	109	53	107	--	46	66	--	74	75	86	94	89	64
1947	82	107	109	117	--	70	84	--	137	111	141	99	61	84
1946	86	96	120	118	--	98	89	--	131	121	91	126	62	74

IDAHO STATIONS (continued)

Cropyear	Kuna	Lifton Pump Station	MacKay Ranger Station	Malad	May	McCall	Montpelier Ranger Station	Mountain Home	Oakley	Parma Exp. Station	Paul-ene	Payette	Picabo
1975	85	118	84	98	57	94	109	149	104	123	100	112	110
1974	96	109	83	111	54	144	91	130	78	96	96	107	93
1973	89	78	73	121	90	64	107	121	130	91	107	73	78
1972	112	123	93	114	67	98	134	100	89	116	100	75	95
1971	101	143	130	150	106	130	143	148	142	153	163	106	154
1970	118	63	85	70	101	102	83	185	138	164	115	112	106
1969	111	84	146	78	127	102	104	89	102	150	80	120	132
1968	42	48	136	109	104	83	95	105	83	70	90	52	94
1967	67	114	162	117	127	109	112	111	128	141	107	100	118
1966	26	85	56	75	50	63	96	66	73	54	42	31	46
1965	122	100	149	96	117	120	120	163	139	130	130	100	146
1964	93	132	138	147	164	102	153	85	130	148	133	100	99
1963	102	102	77	107	127	109	122	86	141	123	128	101	116
1962	80	116	138	104	79	90	127	91	134	104	120	88	125
1961	51	66	51	57	70	77	62	68	59	85	67	62	48
1960	85	74	99	57	69	100	88	94	78	127	93	112	--
1959	54	79	78	73	69	89	79	63	104	69	74	54	--
1958	115	78	93	78	127	94	88	114	85	165	94	139	--
1957	116	110	142	91	121	104	114	123	117	175	134	143	--
1956	101	107	115	102	100	115	100	111	80	137	85	110	--
1955	82	72	77	80	102	57	75	82	75	69	79	43	--
1954	61	64	84	64	73	95	83	47	73	63	62	54	--
1953	136	75	100	73	111	109	91	93	98	112	102	131	--
1952	121	90	162	93	110	126	101	116	105	86	91	141	--
1951	111	127	104	95	82	111	99	100	96	72	120	85	--
1950	100	148	99	117	54	100	137	88	85	69	96	82	--
1949	56	83	102	117	95	86	100	70	110	23	137	43	--
1948	154	101	32	104	109	118	98	59	69	45	82	75	--
1947	110	153	115	110	128	111	131	101	123	95	123	106	--
1946	100	132	118	114	57	94	117	126	86	96	106	102	--

IDAHO STATIONS (continued)

Cropyear	Pocatello	Reynolds	Richfield	Shoshone	Strevell	Sugar	Swan Falls	Swan Valley	Tetonia Exp. Sta.	Three Creek	Twin Falls
1975	120	109	118	107	100	121	83	118	109	109	141
1974	136	85	106	100	77	63	93	110	110	75	100
1973	106	96	80	83	132	101	86	84	99	102	134
1972	152	112	111	122	74	107	117	127	122	84	147
1971	130	115	130	142	191	125	123	128	142	185	186
1970	106	85	118	137	85	104	142	130	109	157	131
1969	84	98	111	100	120	102	116	78	105	86	69
1968	94	46	70	75	100	101	78	122	123	82	74
1967	117	123	100	136	147	117	107	98	114	117	95
1966	51	29	34	32	102	61	57	64	63	57	38
1965	90	80	155	158	148	106	144	112	107	121	142
1964	111	74	101	91	190	126	115	125	147	136	122
1963	150	111	131	118	133	96	126	131	110	154	139
1962	120	--	117	112	100	121	84	126	120	122	137
1961	74	--	56	52	58	50	58	63	64	59	77
1960	80	--	70	89	72	72	93	--	72	88	78
1959	68	--	53	61	94	98	66	--	93	80	82
1958	72	--	90	96	79	89	117	--	74	77	101
1957	117	--	112	138	127	130	120	--	104	157	146
1956	68	--	104	96	95	77	104	--	100	99	94
1955	80	--	57	74	54	93	61	--	61	74	74
1954	77	--	59	79	56	58	70	--	69	75	66
1953	79	--	82	121	72	43	99	--	59	85	91
1952	86	--	106	143	94	74	112	--	70	111	109
1951	78	--	110	143	102	74	106	--	90	120	110
1950	93	--	100	106	107	106	78	--	78	105	83
											99
1949	120	--	99	136	152	143	50	--	112	116	99
1948	128	--	40	68	107	125	95	--	66	85	58
1947	114	--	89	96	121	62	105	--	88	142	157
1946	117	--	79	101	96	58	101	--	56	90	96

NEVADA STATIONS

Cropyear	Arthur	Austin	Battle Mountain	Beowawe	Carson City	Contact	Deeth	Denio	Dufer-rena	Elko	Ely	Fallon	Gibbs ranch
1975	95	181	146	128	102	107	123	141	99	127	116	75	111
1974	91	83	82	47	112	90	61	137	100	63	57	41	93
1973	100	184	144	150	99	125	123	154	107	115	142	152	120
1972	59	104	40	75	57	117	68	78	110	90	73	46	100
1971	115	162	95	102	116	157	186	142	230	157	142	73	163
1970	95	104	144	77	104	102	99	105	128	104	82	100	123
1969	133	150	121	184	164	66	109	105	132	132	155	115	125
1968	82	66	86	105	56	79	110	25	64	118	131	110	86
1967	125	107	120	169	122	132	117	78	107	102	187	123	89
1966	72	59	59	83	51	40	50	--	43	63	70	73	53
1965	115	169	165	196	142	115	105	--	93	132	99	104	142
1964	102	154	149	187	72	123	163	111	90	148	173	115	128
1963	125	99	125	146	164	125	182	127	133	131	130	114	126
1962	111	114	173	104	117	125	132	82	78	109	98	195	136
1961	54	69	63	48	48	68	77	102	105	48	100	61	40
1960	82	68	66	66	35	67	77	72	67	75	74	02	104
1959	35	29	25	58	56	85	70	56	--	45	64	18	70
1958	80	115	101	117	128	58	83	153	--	70	102	114	84
1957	111	80	99	179	64	144	125	128	--	118	100	54	126
1956	152	123	101	118	189	107	182	115	--	153	104	110	134
1955	66	77	46	31	42	57	84	58	--	66	117	30	54
1954	68	86	78	88	57	56	80	70	--	80	57	111	74
1953	75	32	38	82	73	--	--	--	--	57	43	88	--
1952	99	98	133	95	182	--	--	--	--	96	158	117	--
1951	122	101	127	159	192	--	--	--	--	128	58	102	--
1950	112	51	85	136	139	--	--	--	--	102	51	04	--
1949	126	102	99	89	88	--	--	--	--	85	79	115	--
1948	104	88	90	90	45	--	--	--	--	74	74	45	--
1947	114	96	130	89	64	--	--	--	--	95	111	84	--
1946	98	138	126	96	114	--	--	--	--	98	109	100	--

NEVADA STATIONS (continued)

Cropyear	Glenn-brook	Golconda	Imlay	Kings River Valley	Lehman Caves Nat. Mon.	Leonard Creek Ranch	Love-lock	McGill	Montello	Orovada	Owyhee	Pahute Meadows Ranch
1975	85	112	120	--	120	152	120	107	131	99	105	99
1974	67	64	74	66	52	73	72	47	67	70	78	80
1973	95	118	165	80	164	121	131	100	80	110	100	133
1972	45	72	58	75	68	107	67	78	200	80	95	95
1971	116	122	58	121	102	131	91	149	111	112	158	139
1970	147	142	147	118	94	112	110	86	120	122	141	120
1969	213	149	110	120	146	147	176	153	114	104	115	159
1968	107	80	59	--	86	52	80	162	102	51	100	74
1967	216	114	98	148	166	112	164	216	82	117	105	102
1966	95	62	43	--	66	32	62	57	105	31	62	43
1965	150	169	91	--	91	74	77	96	101	120	136	75
1964	106	112	143	--	142	93	120	198	147	96	120	56
1963	130	171	162	107	102	107	173	157	150	94	153	--
1962	89	117	152	98	138	91	196	74	155	101	116	--
1961	72	50	100	107	99	95	100	100	99	82	84	--
1960	52	51	57	85	78	99	42	59	63	62	88	--
1959	77	38	23	31	69	32	32	78	58	52	83	--
1958	176	147	159	139	94	157	244	82	89	157	101	--
1957	83	147	50	89	106	96	98	122	153	159	134	--
1956	229	174	127	--	102	106	134	131	107	127	96	--
1955	94	70	68	--	96	--	46	107	56	58	82	--
1954	88	85	63	--	122	--	68	67	54	38	63	--
1953	118	35	101	--	24	--	99	38	56	110	99	--
1952	229	223	185	--	176	--	175	125	89	175	142	--
1951	150	141	112	--	61	--	159	93	84	100	104	--
1950	131	64	34	--	70	--	73	54	53	73	98	--
1949	73	58	101	--	106	--	131	111	128	105	126	--
1948	80	83	116	--	106	--	99	89	70	101	100	--
1947	68	86	95	--	148	--	100	153	149	102	128	--
1946	117	88	100	--	90	--	106	158	95	95	94	--

NEVADA STATIONS (continued)

Cropyear	Paradise Valley	Pequop	Rand Ranch Palisade	Reno	Ruby Lake	Rye Patch Dam	Tuscarora	Vya	Wells	Winne- mucca	Yerington
1975	106	110	139	100	109	137	109	83	100	95	130
1974	93	67	75	114	73	73	56	120	64	64	58
1973	133	127	131	143	98	138	88	89	115	110	131
1972	98	96	79	89	58	82	85	116	59	59	82
1971	122	159	150	152	158	117	122	171	197	99	118
1970	170	84	109	100	105	130	137	154	123	120	93
1969	146	101	126	164	110	141	136	122	112	130	180
1968	62	83	104	75	94	56	78	77	85	50	68
1967	132	118	144	149	114	125	130	95	123	101	170
1966	40	48	69	56	54	53	58	50	57	40	101
1965	115	114	139	134	120	136	162	116	93	90	107
1964	82	112	127	95	91	118	107	112	122	116	99
1963	89	105	115	196	123	110	168	181	139	114	132
1962	100	122	136	130	132	134	127	89	114	102	203
1961	79	58	59	78	77	58	95	75	43	74	100
1960	77	57	86	47	102	36	106	78	88	61	30
1959	62	--	53	105	57	37	88	--	64	34	83
1958	175	--	99	193	96	154	136	--	77	123	171
1957	114	--	--	69	132	89	133	--	100	107	99
1956	137	--	--	203	136	101	165	--	139	114	227
1955	51	--	--	75	52	61	84	--	83	41	45
1954	46	--	--	78	63	50	--	--	73	35	85
1953	109	--	--	109	75	107	--	--	78	72	134
1952	162	--	--	179	121	177	--	--	102	155	158
1951	127	--	--	163	154	78	--	--	101	121	131
1950	62	--	--	95	98	37	--	--	82	62	19
1949	100	--	--	72	98	101	--	--	133	72	91
1948	101	--	--	37	110	67	--	--	83	102	64
1947	100	--	--	61	75	99	--	--	133	107	102
1946	93	--	--	88	131	96	--	--	128	100	73

OREGON STATIONS

Cropyear	Adel	Alkali Lake	Antelope	Arlington	Austin	Baker	Barnes Station	Bend	Beulah	Brothers	Buena Vista	Burns
1975	91	38	67	79	104	91	52	82	102	47	102	72
1974	132	52	109	157	148	131	116	149	106	101	93	102
1973	90	51	41	57	68	58	54	43	68	58	52	62
1972	114	57	102	107	127	123	100	86	82	101	61	94
1971	148	138	73	99	138	132	104	104	116	136	143	141
1970	118	115	95	106	112	107	09	100	130	132	137	121
1969	122	122	127	105	117	139	109	104	09	221	143	109
1968	46	37	52	40	75	80	34	36	63	98	43	61
1967	116	127	107	99	80	116	91	99	116	174	139	121
1966	40	48	51	62	69	66	57	53	40	74	73	48
1965	142	132	136	163	139	93	127	138	127	160	136	138
1964	72	104	70	61	101	90	56	54	117	83	126	98
1963	-	165	101	112	125	106	107	107	109	132	165	146
1962	-	80	84	84	89	83	-	107	74	79	96	93
1961	-	-	112	146	74	74	-	88	82	137	58	78
1960	-	-	64	58	109	118	-	58	98	93	117	110
1959	-	-	86	99	84	78	-	43	48	-	41	56
1958	-	-	121	138	93	150	-	125	150	-	133	123
1957	-	-	102	85	90	189	-	73	141	-	-	122
1956	-	-	160	158	155	170	-	175	116	-	-	122
1955	-	-	63	56	63	66	-	25	62	-	-	52
1954	-	-	88	88	79	101	-	115	83	-	-	80
1953	-	-	115	127	106	130	-	127	136	-	-	114
1952	-	-	99	101	126	98	-	104	117	-	-	125
1951	-	-	118	163	99	73	-	141	98	-	-	91
1950	-	-	106	110	99	82	-	82	93	-	-	70
1949	-	-	70	75	89	68	-	83	83	-	-	64
1948	-	-	150	164	133	142	-	157	104	-	-	116
1947	-	-	75	68	98	83	-	64	90	-	-	106
1946	-	-	123	102	110	109	-	133	104	-	-	99

OREGON STATIONS (continued)

Cropyear	Chemult	Chiloquin	Condon	Danner	Dayville	Dufur	Durkee	Elgin	Enterprise	Fossil	Fremont	Friend
1975	104	99	75	91	61	112	138	91	73	56	100	73
1974	182	141	174	83	134	165	147	146	70	114	155	122
1973	74	59	62	73	58	51	96	67	61	43	57	42
1972	127	125	133	115	91	82	134	115	84	89	114	94
1971	139	118	102	122	109	93	147	101	114	89	147	98
1970	93	112	112	125	134	101	130	107	110	106	105	100
1969	84	118	132	110	158	131	165	70	104	121	110	126
1968	57	52	70	57	59	63	67	90	94	56	61	84
1967	101	121	102	107	131	99	115	89	117	115	93	96
1966	74	51	41	32	67	70	68	36	52	47	67	75
1965	121	147	146	114	116	138	79	132	121	142	174	142
1964	70	75	48	101	68	64	91	84	96	74	73	68
1963	96	100	116	122	137	104	91	102	105	138	143	107
1962	68	94	93	105	100	89	79	105	93	91	62	105
1961	85	91	148	62	95	118	80	104	80	127	100	128
1960	69	63	83	101	100	93	116	111	107	99	56	74
1959	56	47	96	51	111	89	82	117	115	95	45	74
1958	136	163	142	107	197	121	120	117	122	138	141	142
1957	78	111	116	91	123	98	138	105	112	114	138	90
1956	142	168	160	130	139	169	114	112	158	152	222	146
1955	18	37	67	61	63	68	45	63	67	72	18	54
1954	111	102	89	53	91	111	83	68	59	90	91	94
1953	114	101	112	100	144	118	-	95	107	102	123	96
1952	128	122	90	115	139	104	-	82	132	89	153	95
1951	143	105	123	102	99	158	-	72	69	116	121	-
1950	94	78	94	88	84	109	-	89	95	110	79	-
1949	104	70	69	66	61	100	-	82	79	62	72	-
1948	107	82	173	100	177	157	-	123	153	209	91	-
1947	79	68	62	88	98	90	-	96	120	94	72	-
1946	139	112	96	77	86	96	-	117	94	143	105	-

OREGON STATION (continued)

Cropyear	Grizzly	Half-way	Hard-man	Harper	Hart Mtn.	Heppner	Hermiston	Hood River Exp. Sta.	Hunt-ington	Ione	Iron-side	John Day	Juntura
1975	72	96	68	166	127	72	75	95	111	95	107	83	123
1974	105	141	126	125	96	157	175	162	117	130	110	106	93
1973	46	90	68	88	79	59	64	64	88	46	53	50	93
1972	112	114	125	90	80	116	89	112	105	85	80	126	91
1971	84	137	91	114	155	83	82	111	134	64	121	112	127
1970	83	117	114	141	121	100	102	104	142	102	121	112	131
1969	120	111	165	116	158	138	118	110	149	150	123	155	109
1968	56	83	62	51	54	45	82	75	52	73	67	61	42
1967	101	104	134	142	99	107	62	77	120	110	115	132	147
1966	34	42	43	29	62	45	50	72	36	52	54	54	37
1965	105	107	88	109	149	110	111	112	107	127	120	137	107
1964	68	114	72	160	147	69	63	84	116	58	95	106	-
1963	122	93	138	118	184	121	101	90	96	115	122	126	-
1962	111	98	-	88	95	82	78	94	98	99	80	98	-
1961	96	96	-	72	57	109	106	125	72	101	64	75	-
1960	107	104	-	106	74	88	73	96	131	79	83	102	-
1959	78	94	-	62	69	94	109	91	48	88	57	88	-
1958	139	150	-	169	121	149	176	122	139	134	142	147	-
1957	116	94	-	202	111	99	112	70	123	114	109	132	-
1956	152	125	-	123	122	125	127	116	101	154	-	146	-
1955	59	58	-	66	94	72	45	59	45	69	-	57	-
1954	100	61	-	101	99	68	116	61	96	-	83	-	-
1953	122	134	-	-	109	107	107	86	123	116	-	-	-
1952	106	-	-	-	127	93	86	80	132	88	-	-	-
1951	125	-	-	-	84	114	131	117	67	130	-	-	-
1950	84	-	-	-	82	101	104	66	121	-	-	-	-
1949	70	-	-	-	111	74	63	120	47	88	-	-	-
1948	158	-	-	-	130	162	120	120	85	213	-	-	-
1947	93	-	-	-	88	99	101	84	63	91	-	-	-
1946	94	-	-	-	53	117	100	106	91	118	-	-	-

OREGON STATIONS (continued)

Cropyear	Keno	Kent	Klamath Falls	LaGrande	Lake-view	Long Creek	Lower Hay Creek	Madras	Malheur Br. Exp. Sta..	Malheur Refuge	Metolius	Mikkalo
1975	100	102	80	99	93	73	83	85	102	112	73	73
1974	154	142	101	112	114	101	141	137	94	94	117	160
1973	52	52	50	42	89	74	43	52	74	74	35	41
1972	120	96	105	88	104	127	114	86	84	77	61	109
1971	149	86	130	94	157	109	91	88	106	133	69	83
1970	131	102	110	74	139	110	101	99	118	128	69	96
1969	99	126	93	94	126	150	164	175	126	117	109	120
1968	42	47	37	85	80	70	50	50	58	54	41	43
1967	109	101	102	100	107	138	118	107	101	139	106	116
1966	52	52	47	43	62	50	64	57	35	51	47	42
1965	127	133	126	120	153	155	139	127	101	132	131	126
1964	93	67	75	85	111	120	100	72	110	136	70	56
1963	133	125	106	91	173	109	116	120	116	133	115	126
1962	83	100	83	74	90	109	120	121	104	89	102	105
1961	86	120	79	102	68	90	153	120	68	93	112	159
1960	75	69	61	120	84	127	68	82	122	109	66	70
1959	45	95	34	102	45	72	84	70	51	-	61	95
1958	160	157	166	106	128	-	133	114	121	-	121	165
1957	78	100	116	104	114	-	104	100	159	-	105	104
1956	144	136	165	116	157	-	176	170	101	-	168	163
1955	31	63	37	51	66	-	51	37	69	-	32	59
1954	110	90	107	100	99	-	99	100	58	-	90	80
1953	101	120	120	134	111	-	111	104	133	-	109	144
1952	133	83	130	95	109	-	93	106	116	-	100	77
1951	107	111	110	84	101	-	128	106	93	-	109	-
1950	83	102	79	118	90	-	93	78	90	-	-	-
1949	96	77	89	91	74	-	75	67	51	-	-	-
1948	99	162	99	153	96	-	170	152	70	-	-	-
1947	74	78	72	136	88	-	74	68	99	-	-	-
1946	106	95	100	117	52	-	93	111	96	-	-	-

OREGON STATIONS (continued)

Cropyear	Milton-Freewater	Minam	Mitchell	Monu-ment	Morgan	Moro	Nyssa	Ochoco Ranger Sta.	Ontario KSRV	OO Ranch	Owyhee Dam	Paisley
1975	91	90	72	77	86	83	100	72	104	73	134	63
1974	150	147	104	107	180	142	84	126	99	91	83	121
1973	50	75	52	61	48	46	83	43	84	75	59	57
1972	106	138	98	120	96	100	82	98	79	112	85	54
1971	105	116	83	96	93	90	131	101	123	229	133	109
1970	122	109	90	102	106	100	117	86	143	175	133	101
1969	152	110	211	133	134	122	130	123	169	181	114	107
1968	43	82	54	48	43	40	63	52	69	105	56	59
1967	94	85	120	104	100	89	109	95	115	193	131	121
1966	59	53	66	46	51	56	72	58	75	79	51	51
1965	100	131	-	132	141	120	114	123	111	147	147	163
1964	48	77	-	91	54	70	109	78	101	121	130	95
1963	96	86	-	82	137	111	123	117	133	168	147	197
1962	101	96	-	82	100	73	109	95	120	89	88	100
1961	99	101	-	-	120	128	72	100	70	66	72	70
1960	101	112	-	-	73	74	128	70	131	94	123	74
1959	106	121	-	-	93	94	51	63	67	66	62	58
1958	171	125	-	-	155	143	159	148	143	153	148	142
1957	132	99	-	-	98	88	162	90	171	100	206	114
1956	166	122	-	-	157	165	102	134	105	116	121	203
1955	62	-	-	-	82	69	74	59	74	38	67	59
1954	85	-	-	-	98	110	59	105	58	90	52	110
1953	-	-	-	-	117	142	98	134	138	-	101	133
1952	-	-	-	-	74	109	117	105	118	-	137	126
1951	-	-	-	-	139	160	98	130	100	-	100	80
1950	-	-	-	-	102	102	83	102	94	-	125	74
1949	-	-	-	-	78	96	36	74	51	-	59	105
1948	-	-	-	-	189	165	68	143	70	-	77	133
1947	-	-	-	-	109	66	100	102	86	-	99	83
1946	-	-	-	-	101	106	125	132	100	-	90	63

OREGON STATIONS (continued)

Cropyear	Paulina	Pelton Dam	Pendleton Exp. Sta.	Pilot Rock	P-Ranch	Prine-ville	River-side	Redmond	Rich-land	Rock Creek	Rock-ville	Rome	Round Grove
1975	50	109	84	82	109	68	122	66	115	86	123	78	88
1974	101	159	144	120	104	115	114	117	86	127	96	77	126
1973	63	54	54	46	67	61	83	51	69	50	98	83	70
1972	95	99	131	118	101	106	68	100	82	105	83	163	91
1971	96	100	104	90	137	93	128	88	123	131	147	170	148
1970	99	128	107	111	133	100	139	105	120	100	138	104	143
1969	128	147	105	121	102	125	118	123	116	117	127	116	141
1968	43	73	58	50	43	40	50	43	66	73	47	47	78
1967	106	120	95	83	86	150	147	98	107	101	116	164	118
1966	48	61	59	48	35	48	83	35	48	57	70	107	57
1965	141	90	109	116	100	138	90	137	104	125	78	120	138
1964	83	85	63	63	91	78	123	51	88	85	-	149	102
1963	107	131	99	110	133	148	121	111	85	98	-	168	149
1962	-	125	90	90	61	104	99	100	100	80	-	128	86
1961	-	152	110	114	74	83	79	78	73	78	-	85	95
1960	-	73	89	98	88	84	120	66	139	102	-	94	89
1959	-	104	112	114	40	72	67	72	99	89	-	62	64
1958	-	-	141	146	116	193	141	164	206	120	-	150	155
1957	-	-	102	99	112	101	157	59	121	102	-	-	106
1956	-	-	-	142	116	159	121	168	120	148	-	-	170
1955	-	-	-	67	59	40	59	14	52	53	-	-	47
1954	-	-	-	72	99	112	64	85	57	82	-	-	106
1953	-	-	-	105	116	110	133	128	114	112	-	-	100
1952	-	-	-	-	125	128	118	126	110	109	-	-	122
1951	-	-	-	-	120	112	84	141	84	91	-	-	139
1950	-	-	-	-	80	82	89	116	77	86	-	-	88
1949	-	-	-	-	99	63	91	101	58	96	-	-	93
1948	-	-	-	-	134	121	101	149	107	141	-	-	101
1947	-	-	-	-	89	74	78	64	102	80	-	-	98
1946	-	-	-	-	73	95	57	120	73	101	-	-	100

OREGON STATIONS (continued)

Cropyear	Seneca	Shea-ville	Squaw Butte	Summer Lake	Suntex	The Dalles	Ukiah	Union	Unity	Vale	Valley Falls	Wagon-tire	Walla Walla
1975	75	-	72	80	43	111	67	80	102	101	99	32	98
1974	105	120	95	126	96	153	131	111	104	79	142	64	182
1973	72	104	67	75	62	56	59	52	46	78	105	54	70
1972	74	174	94	94	89	94	118	102	118	93	86	-	131
1971	72	169	122	126	123	98	98	144	114	122	170	-	131
1970	114	154	102	121	95	107	120	120	107	131	163	-	115
1969	109	141	112	117	137	102	117	125	134	139	172	-	127
1968	70	85	40	43	42	57	59	73	78	77	66	70	84
1967	96	144	133	128	134	84	96	99	91	126	180	152	94
1966	31	57	75	51	80	57	53	34	47	74	74	109	82
1965	106	95	136	244	159	142	138	100	147	114	137	163	133
1964	98	101	107	100	132	62	88	73	82	105	93	102	99
1963	141	144	148	216	162	84	111	98	122	133	172	164	93
1962	91	112	72	101	-	91	104	82	94	107	104	73	91
1961	67	72	68	89	-	120	83	82	91	77	64	-	114
1960	101	110	98	100	-	85	99	126	83	134	75	-	133
1959	70	57	53	78	-	72	86	107	64	67	58	-	127
1958	126	146	181	159	-	125	131	148	148	138	127	-	105
1957	105	146	143	-	-	69	94	102	127	157	120	-	125
1956	134	179	158	-	-	157	143	142	130	125	163	-	67
1955	46	100	52	-	-	50	69	54	45	95	57	-	111
1954	107	51	84	-	-	105	94	94	57	74	98	-	-
1953	121	-	173	-	-	102	114	122	120	147	107	-	-
1952	106	-	122	-	-	99	99	114	-	152	104	-	-
1951	86	-	121	-	-	159	86	89	-	95	66	-	-
1950	-	-	72	-	-	101	-	95	-	-	78	-	-
1949	-	-	94	-	-	105	-	68	-	-	66	-	-
1948	-	-	173	-	-	126	-	148	-	-	105	-	-
1947	-	-	120	-	-	79	-	111	-	-	78	-	-
1946	-	-	94	-	-	100	-	98	-	-	89	-	-

OREGON STATIONS (continued)

Cropyear	Wallowa	Wasco	Westfall	Weston	Wickiup Dam
1975	73	84	99	102	93
1974	110	144	106	164	155
1973	61	56	99	63	56
1972	118	114	78	133	117
1971	125	95	120	125	133
1970	99	98	114	128	99
1969	90	120	101	144	121
1968	83	47	51	80	62
1967	94	99	116	106	96
1966	47	54	66	56	68
1965	127	120	109	122	117
1964	89	73	95	82	80
1963	91	125	-	86	120
1962	82	94	-	88	89
1961	114	150	-	111	101
1960	110	80	-	100	84
1959	123	99	-	104	66
1958	120	143	-	121	137
1957	115	78	-	101	115
1956	131	149	-	130	170
1955	47	63	-	50	36
1954	72	100	-	79	98
1953	83	115	-	82	116
1952	112	101	-	104	107
1951	120	164	-	88	133
1950	101	106	-	82	112
1949	83	86	-	63	70
1948	133	173	-	98	96
1947	94	68	-	68	77
1946	101	106	-	78	111

UTAH STATIONS

Cropyear	Bear River	Black Rock	Callao	Clear Lake	Desert	Desert Exp. Sta.	Dugway	Eureka	Farm-ington	Fillmore	Fish Springs	Garfield
1975	130	136	155	126	144	155	96	142	143	107	191	127
1974	99	47	56	78	62	36	107	96	107	110	79	139
1973	112	164	102	154	186	195	185	189	128	171	126	136
1972	107	72	68	94	110	59	104	111	88	90	73	117
1971	143	98	147	137	142	77	150	149	134	115	176	149
1970	84	78	112	91	116	90	74	130	90	82	138	82
1969	106	73	192	93	90	95	165	168	78	106	147	118
1968	117	132	186	126	137	149	176	171	111	143	110	117
1967	125	117	235	136	128	195	152	177	90	139	181	130
1966	80	82	100	79	95	83	94	93	56	93	68	86
1965	85	116	78	114	112	114	141	128	84	112	93	100
1964	157	134	243	-	162	165	192	141	122	132	148	136
1963	74	89	222	-	78	115	139	94	80	75	126	67
1962	137	147	192	-	173	-	192	177	110	158	185	128
1961	52	121	89	-	105	-	46	66	46	93	102	51
1960	59	83	67	-	66	-	105	78	63	83	-	68
1959	46	106	98	-	89	99	89	73	68	82	-	94
1958	50	139	63	-	91	149	59	88	88	78	-	63
1957	107	128	114	-	144	110	130	98	111	132	-	141
1956	89	101	133	-	73	86	109	79	80	88	-	95
1955	98	75	79	-	74	90	104	83	90	115	-	67
1954	50	83	86	-	75	148	54	57	42	83	-	62
1953	90	74	0	-	73	38	50	48	98	85	-	70
1952	93	-	118	-	137	-	-	144	114	139	-	-
1951	100	-	85	-	75	-	-	85	84	72	-	-
1950	105	-	67	-	51	-	-	79	90	79	-	-
1949	100	-	192	-	89	-	-	112	105	78	-	-
1948	107	-	51	-	98	-	-	82	93	128	-	-
1947	133	-	207	-	196	-	-	184	110	166	-	-
1946	121	-	82	-	101	-	-	98	77	98	-	-

UTAH STATIONS (continued)

Cropyear	Garri-son	Grouse Creek	Ibapah	Logan	Mil-ford	Nephi	Oak City	Park Valley	Partoun	Snow-ville	Tooele	Utah Lake Lehi	Wah Wah Ranch	Wend-over
1975	187	134	125	115	94	88	162	132	208	101	105	139	170	125
1974	52	83	99	106	122	78	67	72	75	112	89	75	57	52
1973	176	187	102	120	214	189	181	131	148	125	115	160	201	181
1972	32	95	9	123	105	79	84	117	95	75	100	70	73	52
1971	111	154	101	169	95	121	127	155	142	180	120	123	48	191
1970	91	123	89	86	82	106	85	96	85	-	86	80	68	99
1969	82	90	142	114	128	105	106	79	195	-	109	107	112	105
1968	72	82	150	106	126	144	143	98	176	69	95	144	146	121
1967	246	143	174	149	107	137	138	121	232	146	99	147	106	177
1966	104	68	85	94	111	78	99	67	120	80	53	94	68	66
1965	93	-	96	102	137	100	100	82	101	127	93	117	102	85
1964	200	-	169	154	148	127	132	166	271	146	106	171	177	225
1963	104	-	203	86	70	85	64	139	192	142	61	102	82	144
1962	176	-	134	136	98	162	159	136	146	105	102	154	173	163
1961	106	-	118	70	85	72	74	62	105	-	56	66	78	45
1960	63	-	63	75	75	95	64	70	48	-	57	72	106	35
1959	114	-	77	93	50	75	64	93	85	69	74	74	126	84
1958	115	-	83	74	128	93	111	104	74	89	53	77	104	102
1957	85	-	106	112	110	144	116	111	82	93	114	136	56	110
1956	69	-	105	109	94	99	73	91	144	95	67	70	142	130
1955	109	-	118	107	59	121	110	102	104	91	70	86	-	66
1954	200	-	32	58	115	100	83	64	64	80	74	45	-	58
1953	10	-	36	86	75	69	99	74	45	72	59	66	-	38
1952	-	-	159	-	169	175	163	88	-	88	90	153	-	86
1951	-	-	116	-	89	84	70	132	-	93	79	116	-	134
1950	-	-	102	-	91	89	89	95	-	127	67	75	-	75
1949	-	-	-	-	86	100	106	148	-	117	91	118	-	112
1948	-	-	-	-	148	101	112	90	-	134	101	98	-	82
1947	-	-	-	-	175	163	190	114	-	-	116	160	-	110
1946	-	-	-	-	83	106	95	106	-	-	72	80	-	101

	WASHINGTON STATIONS											
Cropyear	Anatone	Bickleton	Colfax	Connell	Dallas-port	Dayton	Ellens-burg	Ephrata	Hatton	Ice Harbor	Kalhotus	Kenne-wick
1975	67	86	90	95	117	74	84	85	93	104	68	89
1974	120	193	147	165	191	123	163	137	164	173	171	211
1973	56	48	59	62	63	59	29	29	63	62	63	61
1972	110	138	109	99	102	101	175	102	88	110	104	117
1971	99	202	102	86	89	100	150	75	83	99	90	104
1970	59	112	91	110	110	86	141	98	105	122	110	150
1969	116	106	112	130	112	123	95	142	138	144	126	195
1968	61	79	59	54	67	51	74	51	47	40	48	48
1967	80	121	100	122	77	78	137	121	127	89	136	89
1966	42	75	40	56	59	40	72	89	57	51	48	53
1965	122	142	88	101	146	89	85	79	99	128	110	114
1964	84	69	70	70	72	56	74	68	62	57	64	46
1963	93	120	82	102	93	78	134	85	100	100	111	116
1962	96	94	73	82	94	79	107	64	73	101	98	101
1961	93	174	100	133	123	93	146	122	132	134	142	123
1960	85	94	86	104	95	72	93	131	91	102	107	98
1959	110	79	96	105	77	107	95	112	107	115	107	102
1958	110	136	112	139	143	109	126	150	144	170	144	173
1957	105	96	82	90	77	73	105	111	78	-	93	83
1956	158	175	126	104	173	128	166	125	115	-	116	174
1955	58	61	68	53	50	61	47	63	67	-	57	73
1954	118	139	96	72	120	93	70	73	64	-	68	67
1953	131	84	112	-	120	93	-	102	100	-	104	111
1952	-	99	107	-	100	93	-	104	102	-	104	84
1951	-	180	106	-	162	114	-	111	115	-	110	141
1950	-	102	107	-	101	104	-	132	137	-	127	100
1949	-	86	89	-	111	75	-	74	62	-	66	75
1948	-	130	170	-	157	147	-	216	222	-	164	249
1947	-	61	80	-	101	101	-	52	68	-	78	82
1946	-	102	137	-	100	112	-	98	112	-	99	88

	WASHINGTON STATIONS (continued)											
Cropyear	LaCrosse	Lind	McNary Dam	Moxee City	Odessa	Othello	Pleasant View	Pomeroy	Priest Rapids Dam	Pullman	Quincy	Richland
1975	105	110	85	93	112	96	74	86	101	75	84	100
1974	169	169	89	186	139	170	150	134	193	136	185	170
1973	70	61	63	46	52	47	73	70	16	58	40	54
1972	110	91	102	146	100	106	107	114	100	109	95	110
1971	101	99	107	100	101	85	104	126	106	109	120	84
1970	101	115	128	105	95	100	118	100	136	85	95	131
1969	134	136	139	122	120	107	137	141	118	110	107	142
1968	70	57	51	51	52	35	50	63	50	68	63	32
1967	120	142	73	130	123	117	121	107	139	88	123	94
1966	54	61	50	69	63	68	59	54	82	47	88	48
1965	106	96	152	85	93	109	101	98	83	107	77	100
1964	77	73	59	64	69	59	69	66	62	99	52	58
1963	100	121	110	147	100	128	111	78	104	96	117	132
1962	88	85	88	93	74	75	86	78	74	96	86	107
1961	111	153	121	165	146	152	130	101	121	131	83	142
1960	90	106	86	94	144	99	107	80	80	116	122	96
1959	114	117	107	88	125	120	109	127	121	132	106	104
1958	116	125	235	186	137	126	131	122	173	123	141	143
1957	82	89	131	122	116	72	95	82	-	96	139	90
1956	118	134	136	177	120	205	98	138	136	104	160	128
1955	53	77	-	77	77	41	46	69	64	54	61	75
1954	83	79	-	72	64	61	62	100	78	46	79	80
1953	104	83	-	116	89	83	90	102	-	-	117	107
1952	117	96	-	88	85	85	80	96	-	-	79	95
1951	111	115	-	163	98	114	101	128	-	-	130	158
1950	116	121	-	121	133	137	91	126	-	-	146	110
1949	80	80	-	69	57	75	68	80	-	-	64	79
1948	190	277	-	212	211	208	179	197	-	-	190	233
1947	79	83		68	82	40	66	106	-	-	58	56
1946	139	139	-	-	130	110	115	133	-	-	118	100

WASHINGTON STATIONS (continued)

Cropyear	Ritzville	Rosalie	Satus Pass	St. John	Sunnyside	Walla Walla	Wapato	Yakima
1975	94	95	109	109	100	83	100	86
1974	160	143	197	149	214	139	160	197
1973	42	50	61	58	50	62	32	38
1972	93	82	116	88	152	130	120	105
1971	111	125	146	102	89	126	114	100
1970	107	101	86	94	99	127	110	100
1969	123	133	118	163	120	144	110	116
1968	59	67	98	77	45	61	43	48
1967	126	107	91	105	116	94	100	104
1966	53	50	82	62	48	59	78	73
1965	90	110	125	101	111	116	99	105
1964	75	84	73	91	54	63	62	50
1963	101	100	88	-	123	98	143	110
1962	85	73	95	-	78	101	75	78
1961	136	107	159	-	141	102	148	142
1960	110	99	98	-	99	89	75	79
1959	109	112	102	-	83	117	80	85
1958	127	116	134	-	168	126	136	123
1957	100	105	100	-	106	111	136	123
1956	128	121	-	-	180	132	213	207
1955	75	63	-	-	61	64	77	80
1954	80	93	-	-	80	83	83	75
1953	91	95	-	-	75	99	75	96
1952	112	105	-	-	96	93	89	101
1951	96	89	-	-	177	127	179	158
1950	125	117	-	-	144	111	121	114
1949	58	74	-	-	75	72	80	72
1948	246	212	-	-	192	131	196	168
1947	66	86	-	-	85	93	73	70
1946	120	141	-	-	112	99	118	94

Cropyear Indices (1976-1985)

Supplement to: Adjusting and Forecasting Herbage Yields in the Intermountain Big Sagebrush Region of the Steppe Province

Oregon State Agricricultural Experiment Station Bulletin 659

The following indices are those computed as described in the foregoing bulletin. - Forrest A. Sneva

California Stations

Station	Year									
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Adin Ranger Station	56	57	112	66	139	75	149	118	100	63
Alturas Ranger Station	32	56	93	58	125	82	125	131	134	62
Boca	38	42	116	75	126	54	189	227	136	68
Burney	29	22	128	80	132	82	149	174	96	69
Canby Ranger Station	78	56	165	91	177	132	222	185	173	96
Cedarville	74	54	117	83	157	78	125	102	152	70
Doyle	30	63	120	41	149	54	157	248	133	93
Fort Bidwell	82	47	144	96	143	91	166	155	182	100
Hat Creek PH1	40	40	148	99	162	101	164	164	105	88
Hilts	74	34	152	80	136	69	198	168	99	–
Jess Valley	70	66	98	59	120	100	120	115	146	63
Lava Beds Nat. Monument	66	52	137	58	163	101	182	186	101	56
Mt. Hebron Range Staton	74	46	155	62	169	88	206	117	127	57
Portola	54	41	174	83	157	77	212	229	144	90
Red Bluff WSO AP	35	53	209	96	160	101	147	239	120	73
Susanville AP	20	57	155	40	148	59	186	202	114	63
Termo	58	136	121	53	146	90	138	133	112	66
Tulelake	72	50	149	53	149	93	158	133	127	83
Weed Fire Department	40	18	165	67	85	79	142	163	82	45
Yreka	72	34	130	68	127	68	203	85	107	86

Idaho Stations

Station	Year									
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Aberdeen Exp. Sta.	95	58	104	56	126	125	84	144	120	57
American Falls 1SW	95	56	96	68	153	120	136	191	191	77
Anderson Dam	100	24	122	62	91	85	127	150	163	70
Arbon 2NW	83	52	138	72	169	93	181	187	139	80
Arco 3SW	82	88	117	98	128	160	139	201	175	110
Arrowrock Dam	94	32	111	51	98	83	138	141	132	68
Bliss	101	32	131	86	95	86	143	165	174	77
Boise WSO AP	98	64	130	75	128	118	107	149	132	73
Burley FAA AP	80	54	91	53	106	75	122	133	134	64
Caldwell	93	46	150	106	149	143	122	158	143	77
Castleford 2N	98	40	116	95	93	80	102	136	123	67
Challis	109	83	99	80	112	138	107	105	133	56
Deer Flat Dam	86	45	141	83	115	146	109	136	133	62
Dubois Exp. Sta.	80	112	112	46	111	120	138	170	191	82
Glenn's Ferry	89	35	141	69	109	94	143	171	176	83
Grace	93	36	114	70	148	128	171	144	181	101
Grand View 2W	111	80	142	79	120	148	96	177	186	89
Grouse	54	94	142	88	115	116	171	143	149	100
Hailey Ranger Station	66	51	143	78	117	56	127	–	–	–
Hamer 4NW	70	94	118	82	128	98	130	139	175	75
Hazelton	93	31	112	83	105	98	117	132	141	74
Hill City	57	30	99	58	74	74	138	125	122	41
Hollister	59	32	82	100	138	107	90	110	149	57
Idaho City	78	40	112	61	102	89	139	137	116	66
Idaho Falls FAA AP	127	85	136	99	165	153	147	150	184	115
Jerome	96	45	123	93	111	98	152	133	155	69
Kuna 2NNE	93	42	137	68	143	146	114	134	123	66
Lifton Pumping Station	122	56	132	79	170	105	154	202	123	95
Mackay Ranger Station	77	111	116	93	114	133	164	154	110	37
Malad	111	53	139	91	152	84	154	155	149	70
May	95	84	86	68	114	126	118	91	154	72
McCall	98	29	121	63	105	102	109	120	110	52
Montpelier Ranger Station	93	50	110	66	141	89	122	150	120	74
Mountain Home	142	45	150	86	95	142	118	168	192	79
Oakley	73	78	84	73	126	100	111	109	95	70
Parma Experiment Station	101	62	174	74	132	146	125	174	125	75
Paulene	–	–	–	–	–	–	–	–	–	–
Payette	84	24	133	77	100	134	127	191	149	72

Idaho Stations (continued)

Station	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	Year									
Picabo	88	42	107	66	106	82	125	147	116	75
Pocatello WSO AP	118	67	101	77	141	136	131	175	181	85
Reynolds	82	58	106	57	100	126	147	114	116	48
Richfield	95	29	120	67	111	83	153	159	139	73
Shoshone 1WNW	-	-	-	-	-	-	-	-	-	56
Strevell	94	90	85	94	153	117	138	157	109	93
Sugar*	105	-	122	85	115	106	127	131	186	74
Swanfalls PH	95	66	136	94	138	166	125	180	137	78
Swan Valley	83	41	91	82	79	106	118	125	116	68
Tetonia Experiment Sta.	104	67	111	83	109	118	137	162	162	91
Three Creek	79	61	53	59	72	43	91	69	120	80
Twin Falls 3SE	112	61	137	100	127	106	137	126	159	84

*Rexburg - Ricks College beginning in 1978

Nevada Stations

Station	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	Year									
Arthur	73	72	89	94	162	58	126	155	195	84
Austin	114	110	173	134	101	109	114	164	179	127
Battle Mountain	72	98	174	130	157	93	41	118	120	64
Beowawe	68	88	160	125	125	70	115	192	214	M
Carson City	40	47	109	78	153	52	154	214	128	57
Contact	89	59	56	101	136	58	127	115	142	57
Deeth	86	96	123	130	221	90	150	237	192	106
Denio	74	84	143	102	175	112	115	168	180	83
Duferrena	72	98	187	160	147	117	111	195	193	128
Elko	62	64	94	116	166	56	123	175	193	72
Ely	85	104	143	125	133	134	152	254	106	162
Fallon	70	173	130	85	105	68	114	187	94	85
Gibbs Ranch	82	85	114	116	175	70	160	147	192	66
Glennbrook	58	51	111	82	138	69	224	239	136	72
Golconda	67	94	125	112	137	77	131	189	217	98
Imlay	51	88	152	102	139	84	M	152	111	53
Kings River Ranch	68	41	109	77	101	57	105	159	126	51
Lehman Caves Nat. Mon.	74	43	77	112	112	139	136	169	102	109
Leonard Creed Ranch	36	84	160	91	164	107	116	191	169	100
Lovelock	89	141	139	120	122	115	86	216	198	93
McGill	95	110	146	96	152	149	111	209	114	123
Montello	99	101	105	120	186	46	106	234	160	67
Orvada	77	82	107	77	90	70	89	144	150	68
Owyhee	72	83	75	84	94	91	116	127	196	M
Pahute Meadows Ranch	M	M	Station closed - - -							
Paradise Valley	63	109	139	94	157	75	176	213	234	91
Pequop	93	67	72	95	169	42	130	186	148	69
Rand Ranch Palisade	66	72	137	110	133	78	112	M	M	M
Reno	41	82	128	85	162	54	138	243	118	66
Ruby Lake	82	80	131	169	181	66	132	171	197	98
Rye Patch Dam	67	122	150	94	104	105	141	184	168	95
Tuscorora	70	82	117	132	180	88	201	207	195	89
Vya	78	M	M Station closed - - -							
Wells	84	83	69	107	181	56	149	173	232	75
Winnemucca	69	84	96	79	86	56	99	131	168	79
Yerington	75	68	101	85	90	72	84	185	117	123

Oregon Stations

Station	Year 1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Adel	66	84	189	93	159	105	160	202	100	-
Alkali Lake	34	86	154	68	94	116	110	125	84	52
Antelope 1N	72	42	120	85	125	110	165	-	-	101
Arlington	63	21	126	58	126	101	133	168	134	72
Austin 3S	90	47	106	80	101	101	139	133	134	80
Baker KBKR*	101	42	159	112	143	160	-	-	-	69
Barnes Station	86	73	165	118	138	104	164	193	201	110
Bend	70	23	132	66	114	95	174	127	121	73
Beulah	56	43	142	78	133	122	176	149	138	53
Brothers	68	64	163	105	112	90	137	155	128	83
Buena Vista Station	73	61	166	130	166	181	198	233	177	98
Burns WSO CI	75	27	131	91	107	89	136	153	110	67
Chemult	72	20	127	58	95	90	146	104	100	70
Chiloquin 1E	68	23	159	56	-	90	193	165	127	94
Condon	105	53	143	91	162	153	133	146	143	77
Danner	83	38	114	84	88	126	142	126	170	66
Dayville	93	75	-	102	101	130	127	158	139	77
Dufur	75	19	150	69	147	115	132	179	116	90
Durkee 3NNW	-	-	-	-	-	-	-	-	-	-
Elgin	116	30	118	94	86	105	122	115	120	68
Enterprise	114	40	112	83	110	122	133	142	137	123
Fossil	94	47	128	85	139	139	158	166	154	91
Fremont	79	47	149	75	114	101	198	155	118	57
Friend	68	-	-	-	-	-	-	-	-	-
Grizzly	63	27	130	80	126	104	136	146	120	101
Halfway	107	20	152	93	96	127	148	144	137	77
Hardman	-	-	-	-	-	-	-	-	-	-
Harper	-	-	-	-	-	-	-	-	-	-
Hart Mountain Refuge	75	40	176	130	104	160	165	173	148	85
Heppner	98	43	130	94	133	123	101	144	143	89
Hermiston 2S	70	25	127	78	121	122	105	170	138	67
Hood River Exp. Sta.	121	19	112	52	106	96	116	134	100	102
Huntington	73	35	179	91	128	99	175	198	158	86
Ione 18S	53	18	117	83	155	85	-	-	-	56
Ironside 2W	53	34	123	90	133	115	147	154	118	86
John Day	93	54	117	88	116	128	118	152	160	78
Juntura 9ENE	67	46	162	89	149	127	175	205	144	-
Keno	72	37	126	61	104	66	162	106	107	79
Kent	85	46	134	71	130	115	149	143	131	80
Klamath Falls 2SSW	47	31	112	58	110	66	147	111	118	72
La Grande	90	35	105	95	78	86	89	90	89	62
Lakeview	64	21	104	63	102	84	144	118	98	64
Long Creek	89	93	146	105	125	190	205	206	292	128
Lower Hay Creek	77	31	152	75	153	111	158	169	143	95
Madras	73	21	150	63	143	112	141	162	131	91
Malheur Br. Exp. Sta.	78	48	153	86	125	126	157	181	133	58
Malheur Refuge Hdqtrs.	74	48	154	91	134	123	162	197	153	67
Metolius 1W	62	15	141	54	117	102	137	146	122	86
Mikkalo 6W	78	52	128	76	128	98	121	156	131	73
Milton-Freewater	95	39	119	93	126	138	120	151	154	96
Minam 7NE	133	40	125	94	89	109	110	91	110	-
Mitchell	84	62	131	102	110	86	117	163	150	91
Monument 2	89	61	123	110	109	126	128	176	144	78
Morgan	93	31	131	-	-	-	-	-	-	-
Moro	75	47	125	68	145	110	127	146	118	72
Nyssa	95	62	150	85	116	152	127	155	164	61
Ochoco Ranger Station	82	35	134	91	102	99	131	115	98	61
Ontario KSRV	85	34	152	79	107	127	170	181	154	68
OO Ranch	95	83	164	127	130	174	202	198	192	-
Owyhee Dam	73	69	185	96	144	171	175	227	181	79
Paisley	52	50	128	61	127	107	238	157	121	74
Paulina	85	59	143	98	123	117	137	165	115	-
Pelton Dam	80	21	171	73	146	146	208	243	181	120
Pendleton Br. Exp. Sta.	100	40	125	85	121	143	127	158	149	91
Pilot Rock	93	37	133	96	118	109	104	137	130	66
P-Ranch	77	43	116	122	110	128	120	193	153	73

Prineville 4NW	86	32	169	89	133	144	136	141	126	93
Redmond 2W	70	26	169	86	141	99	185	143	139	94
Richland	85	30	168	121	100	-	-	138	266	-
Riverside 2E	74	32	133	104	146	134	179	192	157	69
Rock Creek	77	34	107	88	100	111	98	117	118	69
Rockville 5N	95	63	153	95	143	174	141	186	164	89
Rome 2NW	58	54	143	101	83	134	112	150	153	72
Round Grove	66	59	154	74	117	98	192	147	131	78
Seneca	57	36	96	85	-	127	169	177	153	73
Sheaville 1SE	175	115	254	144	205	216	314	439	260	96
Squaw Butte Exp. Sta.	75	57	139	94	114	102	159	120	155	74
Summer Lake 1S	59	54	176	72	147	116	238	153	137	88
Suntex	70	58	158	95	118	114	174	185	165	85
The Dalles	82	13	120	51	122	104	115	158	109	69
Ukiah	83	43	105	80	86	90	112	116	104	50
Union Exp. Sta.	79	54	116	94	110	134	101	123	150	75
Unity	94	48	134	117	149	118	131	136	102	62
Vale	89	56	195	94	134	143	169	198	174	67
Valley Falls 3SSE	68	43	143	99	143	158	196	166	77	-
Wagontire	52	50	169	105	115	114	205	127	233	54
Walla Walla 13ESE	-	40	91	-	91	84	138	111	89	89
Wallowa	115	34	116	80	84	106	99	90	91	74
Wasco	86	31	125	53	143	125	146	154	110	80
Westfall 4NNW	56	31	147	88	127	136	166	176	153	-
Weston 2ESE	123	42	96	99	116	153	130	-	-	-
Wickiup Dam	78	24	112	72	94	110	181	155	139	91

*Station closed - Baker AP utilized beginning 1985

Utah Stations

Station	Year									
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Bear River Refuge	109	66	105	91	155	102	133	254	-	-
Black Rock	52	75	101	174	126	133	117	173	148	120
Callao	83	149	102	120	149	187	187	269	184	83
Clear Lake Refuge	54	57	112	184	154	134	179	239	221	-
Deseret*	73	75	128	192	206	228	169	248	223	112
Desert Exp. Sta.	83	96	115	190	227	196	110	216	112	-
Dugway	83	115	148	158	227	121	213	287	212	139
Eureka	117	66	193	144	165	-	120	214	153	-
Farmington USU Fld. Sta.	91	69	125	84	128	104	121	208	173	102
Fillmore	68	42	107	117	122	125	127	202	200	127
Fish Springs Refuge	88	130	104	114	153	149	165	248	185	89
Garfield	110	59	112	85	126	121	136	238	133	110
Garrison	69	61	94	125	241	174	160	232	169	88
Grouse Creek	111	84	116	105	169	73	155	202	166	106
Ibapah	77	150	116	105	192	133	136	243	175	121
Logan USU**	130	48	121	90	157	118	163	192	206	111
Milford WSO AP	75	80	131	163	117	177	139	184	146	126
Nephi	62	50	121	126	155	153	162	241	173	117
Oak City	98	45	146	146	162	133	146	221	186	144
Park Valley	111	96	150	112	197	107	174	243	174	101
Partoun	112	185	144	150	160	166	222	337	146	139
Snowville	89	57	153	91	181	112	186	190	174	80
Tooele	99	67	106	88	114	91	128	179	179	137
Utah Lake Lehi	98	69	177	105	102	132	142	244	206	117
Wah Wah Ranch	47	46	126	176	112	184	61	165	142	143
Wendover WS MO	114	115	128	100	174	61	78	187	95	43

*Misspelled Desert in Bulletin 659.
**Recorded previously as Logan, USES

Washington Stations

	Year									
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Anatone	98	34	116	93	89	105	–	–	–	–
Bickleton	83	23	130	57	139	100	132	176	131	83
Colfax 1NW	105	21	95	90	111	107	116	110	109	80
Connell 12SE	77	19	127	72	139	127	106	166	147	77
Dallesport FAA AP	89	13	149	66	147	125	132	169	132	88
Dayton 1 WSW	101	25	83	70	120	105	120	112	116	88
Ellensburg	79	29	152	36	132	120	109	169	138	83
Ephrata FAA AP	47	7	111	10	122	88	94	153	163	85
Hatton 9ESE	84	20	128	77	133	116	101	144	150	77
Ice Harbor Dam	96	26	158	109	166	165	138	173	171	91
Kahlotus 4SW	66	13	107	69	116	101	85	120	117	74
Kennewick	80	25	127	66	168	142	95	169	164	82
LaCrosse	102	24	116	86	142	122	150	139	132	95
Lind 3NE	89	23	127	83	148	118	100	162	159	80
Little Goose Dam	133	31	169	162	–	–	–	–	–	–
McNary Dam	85	23	163	91	155	158	137	240	180	79
Moxee City 10E	50	25	162	31	185	107	–	–	–	66
Odessa	69	20	142	56	146	120	104	164	157	91
Othello 6ESE	74	21	122	46	187	102	99	192	152	70
Pleasant View	66	15	90	–	–	–	–	–	–	
Pomeroy	110	32	99	90	123	112	117	117	118	107
Priest Rapid Dam	67	13	148	31	148	90	93	191	148	72
Pullman 2NW	100	21	93	80	90	101	115	111	105	78
Quincy 1S	56	24	141	27	109	114	110	176	158	91
Richland	77	14	154	54	185	149	109	164	154	94
Ritzville 1SSE	79	19	121	85	123	115	99	142	149	84
Rosalia	86	34	122	98	131	125	112	147	117	98
Satus Pass 2SSW	107	18	136	43	121	126	155	182	166	96
St. John	116	23	109	83	99	117	110	136	132	95
Sunnyside	56	23	149	37	198	80	148	240	153	85
Wall Walla WSO C1	90	34	117	90	114	163	137	168	163	101
Wapato	50	19	158	34	189	116	148	201	174	74
Yakima WSO AP	57	18	144	45	149	94	144	187	147	74