A Simulation Study of Temporal Sampling Designs For Salmon Counting Towers

By

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TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
LIST OF FIGURES	v
LIST OF APPENDICES	ix
INTRODUCTION	1
SIMULATION STUDY DESIGN	2
Modeling Salmon Escapement	2
Temporal Sampling Designs	3
Simulating Counting Tower Observations	4
The Computer Program	4
RESULTS	4
Single Factor Summaries	4
Multiple Factor Summaries	5
DISCUSSION	6
LITERATURE CITED	9

LIST OF TABLES

Table		Page
1.	Mean relative abundance under the 4 hourly escapement models (HEM) considered in the simulation study	11
2.	Time counted in minutes-per-hour under the Constant sampling design	12
3.	Time counted in minutes-per-hour under the Two Stage Type I sampling design. The schedule, shown for the first 7 days, is repeated every 7 days throughout the entire counting period	13
4.	Time counted in minutes-per-hour under the Two Stage Type II sampling design. The schedule, shown for the first 7 days, is repeated every 7 days throughout the entire counting period	14
5.	Time counted in minutes-per-hour under the Rotating Type I sampling design. The schedule, shown for the first 2 days, is repeated every 2 days throughout the entire counting period	15
6.	Time counted in minutes-per-hour under the Rotating Type II sampling design. The schedule, shown for the first 3 days, is repeated every 3 days throughout the entire counting period	16

LIST OF FIGURES

Figure		Page
1.	The symmetric daily escapement model (DEM), with lower and upper bounds for levels of the uniformly distributed daily variability (DV).....	17
2.	The skewed daily escapement model (DEM), with lower and upper bounds for levels of the uniformly distributed daily variability (DV).....	18
3.	The bi-modal daily escapement model (DEM), with lower and upper bounds for levels of the uniformly distributed daily variability (DV).....	19
4.	Mean hourly escapement proportions under the 4 hourly escapement models (HEM).....	20
5.	Mean hourly escapement proportions of the No Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).....	21
6.	Mean hourly escapement proportions of the Slight Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).....	22
7.	Mean hourly escapement proportions of the Moderate Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).....	23
8.	Mean hourly escapement proportions of the Strong Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).....	24
9.	Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the level of variability about the DEM (DV), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias.....	25

LIST OF FIGURES (continued)

Figure | Page

10. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the relative standard deviation about the HEM (HV), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias..... 26

11. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the hourly escapement model (HEM), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias..... 27

12. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the sampling intensity (SI), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias..... 28

13. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the No Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 29

14. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the Slight Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 30

LIST OF FIGURES (continued)

Figure | Page

15. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the Moderate Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 31

16. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the Strong Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 32

17. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the No Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 33

18. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the Slight Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 34

19. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the Moderate Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 35

LIST OF FIGURES (continued)

Figure | Page

20. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the Strong Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 36

21. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the No Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 37

22. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the Slight Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 38

23. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the Moderate Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 39

24. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the Strong Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV..... 40

LIST OF APPENDICES

Appendix		Page
A.	Summary statistics of the counting tower simulation study. Each row summarizes the results of 10,000 simulations.....	41

INTRODUCTION

Estimating the abundance of spawning salmon within a river system, termed escapement, is central to wild salmon management throughout much of Alaska. The Constitution of the State of Alaska mandates natural resources, including salmon populations, to be managed on a sustained yield basis. The approach to salmon management has largely shifted from one designed to maintain a fixed harvest rate to a more robust strategy to achieve fixed escapement goals (Eggers, 1993). Commercial, sport, and subsistence salmon fisheries are all managed to achieve established escapement goals. The Salmon Escapement Goal Policy of the Alaska Department of Fish and Game (ADFG, 1992) provides guidelines for the establishment of escapement goals. Escapement goals are intended, where possible, to maximize average annual yields from the resource, and otherwise sustain historic yields into the future. Occasionally, the Alaska Board of Fisheries will modify a biological escapement goal, establishing an optimum escapement goal that takes socio-economic factors into consideration. Nevertheless, the entire system of managing salmon within the State of Alaska is designed to allow a specified number of salmon to escape fisheries and produce future returns. This system requires that information on escapements be obtained to either support management decisions while a fishery is occurring, or evaluate management's effectiveness after a fishery has concluded.

Information on escapements is obtained using a number of techniques. Aerial observations of escapements are commonly employed in remote areas, or where the number of systems is too large to permit assessment using other techniques (e.g., Bergstrom et al., 1998). Several types of sonar systems are used in a number of rivers ranging in size from the Yukon River mainstem (Maxwell and Huttunen, 1998) to much smaller tributaries (e.g., Vania, 1998). Mark-recapture techniques are used in a number of locations (e.g., Hebert and Bruden, 1998). Weirs, which are becoming more common in some areas of the State, can provide a complete enumeration of salmon passage in locations where they can be used (e.g., Cappiello, 1998).

The use of counting towers, raised platforms from which an observer counts migrating salmon, is also relatively common in some areas of the state. Counting towers can be used on relatively small clear-water rivers where the entire width of the river can be viewed from the platform. Projects using a tower on each bank are occasionally implemented on slightly larger systems (e.g., Menard and Caole, 1999). Where they can be used, towers provide a relatively cost-effective and technologically simple method of estimating salmon escapement. Salmon passing a tower site are rarely, if ever, counted continuously through time. Rather, a temporal sampling design, or counting schedule, is adopted. The total number of salmon passing the site is estimated using a method based on the temporal sampling design.

A variety of sampling designs have been employed at counting tower projects. For example, Rob (1999) describes a project in which salmon are counted for 30 minutes of each hour, 24 hours a day, and Rob (1995) describes one project in which 3 different temporal sampling designs were employed during a single season. These temporal sampling designs are likely representative of most, or all, of the designs currently in use. In many cases, sampling designs seem to be selected for logistical or conceptual reasons. However, little work seems to have been done on the statistical properties of the estimators stemming from the various sampling designs. The

objective of this simulation study is to compare the performance of the sampling designs described by Rob (1995, 1999).

SIMULATION STUDY DESIGN

Modeling Salmon Escapement

Escapements were modeled to occur over a 49-day period. Although only the relative abundance of salmon over time is of interest, a fixed total escapement of 25,000 salmon was used in all simulations to allow the study to be conducted with integer numbers of salmon. Mean escapement per hour was constructed using a two-component model, a mean daily escapement (DEM) model and a mean hourly escapement (HEM) model, given daily escapement.

Three DEM's were considered in the study; a symmetric uni-modal model, a skewed model, and a bi-modal model. Variation about the mean daily escapement was introduced by multiplying the mean escapement for each day by an independent uniform random variable (Stuart and Ord, 1994) distributed in the interval (1-k, 1+k). Three levels of daily variability (DV) were considered in the simulation study. Setting k to 0 produced no variation from the mean daily escapement, setting k to 0.25 produced daily escapements that were uniformly distributed within 25% of the mean, and setting k to 0.5 produced daily escapements that were uniformly distributed within 50% of the mean daily escapement. Stochastic daily escapement was then obtained by scaling these values in such a way that the value for each day was an integer, and all values summed to 25,000. Figures 1 through 3 portray the mean daily escapement for the symmetric, skewed, and bimodal models, respectively, along with the lower and upper limits of the uniformly distributed deviations from the mean.

HEM's were used to distribute the escapement for a day across hours. Four HEM's, named to reflect the presence and strength of daily patterns in the mean hourly escapement, were considered in the study (Table 1, Figure 4). The No Diel model represents mean relative abundance that is constant for all hours of a day. The Slight Diel, Moderate Diel, and Strong Diel models reflect cases in which an increasingly large proportion of the daily escapement occurs during fewer hours of the day (Figure 4).

Variation about the HEM's was introduced using random multinomial vectors (Stuart and Ord, 1994). Four levels of hourly variability (HV) were considered. In the most variable case, random multinomial vectors with mean proportions equal to the proportions of the HEM were generated using a sample size of 50. This was taken as the reference level of variability, with reference level 1, and 3 less variable cases were considered by increasing the multinomial sample size. Multinomial sample sizes of 90, 200, and 800 resulted in the standard deviations of the simulated hourly escapement proportions being approximately 3/4, 1/2, and 1/4 that of the reference level, respectively. The 4 HEM's are individually graphed in Figures 5 to 8, along with 95% confidence limits for each of the four levels of HV. For each day, the total daily escapement was multiplied by hourly proportions from a stochastic multinomial vector. Hourly escapement was

then obtained by rounding those values to integers such that their sum equaled the total daily escapement.

A DEM and HEM, along with levels of variability about each, were used in combination to model salmon passage per hour for the entire 49-day simulation period. All possible combinations of the 3 DEM's, 3 levels of DV, 4 HEM's, and 4 levels of HV were considered in the study, totaling 144 combinations.

Temporal Sampling Designs

A total of 5 temporal sampling designs, similar to the models described by Rob (1995, 1999) were compared in the simulation study. Four levels of sampling intensity (SI) were considered for each sampling design, corresponding to salmon being counted for 1/6, 1/4, 1/3, and 1/2 of the total time in the 49-day simulation period. For a given level of SI, the total time salmon were counted was equal for all the sampling designs, but the designs differed in how the counting time was allocated among days and hours within days. Each level of SI was applied to each of the 144 combinations of escapement per day and escapement per hour, resulting in a total of 576 simulations.

In the Constant sampling design, salmon are counted for a fixed number of minutes during each hour of each day. The four levels of SI correspond to 10, 15, 20, and 30 minutes of counting each hour (Table 2). Rob (1999) describes the estimation of the total escapement based on the observed counts.

Two types of two-stage designs were considered in the simulation study. Under the Type I design, counts are made during some portion of all days each week. For 6 days each week, salmon are counted for a portion of the 18 hours of each day having the highest mean hourly escapement. On one day each week, salmon are counted for a portion of each hour of the day. The counting time per hour for the Type I design under each level of SI is presented in Table 3. The Type II design is similar to the Type I design, but counts are only made during 6 days each week (Table 4). Rob (1995) describes the estimation of total escapement under the two-stage designs.

Two types of rotating designs were considered in the simulation study. In the rotating designs, each day is divided into three 8-hour shifts. Under the Type I design, counts are made during a portion of each hour during 2 of the shifts on one day, established to consist of the hours with the greatest mean passage, and counts are made during the third shift on the following day. That counting schedule is repeated every other day throughout the simulation period. The counting schedules for the Type I design under each level of SI are presented in Table 5. In the Type II design, the 8 hours having the greatest mean hourly passage comprise one shift, and counts are made during a portion of each hour of that shift on every day. Counts during the other two shifts are rotated on a 3-day basis. Counts are made during one of the rotating shifts on the first day, counts are made during the second rotating shift on the second day, and no counts are made during either rotating shift on the third day. That counting schedule is repeated every three days throughout the simulation period. The counting schedule for the Type II design under each level of SI is presented in Table 6. Rob (1995) describes the estimation of total escapement under the rotating sampling designs.

Simulating Counting Tower Observations

The simulation of salmon escapement described above results in a stochastic model of escapement for each hour of each day. Escapement per hour was equal for all sampling designs. For each level of SI, a given number of minutes are counted in each hour under each sampling design (Tables 2-6). The number of salmon observed during the time counted was modeled as a binomial random variable (Stuart and Ord, 1994). The sample size parameter of the binomial distribution was the escapement during the hour, and the probability parameter was the proportion of time escapement was observed. A binomial random variable was generated independently for each sampling design. Therefore, each sampling design had the same sample size parameter, but differing probability parameters.

The Computer Program

The simulation was performed using a computer program written in the FORTRAN programming language. The program was compiled using the professional version of the Digital Equipment Corporation[1] Visual FORTRAN compiler. A total of 10,000 simulations were conducted for each of the 576 combinations of a DEM, DV, HEM, and HV. The relative bias, coefficient of variation (CV), and skewness coefficient of the 10,000 escapement estimates were computed for each of the 5 sampling designs.

RESULTS

A complete set of summary statistics is presented in Appendix A. Trends in the performance of the sampling designs were very similar for all three DEM's. For that reason, only the results for the symmetric DEM (Figure 1) will be discussed further.

This simulation study examined the performance of the sampling designs under conditions arising from the combination of 4 independent factors (DV, HEM, HV, and SI). Because we have found it somewhat challenging to summarize the complexity of the results in a meaningful fashion, the results have been divided into 2 sections. The first section presents the results from the perspective of single factors. In the second section, we attempt to summarize trends observed across all 4 factors.

Single Factor Summaries

For a given factor, a summary was constructed by computing the average bias and CV of each sampling design for each level of the factor, averaging across all levels of the other three factors. This provides a relatively simplistic overview of the performance of the sampling designs with respect to a single factor, but it masks interactions between factors that may exist. For that reason,

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conclusions drawn only from these summaries, without consideration of possible interactions, could possibly be misleading.

Variation about the DEM (DV) did not appear to affect the bias displayed by any of the sampling designs (Figure 9). Similarly, the CV of the Constant, Two-Stage: Type I, and Rotating: Type II did not vary with the level of DV, although the CV of the Constant design was markedly smaller than that of the other designs. The CV of the Two-Stage: Type II and Rotating: Type I designs increased as the level of DV increased.

The Rotating: Type II sampling design was the only sampling design whose bias changed as a function of the variability about the HEM (HV). This sampling design displayed a consistent positive bias, which decreased as the level of variability decreased (Figure 10). The CV of the Constant sampling design did not vary with HV, and was also smaller than the CV of the other sampling designs. The CV of all other sampling designs increased as the level of HV increased.

Bias of the Two-Stage: Type II and Rotating: Type II sampling designs varied among the HEM's, while the other designs were relatively unbiased for all HEM's (Figure 11). The Two-Stage: Type II design displayed a negative bias, while the Rotating: Type II design displayed a positive bias (Figure 11). In both cases, the bias decreased as the diel pattern in the HEM became more pronounced, and both sampling designs were essentially unbiased under the Strong Diel HEM. The CV of the Two-Stage: Type I, Two-Stage: Type II, and Rotating: Type II sampling designs decreased as the diel pattern in the HEM became more pronounced, while the CV of the Rotating: Type I design appeared to increase slightly. The CV of the Constant design was constant among the HEM's, and nearly always smaller than the CV's of the other designs.

Sampling intensity (SI) did not appear to affect the bias of any sampling design, and the CV of all designs decreased as SI increased (Figure 12). The CV of the Constant sampling design was consistently smaller than that of the other designs at all levels of SI.

Multiple Factor Summaries

For the symmetric DEM, there were 12 combinations of DV (3) and HEM (4). The simulation results for these 12 combinations are graphically summarized in Figures 13-24. Within each of these 12 figures, the relative bias and CV of each sampling design are compared for each of the 16 combinations of HV (4) and SI (4). The performance of each sampling design is summarized using two circles (e.g., Figure 13). The area of the solid-colored circles is proportional to the magnitude of the bias, with black indicating positive bias and gray indicating negative bias. The area of the open circles is proportional to the CV. Qualitatively, large circles indicate poor performance, and small circles indicate superior performance. The size of the circles is standardized across all 12 figures.

The Constant design was essentially unbiased in all cases. The CV of this sampling design is also quite stable, and appears nearly unchanged with respect to all factors involved in simulating salmon escapement, with the exception of the SI. The CV decreased as the SI increased for all combinations of DV, HEM, and HV, although the decrease was relatively slight. Overall, the Constant design

consistently provided the best estimates, and it appears to be a very robust design across all factors considered in this study.

The Two-Stage: Type I sampling design tended to have a larger CV than the Constant design, and displayed a persistent positive bias. This design appears insensitive to variability about the DEM (HV). For example, consider the results in Figures 13, 17, and 21. These figures represent the No Diel HEM across the three levels of DV, and both the bias and CV are nearly identical in these 3 figures. When the level of DV is held constant, the bias and CV decrease to the level of the Constant design as the strength of the diel pattern in the HEM increases (e.g., Figures 13-16). For a given combination of DV and HEM, the bias and CV decrease as the level of HV decreases and as the SI increases (e.g., Figure 13).

The Two-Stage: Type II sampling design is also more variable than the Constant design. Unlike the Type I design, bias was consistently negative. The Two-Stage-Type II design appears more sensitive to DV than the Type I design (e.g., Figures 13, 17, 21). When variability about the DEM was low, the CV decreased as the level of HV decreased and the SI increased (Figure 13). However, as the level of HV increased, that trend disappeared and the CV became essentially constant (Figure 21). This effect was amplified as the diel pattern became increasingly pronounced (e.g., Figure 24). The bias of this sampling design decreased as the strength of the diel pattern became more pronounced (e.g., Figures 13-16), but the bias was relatively constant for any given combination of DV and HEM. One unusual characteristic of this sampling design is that bias tended to increase as the level of HV decreased and the SI increased (e.g., Figure 18).

Like the Constant sampling design, the Rotating: Type I design appears to be essentially unbiased in all situations considered in this study. However, the CV of this design is consistently greater than that of the Constant design. Also, this design is not robust to DV. When the level of DV is low (e.g., Figure 13), the CV decreases as the level of HV decreases and the SI increases. In addition, the CV decreases as the strength of the pattern in the hourly escapement model increases (e.g., Figures 13-16). However, like the Two-Stage: Type 2 sampling design, both of these trends disappear as the level of DV increases (e.g., Figures 16, 20, 24).

Trends in the results for the Rotating: Type II sampling design are nearly identical to those observed for the Two-Stage: Type I design, but the bias of this design was consistently greater than the bias of the Two-Stage: Type I design.

DISCUSSION

Relatively simple models were used to simulate escapements through time, and there is no guarantee that the simulations accurately mimic nature. The performance of all the estimators would most likely degrade under natural conditions, relative to the results obtained in this study. In particular, the use of a binomial model to simulate tower observations almost certainly produced observations with artificially reduced variability. In addition, aspects of operation such as observer bias, visibility problems, species identification, etc. were not addressed in the simulation. However, we believe the study results accurately reflect fundamental properties of the sampling designs,

although the differences in the designs would likely be amplified in the field. For these reasons, we believe the simulation results provide meaningful insights into the relative performance of the sampling designs and can aid in the selection of a design for a particular application.

Temporal sampling designs in which a fixed number of minutes are counted each hour consistently produced superior estimates in the simulation study. Moreover, the estimates were very stable across the range of conditions considered in the simulation study. The most likely explanation for this is that by monitoring escapements regularly over short time intervals, large scale changes in escapement through time are likely to be observed; only low-level changes that occur over short intervals are likely to be unobserved. If the statistical quality of escapement estimates is the only consideration in selecting a sampling design, such a design is clearly the best choice among the designs we considered.

There are conditions under which the two-stage and rotating designs perform well, and conditions under which they perform poorly. The two-stage sampling designs are intended to exploit daily patterns in escapement by concentrating counting effort at times when the escapement is expected to be greatest. When escapements vary strongly among the hours of a day in a very stable and predictable manner, these designs can be effective. However, even in the conditions best suited for these designs, the statistical properties of the estimator, in general, only approach that of the Constant design. When no counts are made during one day each week, the variability of the estimator increases with the variability in day-to-day escapements, and a negative bias appears to be introduced. The rationale underlying the rotating designs is unknown to us, unless they were primarily developed to be logistically convenient. In general, these designs appear to be more sensitive to characteristics of the migration, and their performance might therefore be more difficult to predict or understand. We would recommend that patterns in escapement through time, including variability, be carefully considered before implementing a two-stage or rotating sampling design.

A two-stage sampling design in which counts are made on all days displayed a consistent positive bias, or over-estimate, while a design in which no counts are made one day each week displayed a consistent negative bias, or under-estimate. As we had expected both designs to be positively biased, this result was unexpected and its cause is unknown.

We offer no recommendations on the sampling intensity to employ in practice. In all cases considered in this study, increasing sampling intensity when all other factors are held constant largely serves only to increase precision, as would be expected. A relatively low sampling intensity may be adequate in many cases, as long as very precise estimates are not required. Certain characteristics of the escapement not considered in this study, such as extremely pulsed escapement patterns, may argue for increasing sampling intensity in some applications. We would only urge project leaders to acquire as much information as possible, particularly for new projects, so that informed decisions can be made.

One important aspect of counting tower escapement estimates, the estimation of variance, was not considered in this study. One of the original objectives of this study was to compare the performance of several variance estimators. However, it became clear during preliminary investigations that none of the variance estimators being considered was performing acceptably. As

a result, effort was focused on a comparison of point estimators. With that effort now complete, we may revisit variance estimation for counting tower escapement estimators at some future time.

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Table 1. Mean relative abundance under the 4 hourly escapement models (HEM) considered in the simulation study.

Hour	No Diel Model	Slight Diel Model	Moderate Diel Model	Strong Diel Model
1	0.0417	0.0809	0.1200	0.1940
2	0.0417	0.0709	0.1000	0.1570
3	0.0416	0.0608	0.0800	0.1110
4	0.0417	0.0509	0.0600	0.0660
5	0.0417	0.0409	0.0400	0.0290
6	0.0416	0.0333	0.0250	0.0110
7	0.0417	0.0284	0.0150	0.0040
8	0.0417	0.0259	0.0100	0.0010
9	0.0416	0.0233	0.0050	0.0010
10	0.0417	0.0234	0.0050	0.0010
11	0.0417	0.0234	0.0050	0.0010
12	0.0416	0.0258	0.0100	0.0010
13	0.0417	0.0271	0.0125	0.0020
14	0.0417	0.0284	0.0150	0.0030
15	0.0416	0.0296	0.0175	0.0040
16	0.0417	0.0309	0.0200	0.0050
17	0.0417	0.0334	0.0250	0.0060
18	0.0416	0.0358	0.0300	0.0080
19	0.0417	0.0384	0.0350	0.0150
20	0.0417	0.0434	0.0450	0.0200
21	0.0416	0.0483	0.0550	0.0300
22	0.0417	0.0559	0.0700	0.0500
23	0.0417	0.0659	0.0900	0.0800
24	0.0416	0.0758	0.1100	0.2000
Totals	1.0000	1.0000	1.0000	1.0000

Table 2. Time counted in minutes-per-hour under the Constant sampling design.

	Sampling Intensity (SI)			
Hour	1/6	1/4	1/3	1/2
1	10.0	15.0	20.0	30.0
2	10.0	15.0	20.0	30.0
3	10.0	15.0	20.0	30.0
4	10.0	15.0	20.0	30.0
5	10.0	15.0	20.0	30.0
6	10.0	15.0	20.0	30.0
7	10.0	15.0	20.0	30.0
8	10.0	15.0	20.0	30.0
9	10.0	15.0	20.0	30.0
10	10.0	15.0	20.0	30.0
11	10.0	15.0	20.0	30.0
12	10.0	15.0	20.0	30.0
13	10.0	15.0	20.0	30.0
14	10.0	15.0	20.0	30.0
15	10.0	15.0	20.0	30.0
16	10.0	15.0	20.0	30.0
17	10.0	15.0	20.0	30.0
18	10.0	15.0	20.0	30.0
19	10.0	15.0	20.0	30.0
20	10.0	15.0	20.0	30.0
21	10.0	15.0	20.0	30.0
22	10.0	15.0	20.0	30.0
23	10.0	15.0	20.0	30.0
24	10.0	15.0	20.0	30.0

Table 3. Time counted in minutes-per-hour under the Two-Stage Type I sampling design. The schedule, shown for the first 7 days, is repeated every 7 days throughout the entire counting period.

	Proportion of Time Counted							
	1/6		1/4		1/3		1/2	
Hour	Days 1-6	Day 7	Days 1-6	Day 7	Days 1-6	Day 7	Days 1-6	Day 7
1	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
2	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
3	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
4	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
5	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
6	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
7	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
8	0.00	12.73	0.00	19.09	0.00	25.45	0.00	38.18
9	0.00	12.73	0.00	19.09	0.00	25.45	0.00	38.18
10	0.00	12.73	0.00	19.09	0.00	25.45	0.00	38.18
11	0.00	12.73	0.00	19.09	0.00	25.45	0.00	38.18
12	0.00	12.73	0.00	19.09	0.00	25.45	0.00	38.18
13	0.00	12.73	0.00	19.09	0.00	25.45	0.00	38.18
14	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
15	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
16	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
17	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
18	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
19	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
20	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
21	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
22	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
23	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18
24	12.73	12.73	19.09	19.09	25.45	25.45	38.18	38.18

Table 4. Time counted in minutes-per-hour under the Two-Stage Type II sampling design. The schedule, shown for the first 7 days, is repeated every 7 days throughout the entire counting period.

	Proportion of Time Counted											
	1/6			1/4			1/3			1/2		
Hour	Days 1-5	Day 6	Day 7	Days 1-5	Day 6	Day 7	Days 1-5	Day 6	Day 7	Days 1-5	Day 6	Day 7
1	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
2	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
3	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
4	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
5	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
6	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
7	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
8	0.00	14.74	0.00	0.00	22.11	0.00	0.00	29.47	0.00	0.00	44.21	0.00
9	0.00	14.74	0.00	0.00	22.11	0.00	0.00	29.47	0.00	0.00	44.21	0.00
10	0.00	14.74	0.00	0.00	22.11	0.00	0.00	29.47	0.00	0.00	44.21	0.00
11	0.00	14.74	0.00	0.00	22.11	0.00	0.00	29.47	0.00	0.00	44.21	0.00
12	0.00	14.74	0.00	0.00	22.11	0.00	0.00	29.47	0.00	0.00	44.21	0.00
13	0.00	14.74	0.00	0.00	22.11	0.00	0.00	29.47	0.00	0.00	44.21	0.00
14	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
15	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
16	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
17	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
18	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
19	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
20	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
21	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
22	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
23	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00
24	14.74	14.74	0.00	22.11	22.11	0.00	29.47	29.47	0.00	44.21	44.21	0.00

Table 5. Time counted in minutes-per-hour under the Rotating Type I sampling design. The schedule, shown for the first 2 days, is repeated every 2 days throughout the entire counting period.

	Proportion of Time Counted							
	1/6		1/4		1/3		1/2	
Hour	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
1	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
2	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
3	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
4	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
5	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
6	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
7	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
8	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
9	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
10	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
11	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
12	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
13	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
14	0.00	19.86	0.00	29.80	0.00	39.73	0.00	59.59
15	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
16	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
17	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
18	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
19	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
20	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
21	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
22	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
23	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00
24	19.86	0.00	29.80	0.00	39.73	0.00	59.59	0.00

Table 6. Time counted in minutes-per-hour under the Rotating Type II sampling design. The schedule, shown for the first 3 days, is repeated every 3 days throughout the entire counting period.

	Proportion of Time Counted											
	1/6			1/4			1/3			1/2		
Hour	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
1	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
2	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
3	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
4	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
5	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
6	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
7	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
8	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
9	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
10	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
11	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
12	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
13	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
14	0.00	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00
15	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
16	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
17	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
18	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
19	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
20	17.93	0.00	0.00	26.89	0.00	0.00	35.85	0.00	0.00	53.78	0.00	0.00
21	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
22	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
23	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78
24	17.93	17.93	17.93	26.89	26.89	26.89	35.85	35.85	35.85	53.78	53.78	53.78

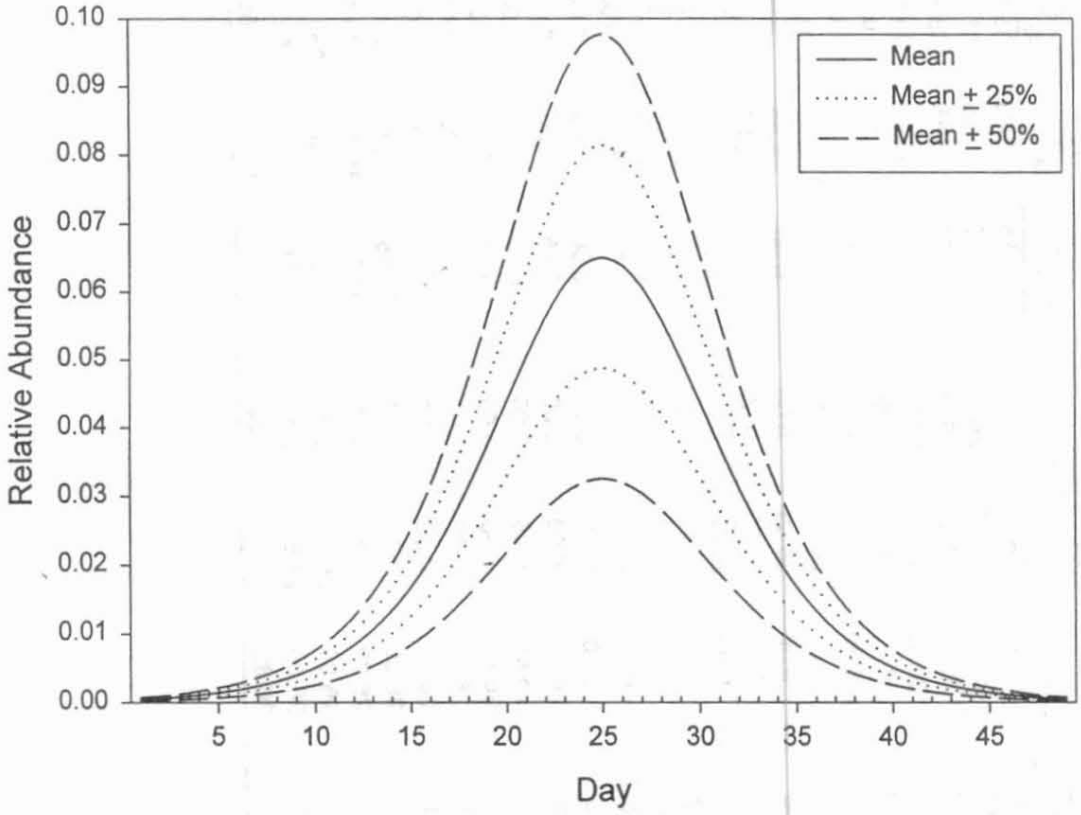

Figure 1. The symmetric daily escapement model (DEM), with lower and upper bounds for levels of the uniformly distributed daily variability (DV).

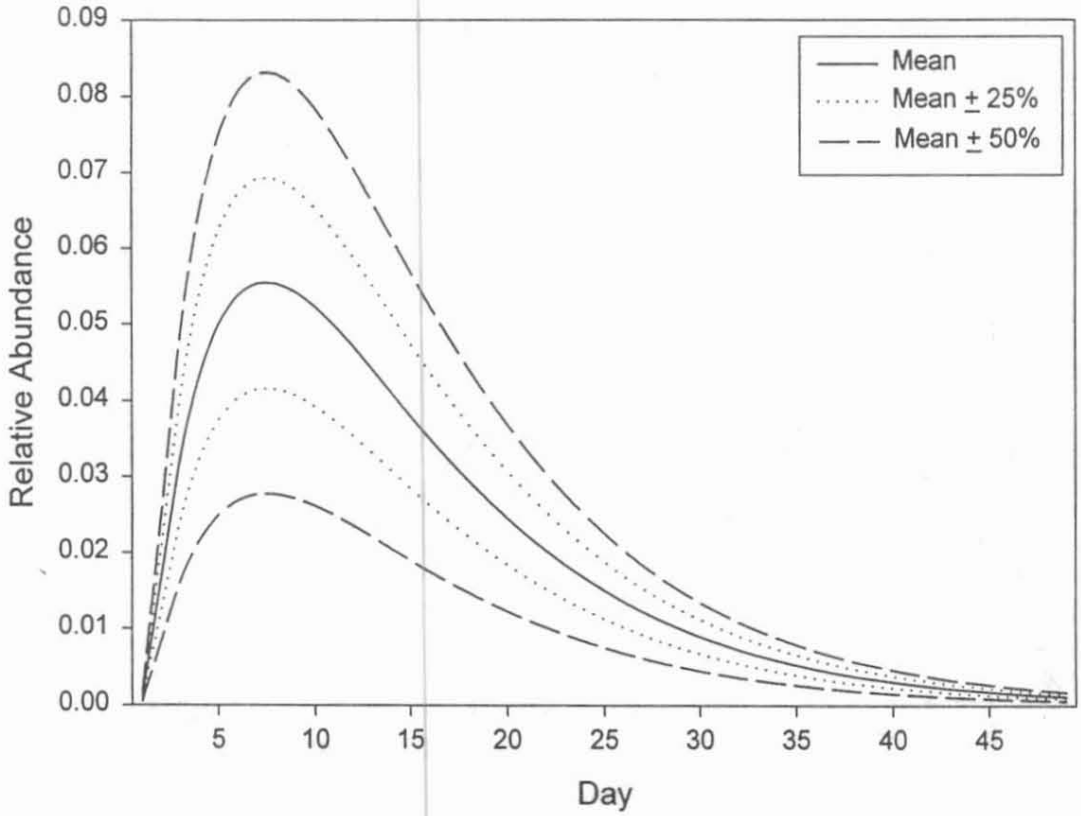

Figure 2. The skewed daily escapement model (DEM), with lower and upper bounds for levels of the uniformly distributed daily variability (DV).

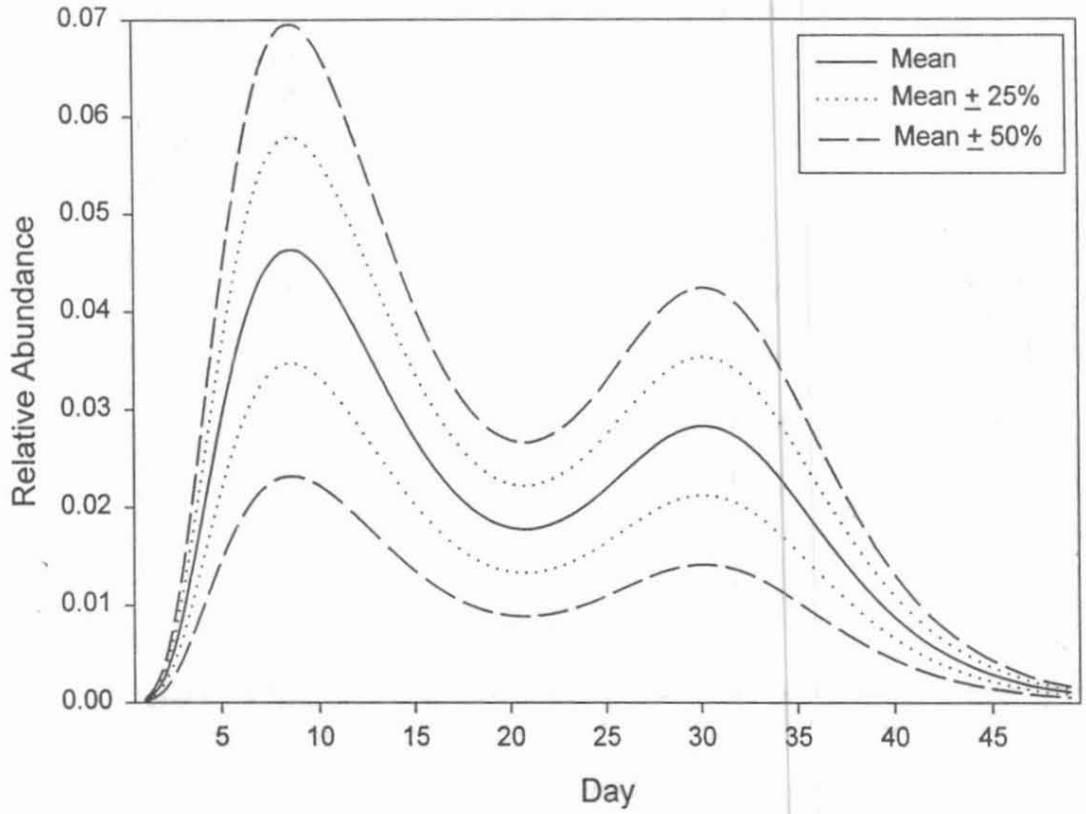

Figure 3. The bi-modal daily escapement model (DEM), with lower and upper bounds for levels of the uniformly distributed daily variability (DV).

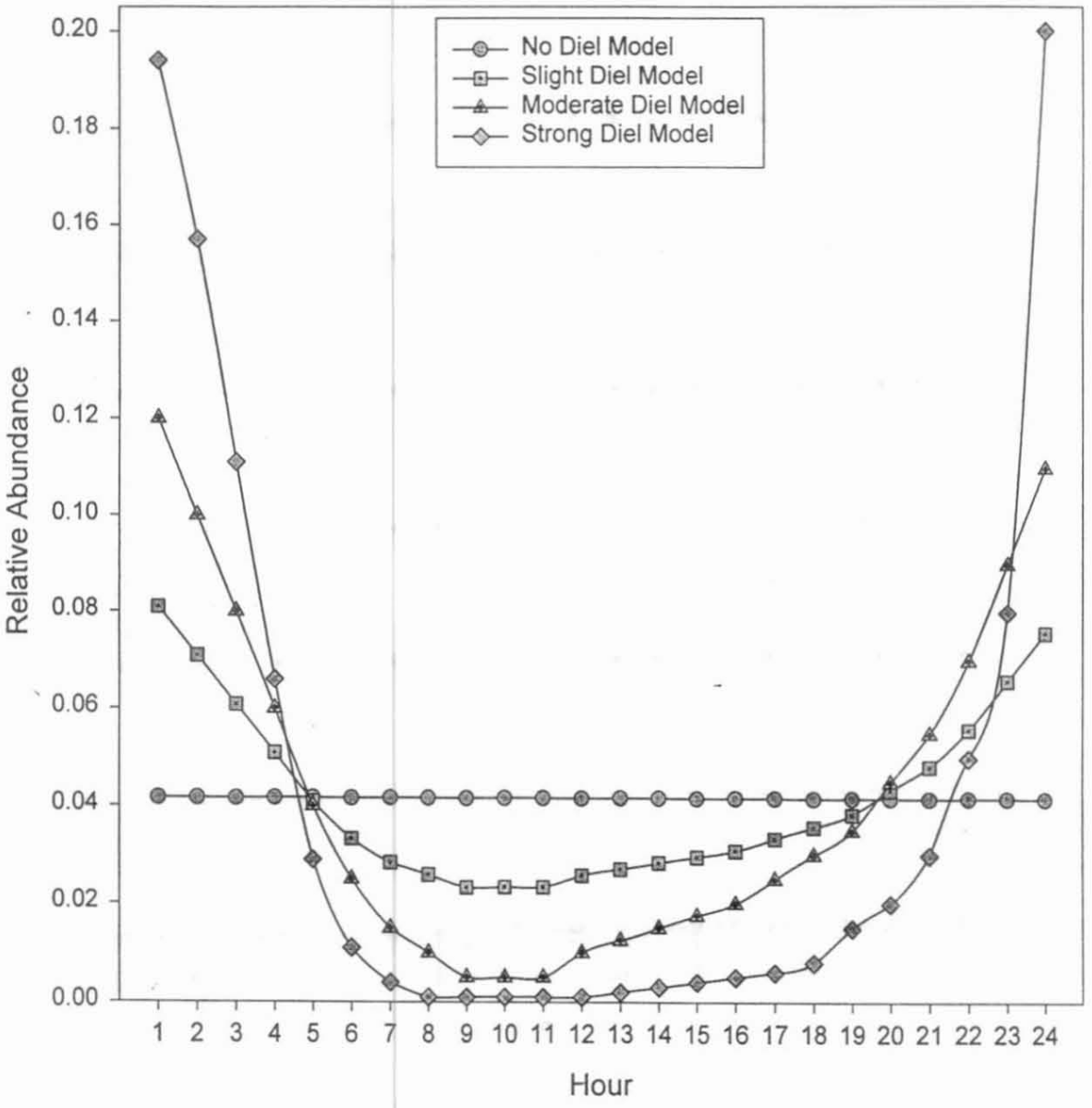

Figure 4. Mean hourly escapement proportions under the 4 hourly escapement models (HEM).

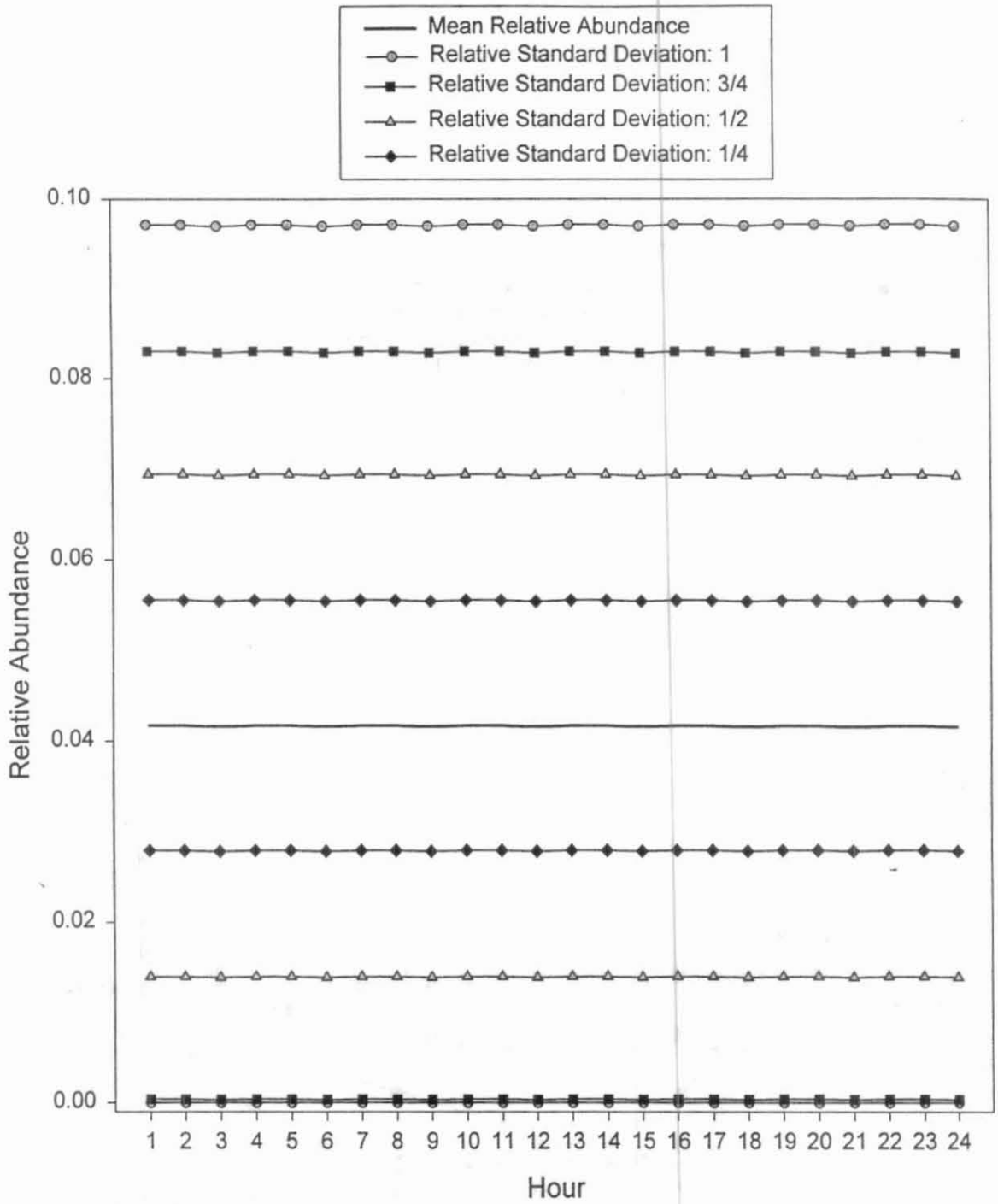

Figure 5. Mean hourly escapement proportions of the No Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).

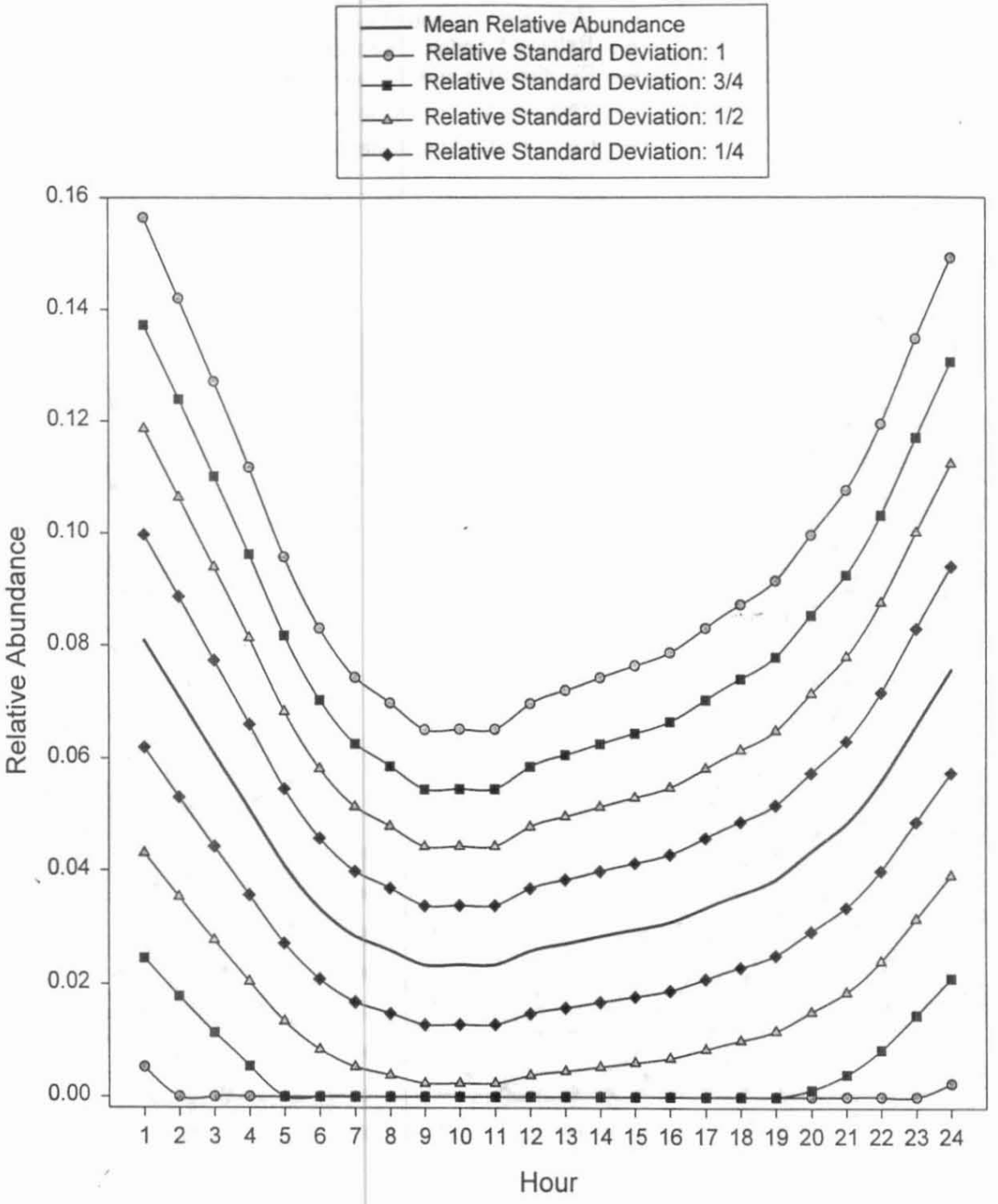

Figure 6. Mean hourly escapement proportions of the Slight Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).

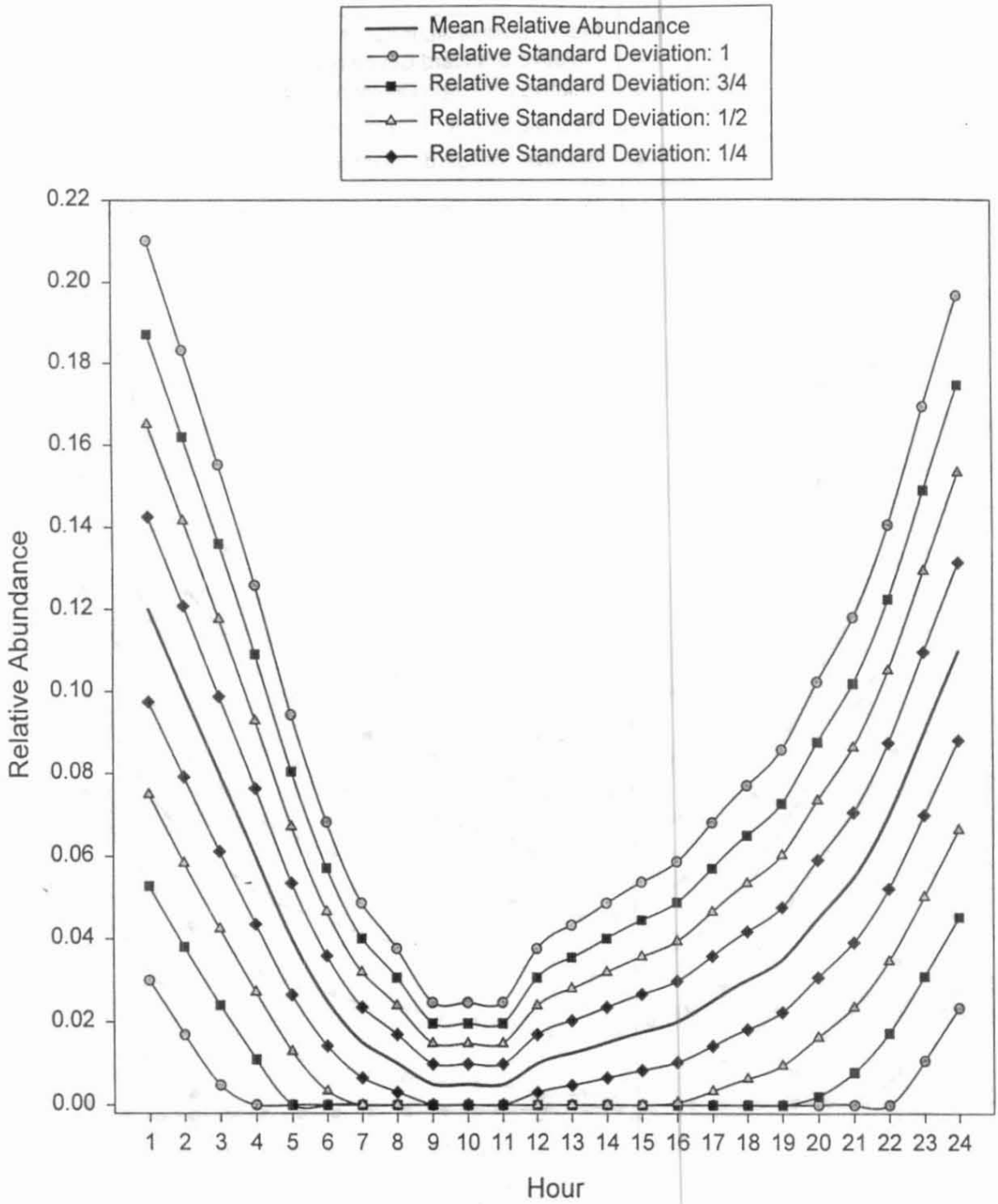

Figure 7. Mean hourly escapement proportions of the Moderate Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).

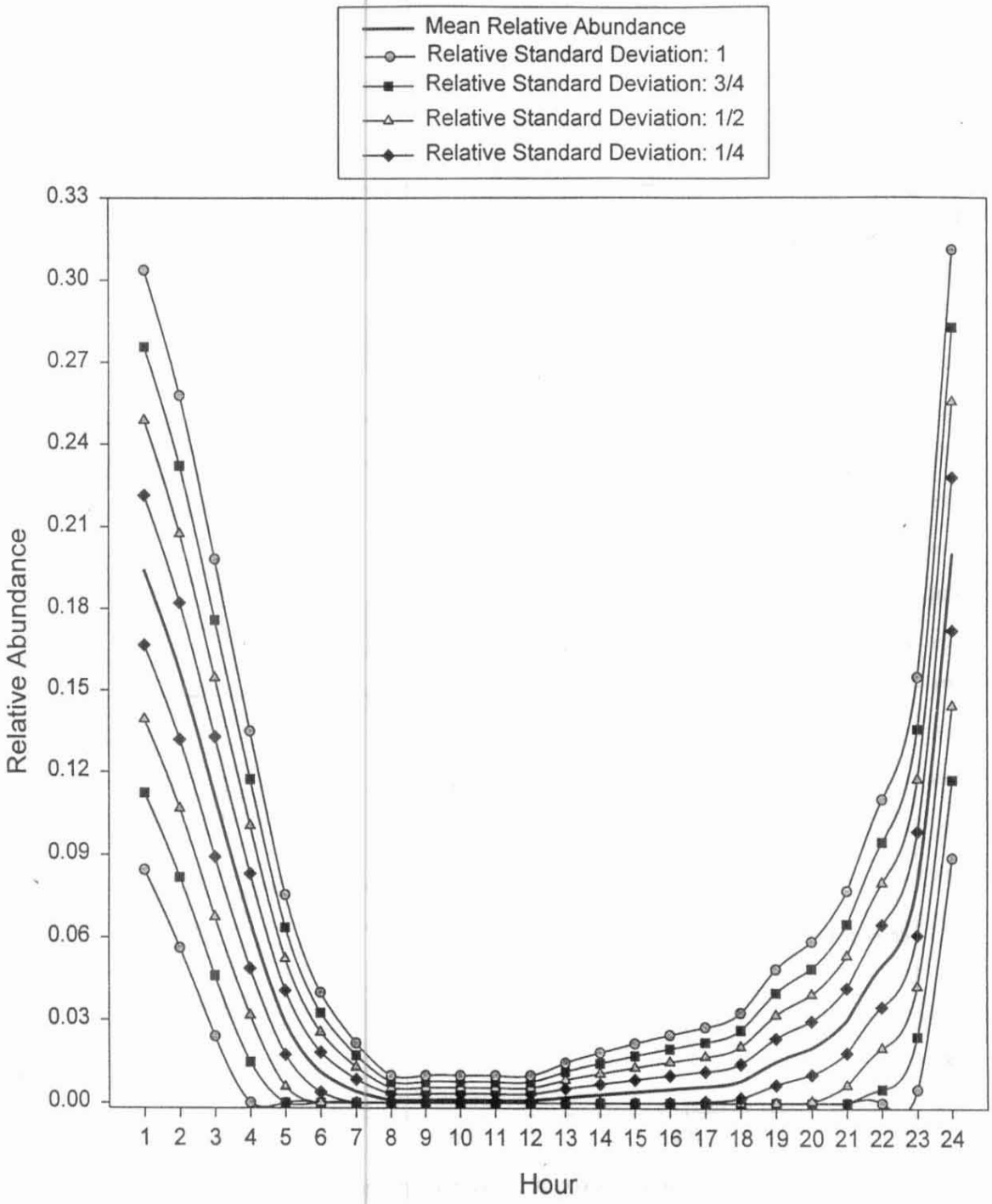

Figure 8. Mean hourly escapement proportions of the Strong Diel hourly escapement model (HEM), with 95% confidence limits under the 4 levels of hourly variation (HV).

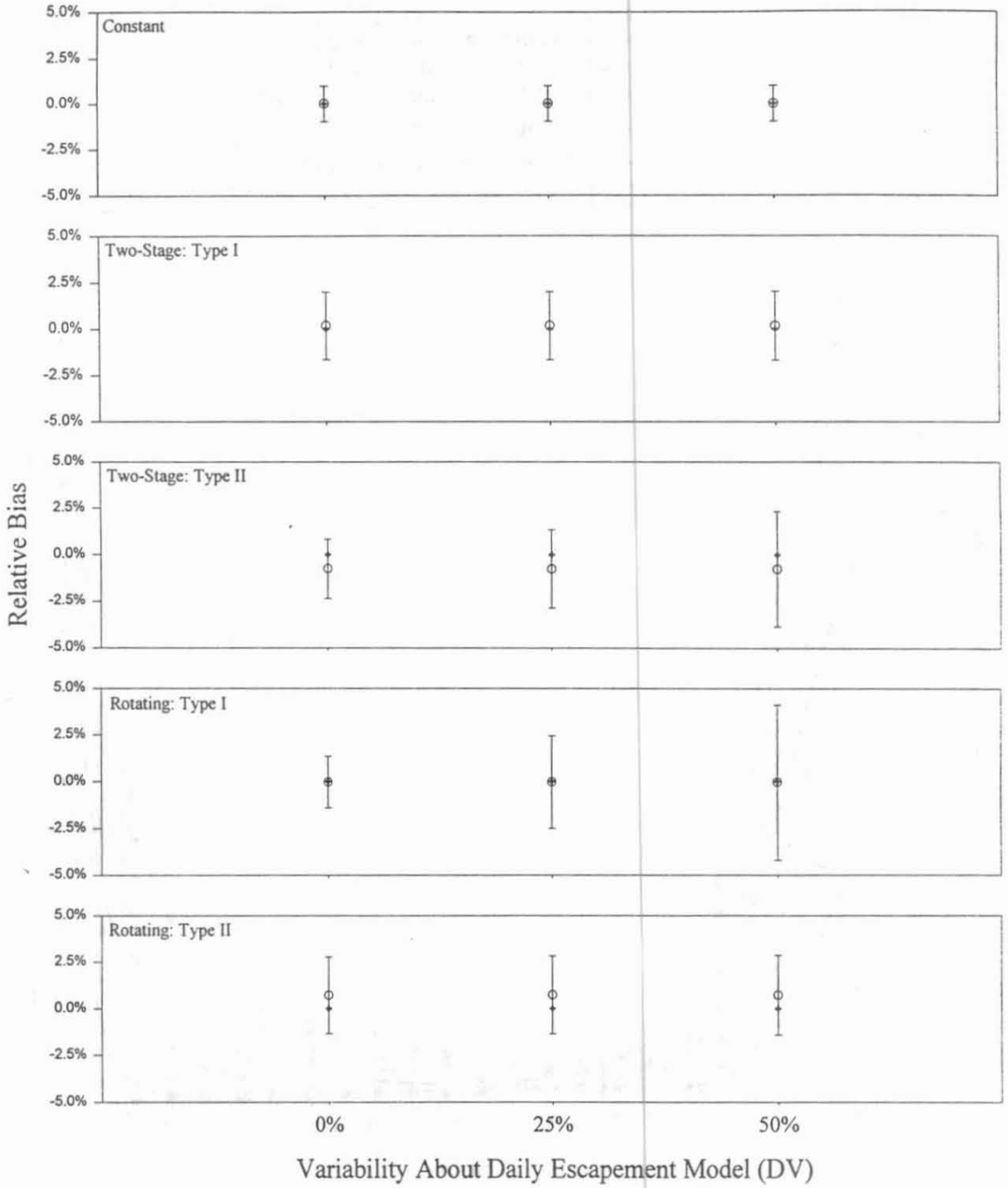

Figure 9. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the level of variability about the DEM (DV), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias.

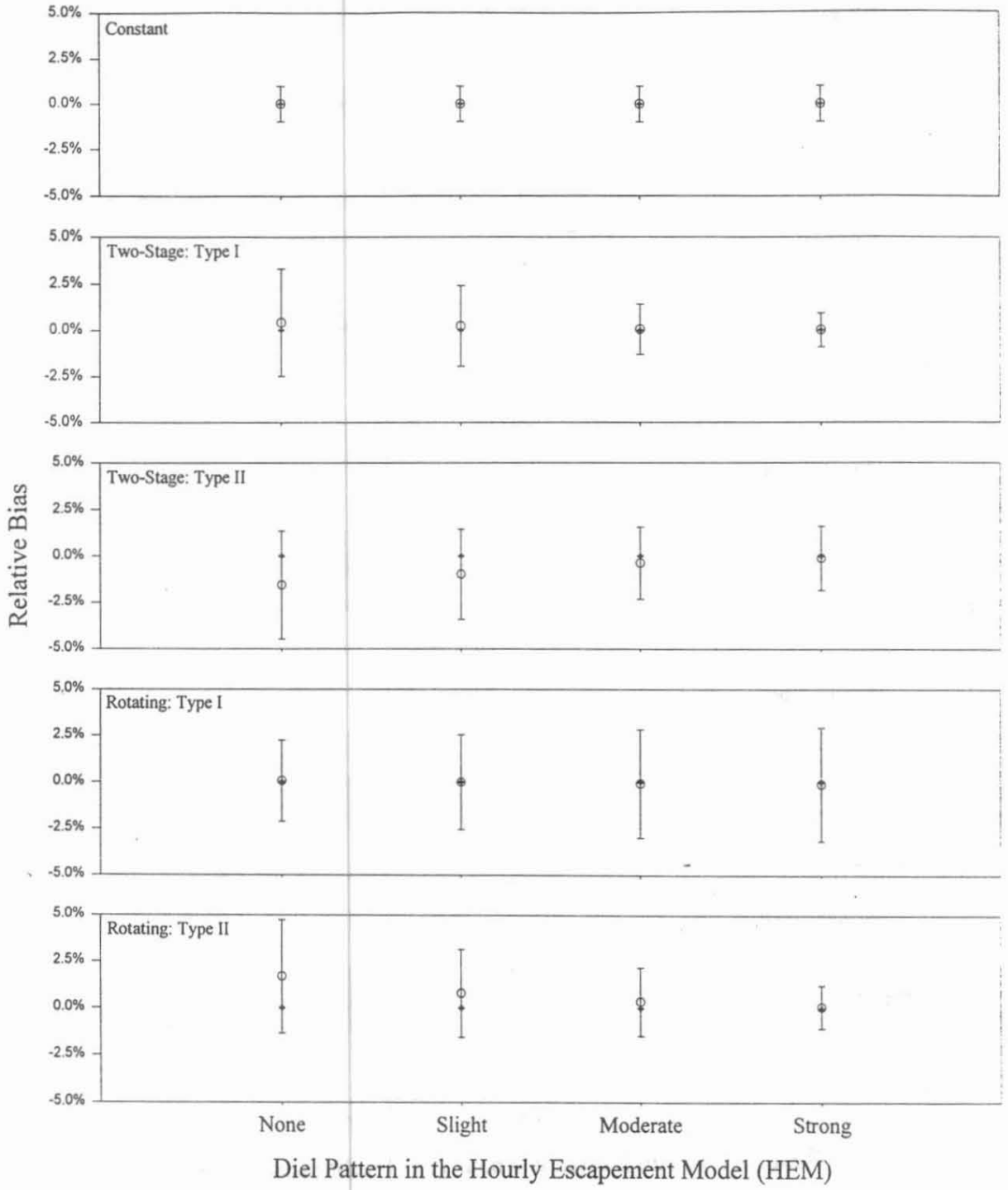

Figure 10. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the relative standard deviation about the HEM (HV), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias.

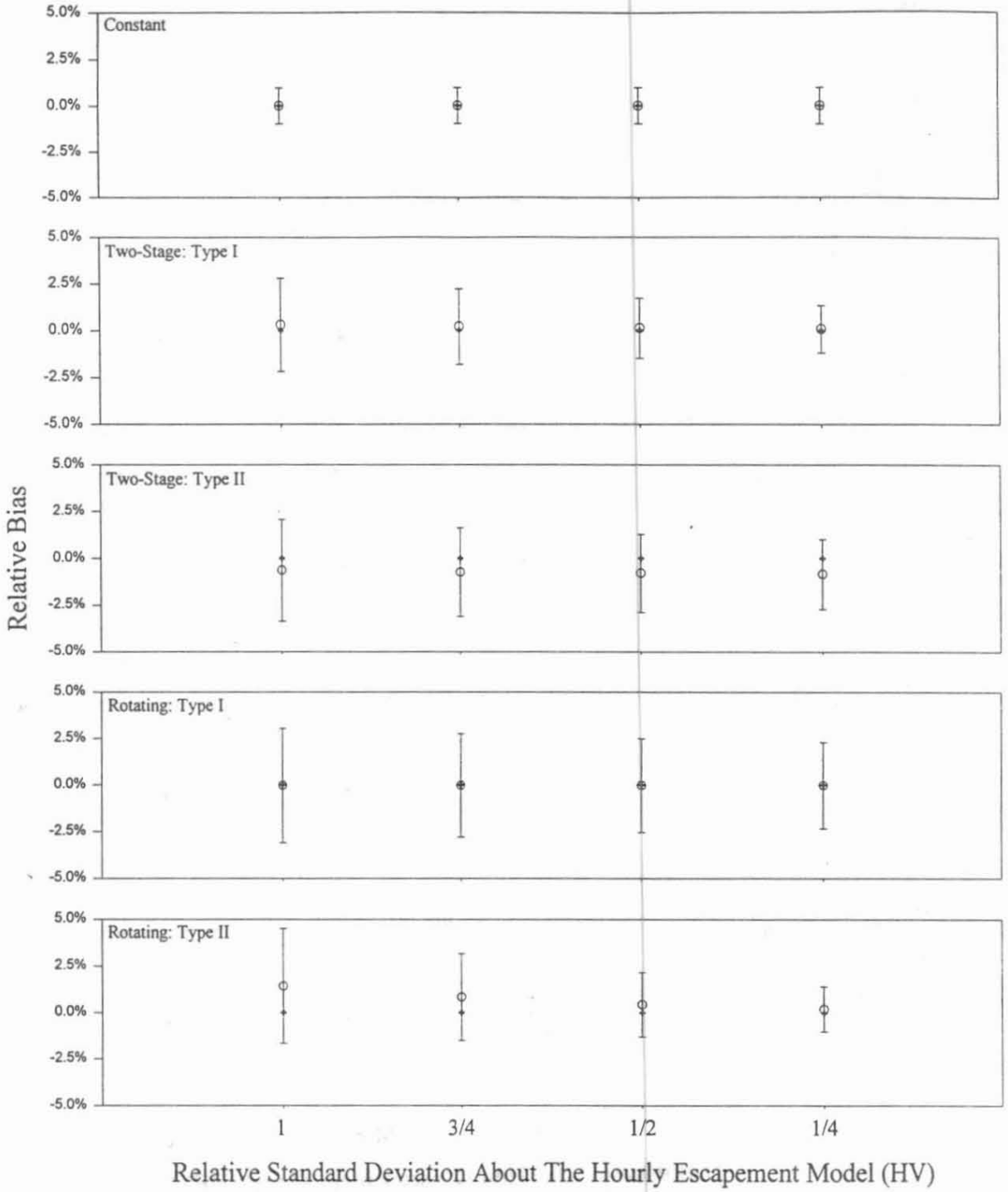

Figure 11. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the hourly escapement model (HEM), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias.

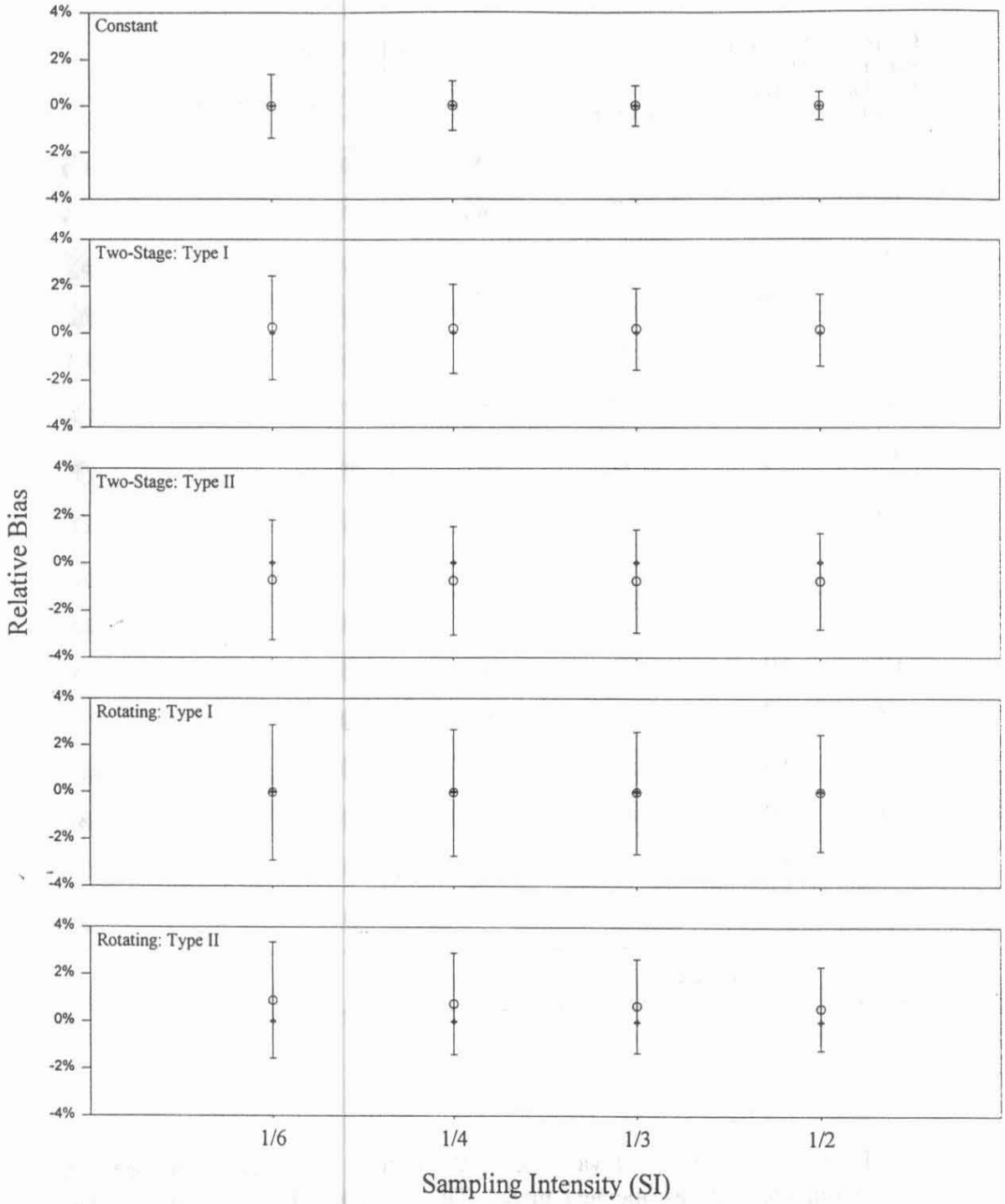

Figure 12. Average bias and coefficient of variation (CV) of escapement estimates under the symmetric daily escapement model (DEM) versus the sampling intensity (SI), averaging over all other factors. The "+" symbol represents zero bias, the open circle denotes the average bias, and the error bars reflect 1 CV above and below the average bias.

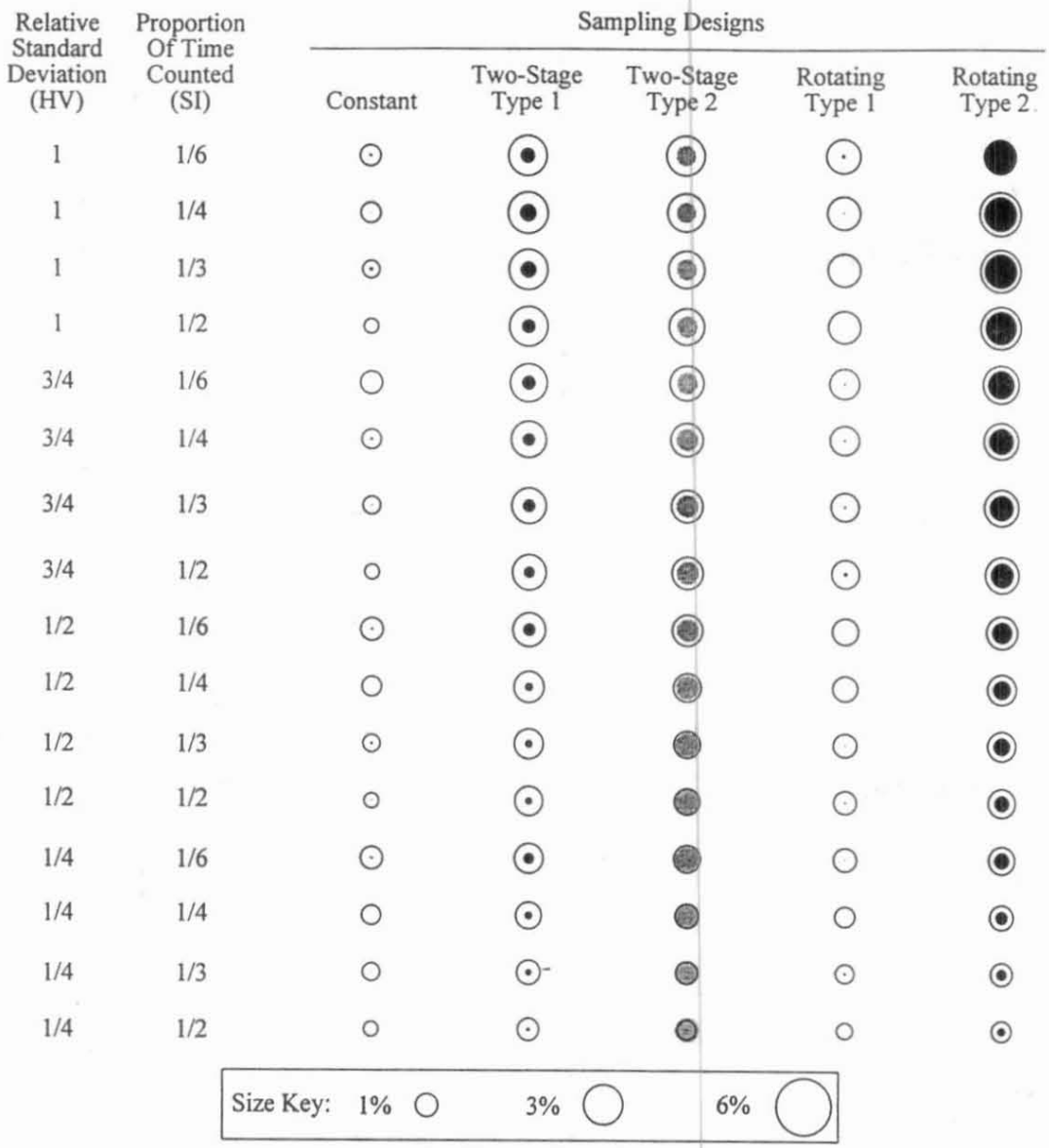

Figure 13. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the No Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

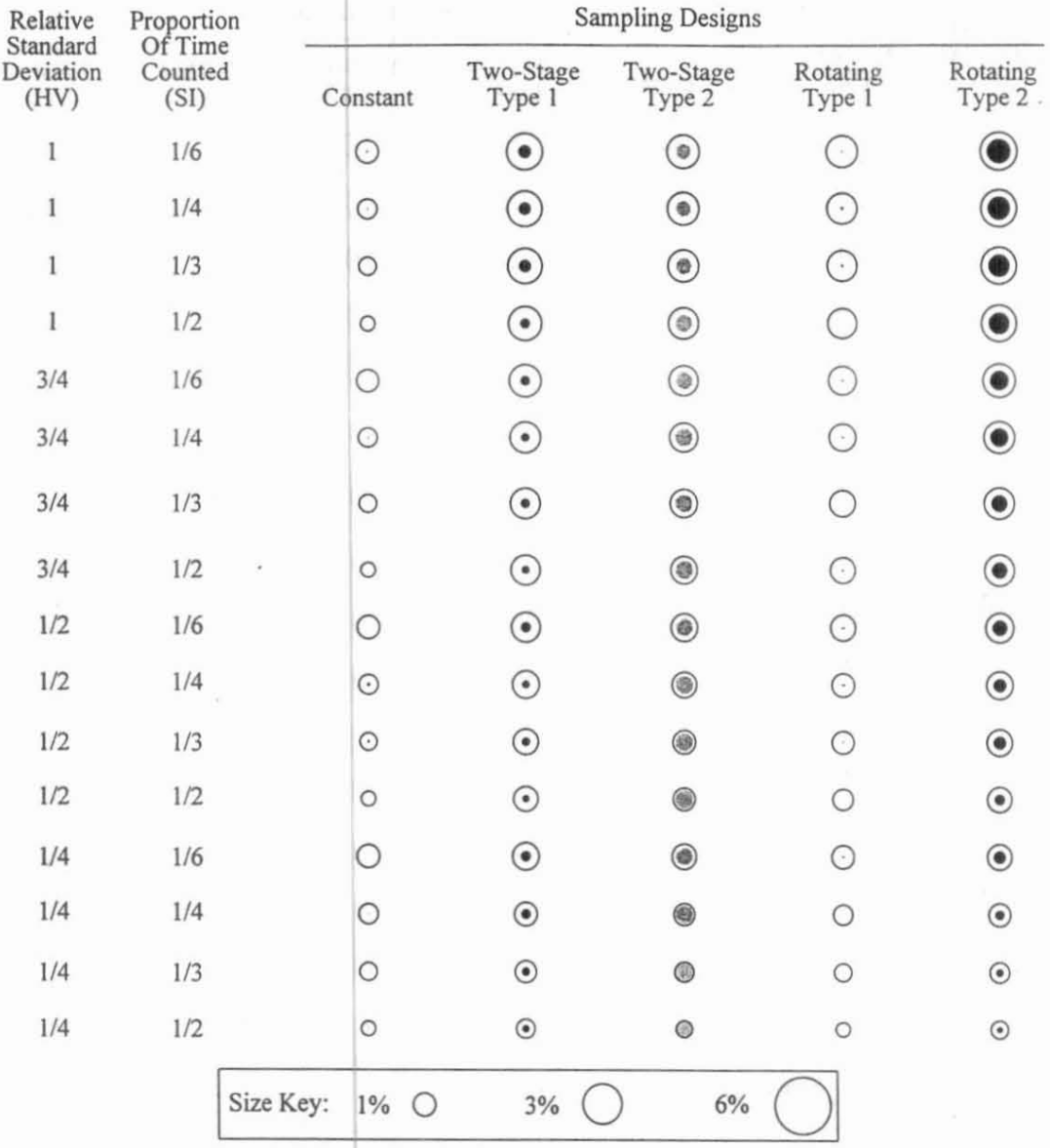

Figure 14. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the Slight Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

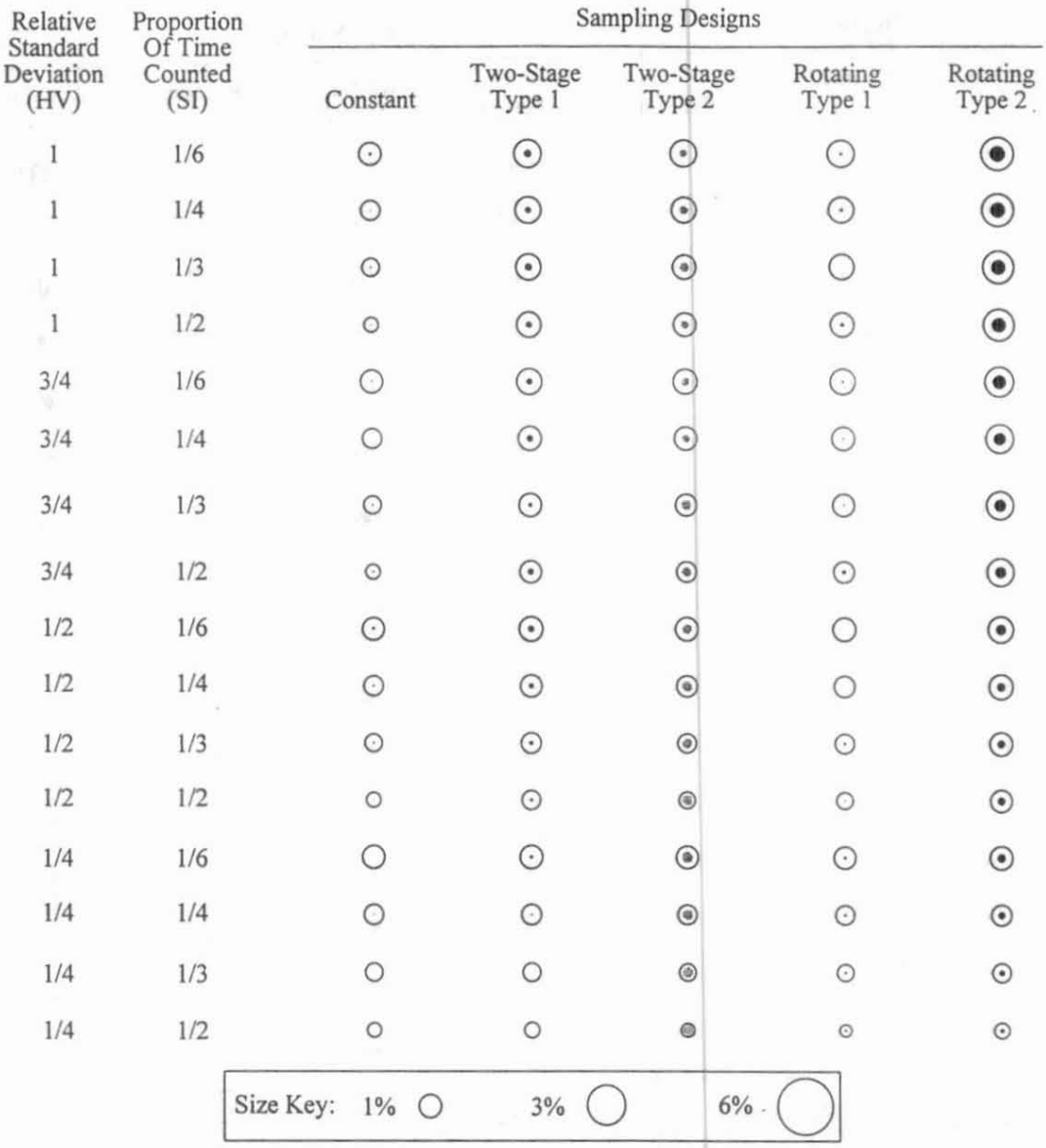

Figure 15. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the Moderate Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

Relative Standard Deviation (HV)	Proportion Of Time Counted (SI)	Sampling Designs				
		Constant	Two-Stage Type 1	Two-Stage Type 2	Rotating Type 1	Rotating Type 2
1	1/6	○	⊙	⊙	○	⊙
1	1/4	○	⊙	⊙	○	⊙
1	1/3	○	○	⊙	⊙	⊙
1	1/2	○	○	○	⊙	⊙
3/4	1/6	○	⊙	⊙	○	⊙
3/4	1/4	⊙	○	⊙	○	⊙
3/4	1/3	○	⊙	⊙	○	⊙
3/4	1/2	○	⊙	⊙	○	⊙
1/2	1/6	○	○	⊙	⊙	⊙
1/2	1/4	○	⊙	⊙	○	⊙
1/2	1/3	⊙	⊙	⊙	⊙	⊙
1/2	1/2	○	○	⊙	⊙	⊙
1/4	1/6	⊙	⊙	⊙	⊙	⊙
1/4	1/4	○	○	⊙	○	⊙
1/4	1/3	○	○	⊙	○	○
1/4	1/2	○	○	⊙	○	○

Size Key: 1% ○ 3% ○ 6% ○

Figure 16. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 0% variation (DV) from the mean, and the Strong Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

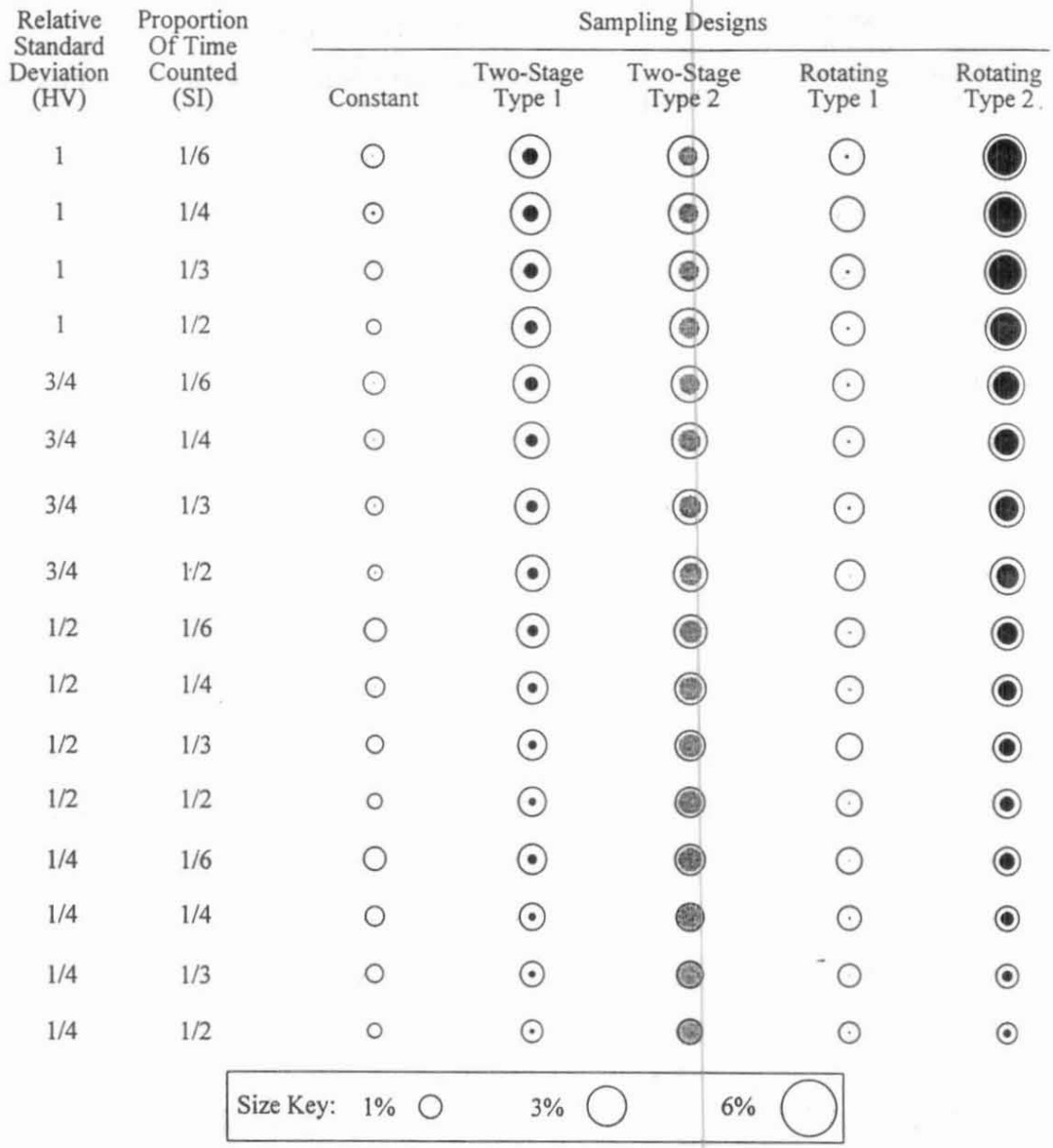

Figure 17. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the No Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

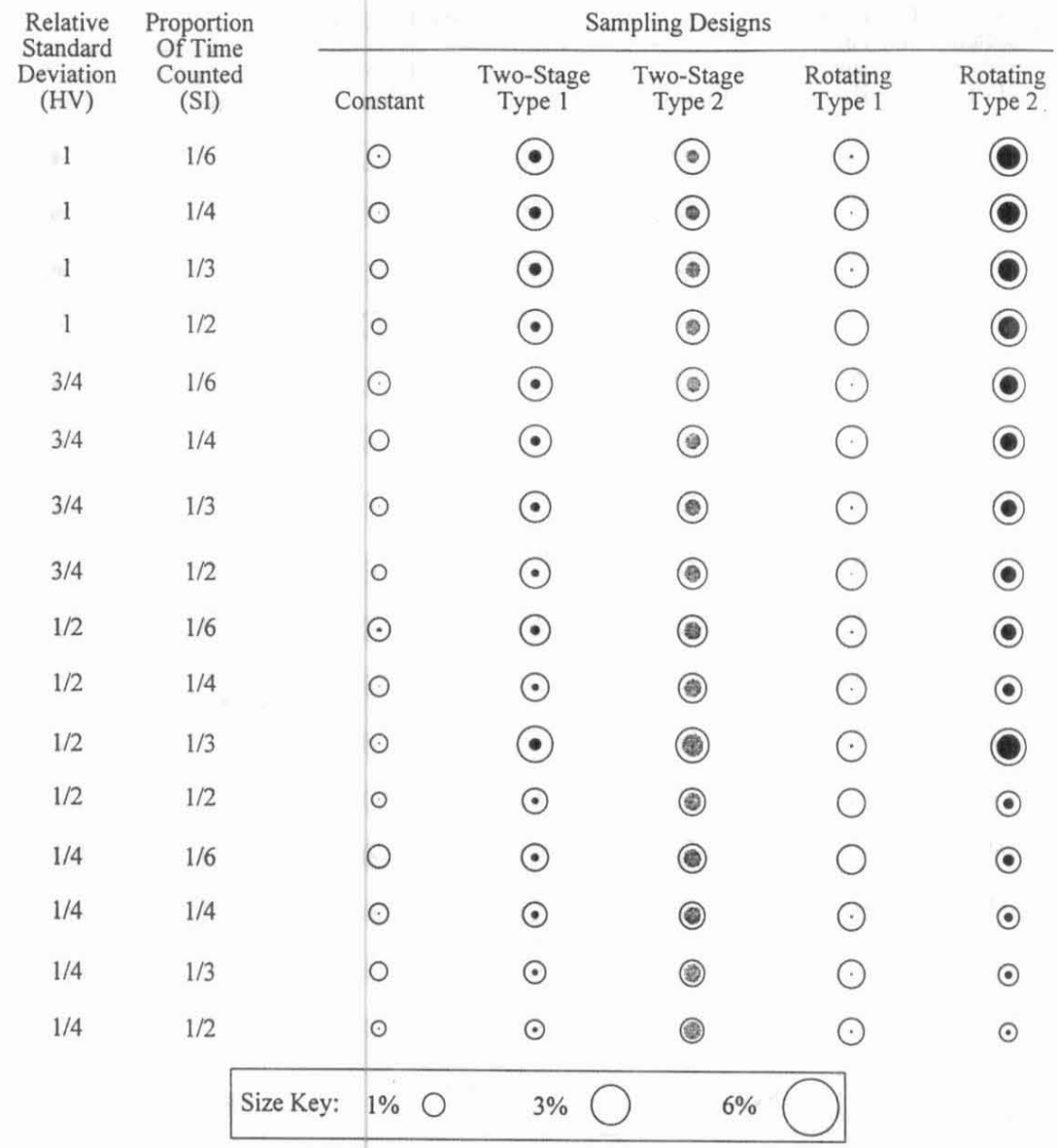

Figure 18. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the Slight Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

Relative Standard Deviation (HV)	Proportion Of Time Counted (SI)	Sampling Designs				
		Constant	Two-Stage Type 1	Two-Stage Type 2	Rotating Type 1	Rotating Type 2
1	1/6					
1	1/4					
1	1/3					
1	1/2					
3/4	1/6					
3/4	1/4					
3/4	1/3					
3/4	1/2					
1/2	1/6					
1/2	1/4					
1/2	1/3					
1/2	1/2					
1/4	1/6					
1/4	1/4					
1/4	1/3					
1/4	1/2					

Size Key: 1% 3% 6%

Figure 19. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the Moderate Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

Relative Standard Deviation (HV)	Proportion Of Time Counted (SI)	Sampling Designs				
		Constant	Two-Stage Type 1	Two-Stage Type 2	Rotating Type 1	Rotating Type 2
1	1/6	○	⊙	⊙	⊙	⊙
1	1/4	⊙	○	⊙	⊙	⊙
1	1/3	⊙	⊙	○	○	⊙
1	1/2	⊙	⊙	○	⊙	⊙
3/4	1/6	○	⊙	⊙	⊙	⊙
3/4	1/4	⊙	⊙	⊙	⊙	⊙
3/4	1/3	⊙	○	⊙	⊙	⊙
3/4	1/2	⊙	⊙	⊙	⊙	⊙
1/2	1/6	○	⊙	⊙	⊙	⊙
1/2	1/4	○	⊙	⊙	○	⊙
1/2	1/3	○	⊙	⊙	○	⊙
1/2	1/2	⊙	⊙	⊙	⊙	⊙
1/4	1/6	⊙	⊙	⊙	⊙	⊙
1/4	1/4	○	⊙	⊙	⊙	⊙
1/4	1/3	○	○	⊙	⊙	⊙
1/4	1/2	⊙	⊙	⊙	○	⊙

Size Key: 1% ○ 3% ○ 6% ○

Figure 20. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 25% variation (DV) from the mean, and the Strong Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

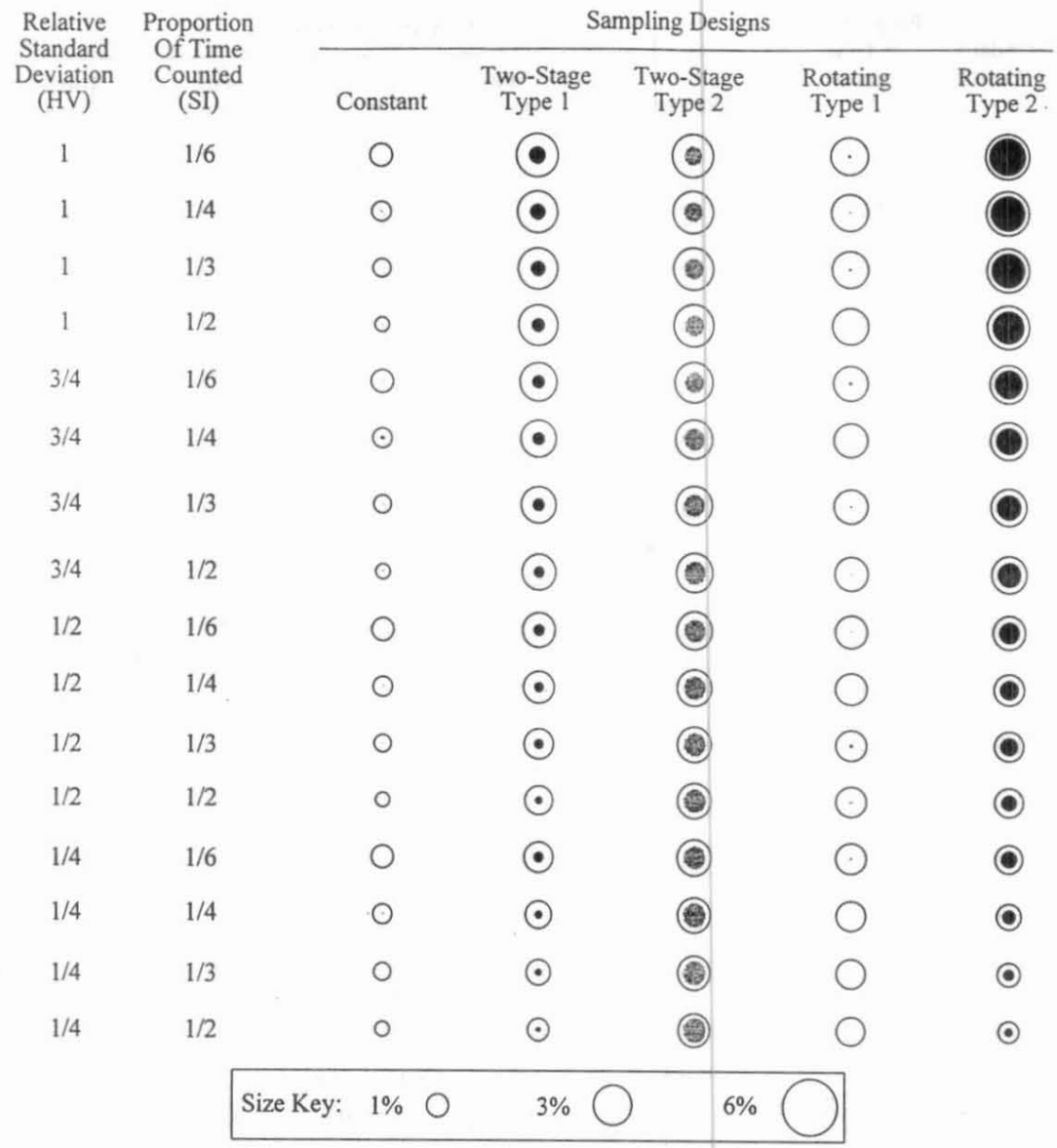

Figure 21. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the No Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

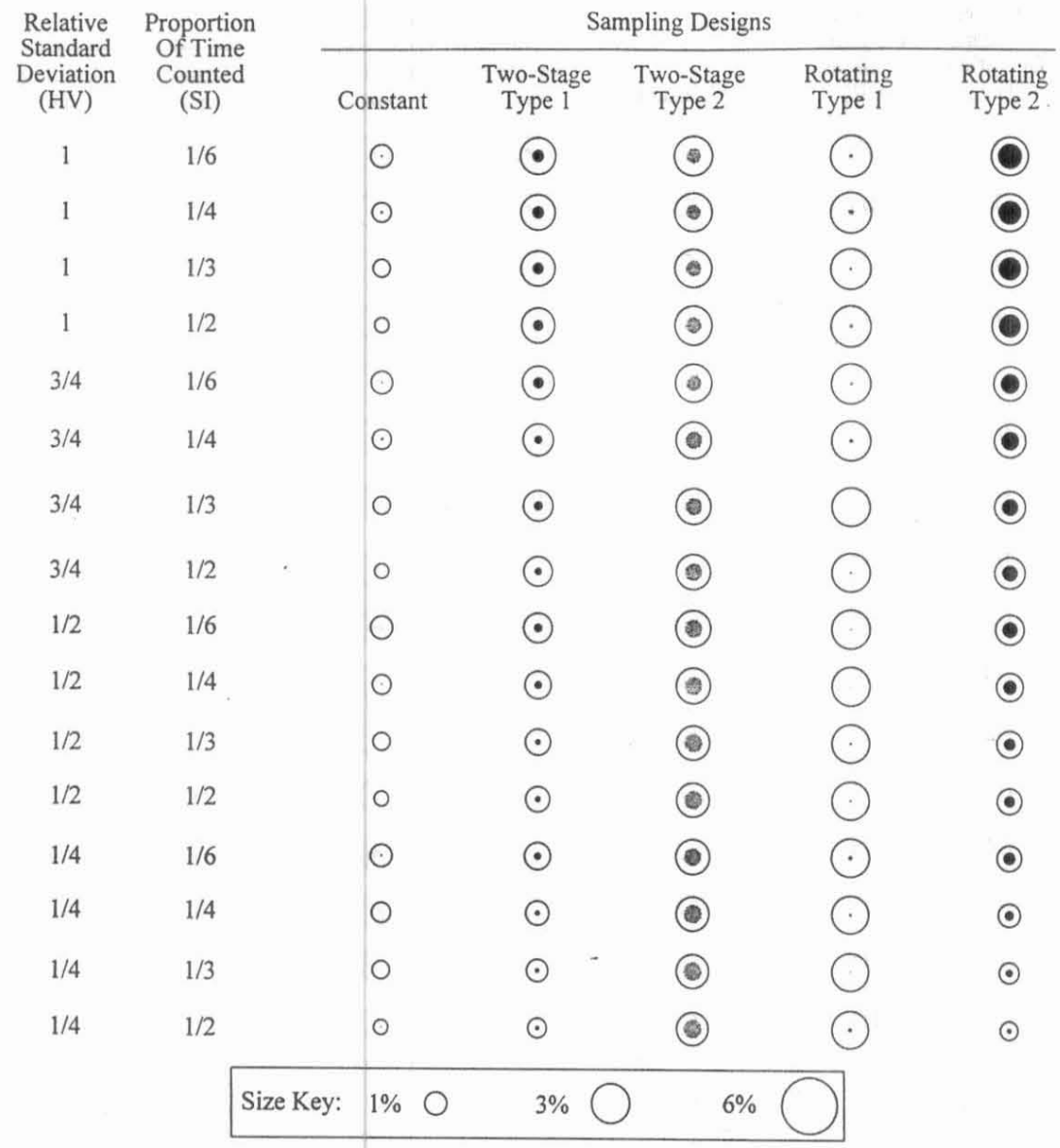

Figure 22. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the Slight Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

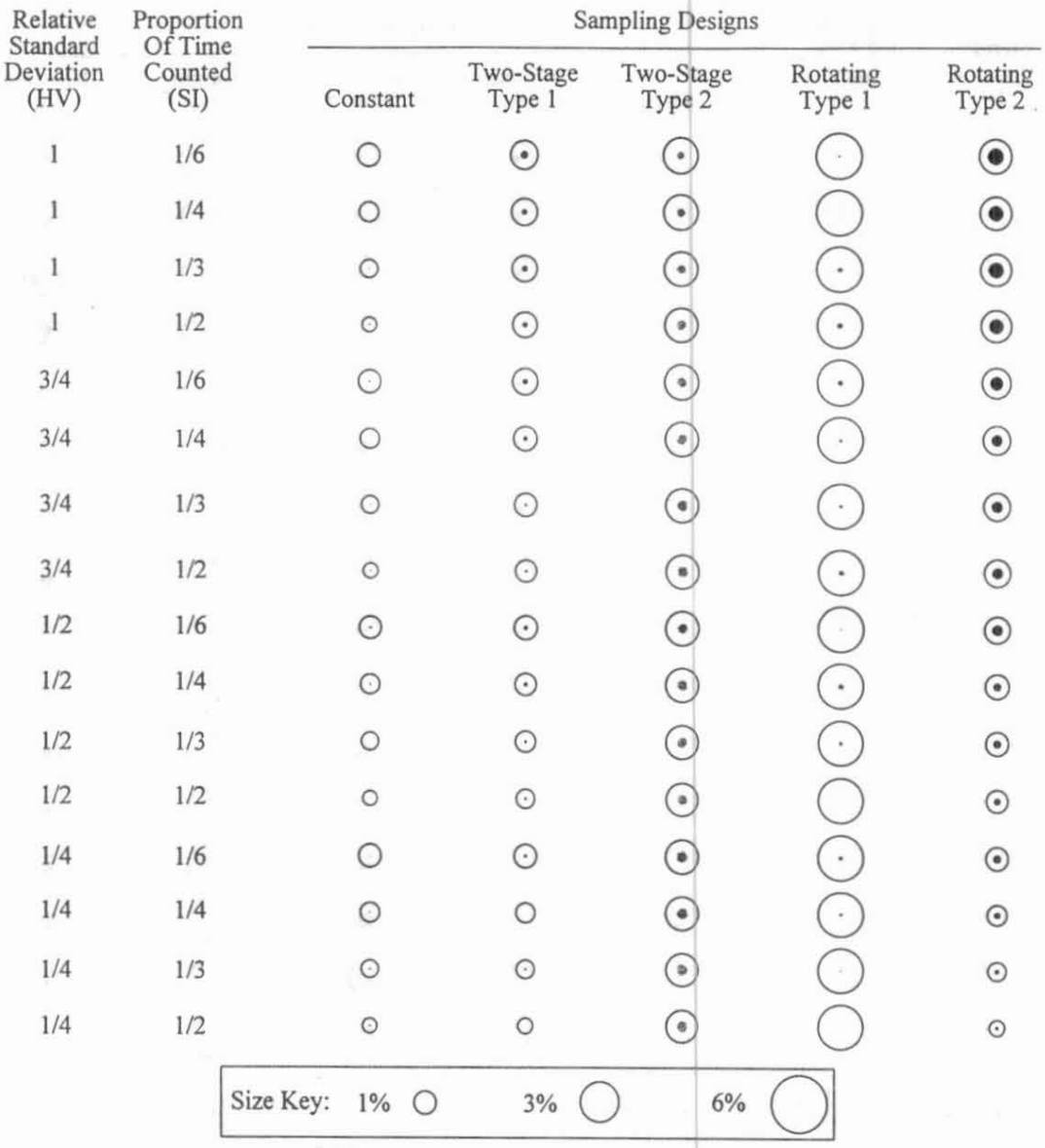

Figure 23. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the Moderate Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

Relative Standard Deviation (HV)	Proportion Of Time Counted (SI)	Sampling Designs				
		Constant	Two-Stage Type 1	Two-Stage Type 2	Rotating Type 1	Rotating Type 2
1	1/6					
1	1/4					
1	1/3					
1	1/2					
3/4	1/6					
3/4	1/4					
3/4	1/3					
3/4	1/2					
1/2	1/6					
1/2	1/4					
1/2	1/3					
1/2	1/2					
1/4	1/6					
1/4	1/4					
1/4	1/3					
1/4	1/2					

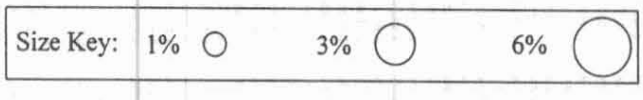

Figure 24. Bias and coefficient of variation (CV) of total escapement estimates under the symmetric daily escapement model (DEM), with ± 50% variation (DV) from the mean, and the Strong Diel hourly escapement model (HEM). The area of filled circles is proportional to bias, with black representing positive bias and gray representing negative bias, while the area of the open circles is proportional to the CV.

Appendix A. Summary statistics of the counting tower simulation study. Each row summarizes the results of 10,000 simulations.

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Symmetric	0	No Diel	1	1/6	-0.082%	1.171%	-0.001	0.661%	4.182%	0.621	-1.200%	4.160%	0.237	0.052%	3.158%	-0.008	2.634%	4.673%	0.795
Symmetric	0	No Diel	1	1/4	0.006%	1.100%	0.080	0.851%	4.542%	0.404	-1.154%	3.852%	0.352	-0.025%	2.897%	0.037	3.339%	5.072%	0.261
Symmetric	0	No Diel	1	1/3	0.048%	0.848%	0.037	0.758%	4.332%	0.353	-1.234%	3.684%	0.330	0.003%	2.876%	-0.006	3.252%	4.860%	0.277
Symmetric	0	No Diel	1	1/2	-0.009%	0.623%	-0.016	0.580%	4.215%	0.404	-1.322%	3.567%	0.381	-0.003%	2.788%	0.018	3.055%	4.783%	0.268
Symmetric	0	No Diel	3/4	1/6	-0.011%	1.367%	0.059	0.594%	3.856%	0.262	-1.325%	3.274%	0.225	0.012%	2.424%	-0.033	2.238%	3.810%	0.187
Symmetric	0	No Diel	3/4	1/4	0.025%	1.069%	-0.060	0.484%	3.529%	0.304	-1.420%	2.984%	0.255	0.020%	2.271%	0.038	1.882%	3.582%	0.167
Symmetric	0	No Diel	3/4	1/3	-0.022%	0.868%	-0.074	0.471%	3.374%	0.312	-1.404%	2.829%	0.236	0.009%	2.148%	0.038	1.822%	3.455%	0.234
Symmetric	0	No Diel	3/4	1/2	-0.002%	0.615%	-0.046	0.372%	3.244%	0.297	-1.487%	2.725%	0.314	0.046%	2.093%	-0.038	1.636%	3.318%	0.177
Symmetric	0	No Diel	1/2	1/6	0.017%	1.391%	0.000	0.490%	3.039%	0.267	-1.428%	2.598%	0.174	-0.002%	1.860%	-0.009	1.288%	2.866%	0.200
Symmetric	0	No Diel	1/2	1/4	0.001%	1.082%	-0.031	0.213%	2.597%	0.183	-1.572%	2.192%	0.215	-0.004%	1.670%	-0.007	1.036%	2.467%	0.105
Symmetric	0	No Diel	1/2	1/3	0.026%	0.865%	-0.058	0.197%	2.429%	0.188	-1.598%	2.059%	0.130	-0.020%	1.523%	0.011	0.920%	2.348%	0.105
Symmetric	0	No Diel	1/2	1/2	-0.016%	0.617%	0.079	0.163%	2.224%	0.225	-1.631%	1.876%	0.225	0.014%	1.384%	0.006	0.744%	2.178%	0.114
Symmetric	0	No Diel	1/4	1/6	-0.034%	1.361%	-0.006	0.351%	2.393%	0.121	-1.594%	1.984%	0.077	-0.024%	1.445%	0.015	0.741%	2.018%	0.057
Symmetric	0	No Diel	1/4	1/4	0.003%	1.043%	0.020	0.183%	1.890%	0.165	-1.666%	1.607%	0.072	-0.016%	1.104%	0.045	0.499%	1.626%	0.077
Symmetric	0	No Diel	1/4	1/3	0.006%	0.878%	0.069	0.134%	1.619%	0.055	-1.690%	1.356%	0.106	0.023%	0.943%	-0.005	0.379%	1.405%	0.079
Symmetric	0	No Diel	1/4	1/2	-0.003%	0.626%	-0.023	0.043%	1.308%	0.084	-1.753%	1.056%	0.103	0.001%	0.703%	0.030	0.230%	1.130%	0.046
Symmetric	0	Slight Diel	1	1/6	0.012%	1.408%	-0.003	0.501%	3.530%	0.423	-0.692%	2.991%	0.335	0.009%	2.739%	0.043	1.677%	3.813%	0.198
Symmetric	0	Slight Diel	1	1/4	-0.015%	1.085%	-0.028	0.465%	3.326%	0.355	-0.691%	2.853%	0.320	0.034%	2.550%	-0.037	1.506%	3.649%	0.211
Symmetric	0	Slight Diel	1	1/3	-0.013%	0.882%	0.031	0.449%	3.249%	0.384	-0.742%	2.756%	0.335	0.026%	2.459%	0.026	1.351%	3.578%	0.142
Symmetric	0	Slight Diel	1	1/2	0.002%	0.622%	0.044	0.295%	3.062%	0.295	-0.848%	2.612%	0.238	-0.014%	2.393%	-0.036	1.321%	3.509%	0.166
Symmetric	0	Slight Diel	3/4	1/6	-0.008%	1.362%	0.000	0.290%	2.626%	0.239	-0.857%	2.453%	0.183	0.011%	2.171%	0.027	1.089%	2.960%	0.100
Symmetric	0	Slight Diel	3/4	1/4	-0.019%	1.057%	0.063	0.230%	2.613%	0.187	-0.909%	2.262%	0.169	-0.036%	1.979%	0.004	0.994%	2.763%	0.096
Symmetric	0	Slight Diel	3/4	1/3	-0.003%	0.871%	-0.063	0.260%	2.473%	0.284	-0.867%	2.129%	0.263	0.003%	1.845%	0.030	0.819%	2.581%	0.109
Symmetric	0	Slight Diel	3/4	1/2	-0.003%	0.627%	0.074	0.196%	2.357%	0.297	-0.949%	1.993%	0.248	0.016%	1.770%	0.024	0.736%	2.553%	0.176
Symmetric	0	Slight Diel	1/2	1/6	-0.005%	1.385%	0.010	0.291%	2.287%	0.126	-0.821%	2.021%	0.151	-0.043%	1.726%	0.038	0.667%	2.239%	0.059
Symmetric	0	Slight Diel	1/2	1/4	0.032%	1.066%	0.059	0.188%	1.983%	0.133	-0.910%	1.711%	0.122	-0.042%	1.490%	0.039	0.523%	2.001%	0.092
Symmetric	0	Slight Diel	1/2	1/3	0.022%	0.853%	0.001	0.237%	1.791%	0.185	-0.917%	1.527%	0.183	-0.021%	1.349%	-0.011	0.496%	1.845%	0.054
Symmetric	0	Slight Diel	1/2	1/2	-0.002%	0.619%	-0.015	0.156%	1.840%	0.178	-0.937%	1.386%	0.130	-0.014%	1.194%	-0.037	0.351%	1.700%	0.026
Symmetric	0	Slight Diel	1/4	1/6	-0.003%	1.390%	-0.008	0.323%	1.945%	0.146	-0.810%	1.675%	0.076	0.012%	1.413%	0.054	0.447%	1.669%	0.012
Symmetric	0	Slight Diel	1/4	1/4	-0.004%	1.087%	0.020	0.278%	1.487%	0.106	-0.874%	1.290%	0.048	0.000%	1.059%	-0.029	0.259%	1.369%	0.061
Symmetric	0	Slight Diel	1/4	1/3	-0.011%	0.867%	-0.025	0.230%	1.287%	0.072	-0.900%	1.096%	0.053	0.001%	0.882%	-0.008	0.197%	1.123%	0.019
Symmetric	0	Slight Diel	1/4	1/2	-0.007%	0.616%	-0.022	0.176%	1.006%	0.034	-0.909%	0.817%	0.033	0.005%	0.612%	0.061	0.117%	0.884%	0.022
Symmetric	0	Moderate Diel	1	1/6	-0.046%	1.411%	-0.038	0.173%	2.140%	0.271	-0.193%	1.948%	0.180	0.030%	2.020%	-0.048	0.749%	2.952%	0.180
Symmetric	0	Moderate Diel	1	1/4	-0.014%	1.084%	-0.055	0.125%	1.911%	0.250	-0.230%	1.734%	0.250	0.040%	1.816%	0.006	0.681%	2.844%	0.170
Symmetric	0	Moderate Diel	1	1/3	0.008%	0.871%	-0.055	0.158%	1.821%	0.339	-0.269%	1.570%	0.281	0.000%	1.695%	-0.038	0.620%	2.713%	0.137
Symmetric	0	Moderate Diel	1	1/2	0.006%	0.631%	-0.029	0.117%	1.682%	0.383	-0.235%	1.439%	0.328	0.051%	1.562%	-0.003	0.633%	2.665%	0.220
Symmetric	0	Moderate Diel	3/4	1/6	-0.031%	1.382%	0.002	0.128%	1.815%	0.181	-0.233%	1.627%	0.117	0.018%	1.734%	0.012	0.545%	2.347%	0.144
Symmetric	0	Moderate Diel	3/4	1/4	-0.007%	1.074%	0.003	0.137%	1.573%	0.158	-0.229%	1.423%	0.184	0.012%	1.478%	0.034	0.447%	2.181%	0.144
Symmetric	0	Moderate Diel	3/4	1/3	0.009%	0.888%	0.027	0.057%	1.457%	0.241	-0.313%	1.290%	0.177	0.010%	1.337%	-0.002	0.417%	2.067%	0.124
Symmetric	0	Moderate Diel	3/4	1/2	-0.037%	0.629%	-0.002	0.110%	1.314%	0.216	-0.260%	1.111%	0.174	0.046%	1.169%	0.007	0.383%	2.002%	0.148
Symmetric	0	Moderate Diel	1/2	1/6	-0.049%	1.369%	-0.091	0.126%	1.589%	0.085	-0.275%	1.469%	0.105	-0.001%	1.483%	-0.027	0.303%	1.815%	0.014
Symmetric	0	Moderate Diel	1/2	1/4	0.012%	1.076%	-0.032	0.077%	1.314%	0.085	-0.300%	1.213%	0.070	-0.003%	1.197%	0.020	0.222%	1.611%	0.045
Symmetric	0	Moderate Diel	1/2	1/3	0.009%	0.887%	0.027	0.061%	1.143%	0.151	-0.322%	1.020%	0.080	0.021%	1.033%	0.041	0.201%	1.481%	0.033
Symmetric	0	Moderate Diel	1/2	1/2	0.005%	0.626%	0.031	0.033%	0.963%	0.131	-0.329%	0.806%	0.127	0.009%	0.785%	0.038	0.182%	1.324%	0.086
Symmetric	0	Moderate Diel	1/4	1/6	-0.005%	1.399%	0.016	0.034%	1.421%	0.058	-0.373%	1.361%	0.065	0.031%	1.325%	-0.004	0.222%	1.448%	0.040
Symmetric	0	Moderate Diel	1/4	1/4	-0.019%	1.081%	0.036	0.009%	1.101%	0.074	-0.338%	1.025%	0.005	0.030%	0.993%	0.003	0.155%	1.141%	-0.027
Symmetric	0	Moderate Diel	1/4	1/3	-0.004%	0.865%	-0.050	-0.010%	0.911%	0.024	-0.346%	0.835%	0.106	0.022%	0.755%	0.065	0.105%	0.946%	0.023
Symmetric	0	Moderate Diel	1/4	1/2	0.001%	0.614%	-0.007	-0.006%	0.668%	-0.001	-0.347%	0.555%	0.000	0.022%	0.409%	0.020	0.061%	0.687%	0.050
Symmetric	0	Strong Diel	1	1/6	-0.026%	1.376%	0.011	0.026%	1.382%	0.097	-0.029%	1.352%	0.087	0.009%	1.421%	0.030	0.212%	1.804%	0.109
Symmetric	0	Strong Diel	1	1/4	-0.001%	1.091%	0.012	0.030%	1.093%	0.250	-0.030%	1.025%	0.175	-0.013%	1.089%	0.027	0.189%	1.634%	0.158
Symmetric	0	Strong Diel	1	1/3	0.002%	0.840%	-0.001	0.004%	0.890%	0.359	-0.063%	0.807%	0.262	0.020%	0.950%	-0.029	0.151%	1.581%	0.186
Symmetric	0	Strong Diel	1	1/2	-0.008%	0.511%	0.053	0.008%	0.756%	0.471	-0.044%	0.669%	0.418	0.027%	0.692%	-0.013	0.171%	1.489%	0.147
Symmetric	0	Strong Diel	3/4	1/6	-0.002%	1.413%	-0.027	0.052%	1.321%	0.040	-0.031%	1.300%	0.001	-0.004%	1.369%	0.048	0.132%	1.548%	0.073
Symmetric	0	Strong Diel	3/4	1/4	0.008%	1.095%	-0.018	0.005%	1.029%	0.036	-0.063%	0.958%	0.016	0.000%	0.984%	-0.006	0.105%	1.312%	0.140
Symmetric	0	Strong Diel	3/4	1/3	0.001%	0.858%	-0.027	0.020%	0.798%	0.182	-0.053%	0.726%	0.097	0.001%	0.806%	-0.015	0.097%	1.225%	0.048
Symmetric	0	Strong Diel	3/4	1/2	-0.001%	0.527%	0.008	0.015%	0.653%	0.264	-0.040%	0.572%	0.230	-0.004%	0.516%	-0.018	0.062%	1.113%	0.117
Symmetric	0	Strong Diel	1/2	1/6	0.001%	1.404%	0.021	-0.016%	1.279%	0.049	-0.069%	1.265%	0.007	0.029%	1.341%	0.011	0.088%	1.304%	0.106
Symmetric	0	Strong Diel	1/2	1/4	-0.004%	1.078%	-0.014	0.017%	0.961%	0.041	-0.029%	0.925%	-0.005	-0.001%	0.921%	-0.061	0.063%	1.018%	0.055
Symmetric	0	Strong Diel	1/2	1/3	0.019%	0.861%	-0.024	0.011%	0.737%	0.084	-0.056%	0.686%	-0.017	0.026%	0.719%	0.036	0.045%	0.911%	0.020
Symmetric	0	Strong Diel	1/2	1/2	-0.003%	0.543%	-0.002	-0.010%	0.548%	0.110	-0.065%	0.494%	0.059	0.016%	0.357%	-0.030	0.042%	0.757%	0.077
Symmetric	0	Strong Diel	1/4	1/6	-0.034%	1.389%	0.000	-0.032%	1.238%	0.024	-0.023%	1.245%	-0.003	0.022%	1.271%	0.062	0.037%	1.115%	0.038
Symmetric	0	Strong Diel	1/4	1/4	-0.015%	1.088%	-0.039	-0.014%	0.924%	0.006	-0.073%	0.887%	-0.018	-0.021%	0.878%	-0.045	0.019%	0.799%	0.022
Symmetric	0	Strong Diel	1/4	1/3	-0.010%	0.862%	-0.021	-0.018%	0.703%	0.008	-0.067%	0.646%	0.010	-0.016%	0.654%	-0.078	0.008%	0.651%	0.078
Symmetric	0	Strong Diel	1/4	1/2	0.005%	0.552%	0.018	-0.019%	0.473%	0.022	-0.071%	0.437%	0.006	-0.013%	0.191%	0.009	0.004%	0.433%	0.079

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Symmetric	0.25	No Diel	1	1/6	-0.023%	1.412%	0.002	0.816%	4.833%	0.402	-1.100%	4.296%	0.342	0.049%	3.236%	-0.012	3.698%	5.155%	0.309
Symmetric	0.25	No Diel	1	1/4	0.050%	1.059%	-0.020	0.796%	4.550%	0.397	-1.183%	4.130%	0.306	-0.005%	3.118%	-0.017	3.326%	5.003%	0.302
Symmetric	0.25	No Diel	1	1/3	-0.015%	0.875%	-0.048	0.667%	4.417%	0.429	-1.257%	4.023%	0.327	0.045%	3.027%	-0.043	3.340%	4.930%	0.318
Symmetric	0.25	No Diel	1	1/2	-0.001%	0.620%	0.035	0.575%	4.281%	0.391	-1.329%	3.862%	0.297	0.032%	2.981%	0.009	3.055%	4.818%	0.344
Symmetric	0.25	No Diel	3/4	1/6	0.009%	1.379%	-0.038	0.631%	3.818%	0.267	-1.301%	3.514%	0.170	0.033%	2.602%	-0.007	2.228%	3.878%	0.181
Symmetric	0.25	No Diel	3/4	1/4	-0.032%	1.075%	0.029	0.496%	3.523%	0.308	-1.444%	3.289%	0.206	0.029%	2.483%	0.002	1.946%	3.630%	0.154
Symmetric	0.25	No Diel	3/4	1/3	0.014%	0.874%	0.019	0.449%	3.343%	0.242	-1.455%	3.153%	0.134	0.033%	2.361%	0.011	1.772%	3.488%	0.162
Symmetric	0.25	No Diel	3/4	1/2	0.011%	0.629%	0.000	0.416%	3.231%	0.281	-1.470%	3.025%	0.164	-0.022%	2.345%	-0.044	1.607%	3.412%	0.202
Symmetric	0.25	No Diel	1/2	1/6	-0.007%	1.361%	-0.011	0.390%	2.957%	0.212	-1.477%	2.877%	0.068	0.013%	2.173%	0.069	1.371%	2.852%	0.135
Symmetric	0.25	No Diel	1/2	1/4	-0.013%	1.056%	-0.049	0.301%	2.661%	0.209	-1.553%	2.605%	0.103	-0.034%	1.931%	0.025	1.097%	2.540%	0.080
Symmetric	0.25	No Diel	1/2	1/3	-0.012%	0.858%	-0.027	0.245%	2.436%	0.209	-1.564%	2.451%	0.078	-0.007%	1.843%	-0.015	0.892%	2.303%	0.126
Symmetric	0.25	No Diel	1/2	1/2	-0.001%	0.615%	0.005	0.209%	2.235%	0.191	-1.617%	2.309%	0.159	0.015%	1.711%	-0.024	0.686%	2.194%	0.153
Symmetric	0.25	No Diel	1/4	1/6	-0.009%	1.395%	-0.019	0.287%	2.403%	0.131	-1.589%	2.443%	0.033	-0.009%	1.785%	-0.018	0.777%	2.051%	0.053
Symmetric	0.25	No Diel	1/4	1/4	0.000%	1.050%	-0.020	0.192%	1.882%	0.114	-1.672%	2.095%	0.015	-0.028%	1.513%	-0.031	0.542%	1.658%	0.068
Symmetric	0.25	No Diel	1/4	1/3	-0.004%	0.877%	0.002	0.156%	1.642%	0.083	-1.679%	1.923%	0.005	-0.009%	1.380%	-0.023	0.374%	1.421%	0.038
Symmetric	0.25	No Diel	1/4	1/2	-0.004%	0.609%	0.030	0.081%	1.311%	0.083	-1.718%	1.703%	-0.006	0.018%	1.224%	-0.016	0.220%	1.127%	0.071
Symmetric	0.25	Slight Diel	1	1/6	0.025%	1.401%	-0.016	0.504%	3.498%	0.387	-0.608%	3.299%	0.191	0.044%	3.250%	0.034	1.728%	3.864%	0.167
Symmetric	0.25	Slight Diel	1	1/4	-0.032%	1.077%	-0.022	0.453%	3.337%	0.300	-0.720%	3.149%	0.226	0.009%	3.109%	-0.032	1.544%	3.688%	0.135
Symmetric	0.25	Slight Diel	1	1/3	-0.004%	0.882%	-0.016	0.431%	3.231%	0.411	-0.744%	3.079%	0.226	0.022%	3.109%	0.005	1.421%	3.631%	0.156
Symmetric	0.25	Slight Diel	1	1/2	0.004%	0.620%	0.014	0.306%	3.075%	0.318	-0.803%	2.969%	0.197	-0.006%	3.004%	-0.002	1.411%	3.473%	0.150
Symmetric	0.25	Slight Diel	3/4	1/6	0.012%	1.380%	0.002	0.321%	2.942%	0.277	-0.797%	2.859%	0.117	0.017%	2.843%	0.040	1.066%	2.944%	0.119
Symmetric	0.25	Slight Diel	3/4	1/4	-0.015%	1.072%	0.015	0.322%	2.658%	0.277	-0.808%	2.607%	0.159	0.007%	2.722%	0.000	0.954%	2.773%	0.114
Symmetric	0.25	Slight Diel	3/4	1/3	-0.022%	0.873%	-0.062	0.259%	2.504%	0.219	-0.855%	2.528%	0.142	0.029%	2.572%	-0.019	0.829%	2.670%	0.098
Symmetric	0.25	Slight Diel	3/4	1/2	-0.006%	0.615%	0.075	0.193%	2.367%	0.255	-0.884%	2.463%	0.135	0.005%	2.510%	0.014	0.786%	2.542%	0.114
Symmetric	0.25	Slight Diel	1/2	1/6	-0.101%	1.362%	0.121	0.265%	2.333%	0.144	-0.929%	2.500%	0.047	-0.047%	2.448%	0.050	0.725%	2.270%	0.089
Symmetric	0.25	Slight Diel	1/2	1/4	-0.007%	1.079%	-0.018	0.160%	2.007%	0.133	-0.964%	2.216%	0.080	0.012%	2.335%	-0.010	0.479%	1.999%	0.130
Symmetric	0.25	Slight Diel	1/2	1/3	0.014%	0.874%	0.019	0.449%	3.343%	0.242	-1.455%	3.153%	0.134	0.033%	2.361%	0.011	1.772%	3.488%	0.162
Symmetric	0.25	Slight Diel	1/2	1/2	-0.015%	0.624%	0.026	0.150%	1.670%	0.178	-0.943%	1.960%	0.028	-0.021%	2.144%	0.061	0.346%	1.664%	0.051
Symmetric	0.25	Slight Diel	1/4	1/6	-0.003%	1.382%	0.030	0.197%	1.914%	0.052	-0.962%	2.199%	-0.002	0.003%	2.225%	0.029	0.391%	1.704%	0.080
Symmetric	0.25	Slight Diel	1/4	1/4	0.015%	1.069%	0.040	0.171%	1.547%	0.110	-0.922%	1.880%	0.027	-0.037%	2.065%	-0.020	0.245%	1.348%	0.061
Symmetric	0.25	Slight Diel	1/4	1/3	-0.006%	0.862%	0.060	0.114%	1.287%	0.085	-0.938%	1.763%	0.015	0.019%	1.978%	-0.017	0.183%	1.147%	0.046
Symmetric	0.25	Slight Diel	1/4	1/2	0.014%	0.625%	-0.052	0.085%	1.017%	0.055	-0.985%	1.615%	0.016	0.026%	1.872%	0.001	0.088%	0.896%	0.017
Symmetric	0.25	Moderate Diel	1	1/6	-0.020%	1.415%	-0.060	0.190%	2.148%	0.265	-0.143%	2.366%	0.160	0.020%	3.240%	0.042	0.771%	2.970%	0.187
Symmetric	0.25	Moderate Diel	1	1/4	-0.028%	1.059%	0.029	0.126%	1.932%	0.337	-0.217%	2.221%	0.108	-0.004%	3.172%	-0.027	0.788%	2.791%	0.170
Symmetric	0.25	Moderate Diel	1	1/3	0.019%	0.885%	-0.004	0.133%	1.793%	0.333	-0.211%	2.091%	0.112	0.001%	3.100%	0.041	0.688%	2.735%	0.172
Symmetric	0.25	Moderate Diel	1	1/2	0.002%	0.639%	0.026	0.146%	1.702%	0.356	-0.221%	2.022%	0.104	-0.009%	3.020%	-0.004	0.650%	2.676%	0.142
Symmetric	0.25	Moderate Diel	3/4	1/6	-0.019%	1.382%	0.000	0.092%	1.824%	0.173	-0.285%	2.142%	0.017	-0.022%	3.107%	0.000	0.515%	2.358%	0.067
Symmetric	0.25	Moderate Diel	3/4	1/4	-0.028%	1.078%	-0.047	0.075%	1.585%	0.200	-0.295%	1.988%	0.038	-0.002%	2.983%	0.013	0.408%	2.175%	0.142
Symmetric	0.25	Moderate Diel	3/4	1/3	-0.008%	0.876%	0.016	0.056%	1.465%	0.252	-0.305%	1.894%	0.093	0.004%	2.867%	0.006	0.403%	2.062%	0.025
Symmetric	0.25	Moderate Diel	3/4	1/2	-0.020%	0.630%	-0.004	0.024%	1.312%	0.252	-0.288%	1.779%	0.051	-0.028%	2.849%	-0.011	0.352%	1.999%	0.135
Symmetric	0.25	Moderate Diel	1/2	1/6	0.016%	1.377%	-0.069	0.084%	1.554%	0.122	-0.248%	2.008%	0.028	0.005%	2.927%	0.092	0.301%	1.813%	0.073
Symmetric	0.25	Moderate Diel	1/2	1/4	0.020%	1.064%	0.025	0.052%	1.323%	0.099	-0.292%	1.799%	0.011	0.044%	2.773%	0.045	0.240%	1.621%	0.042
Symmetric	0.25	Moderate Diel	1/2	1/3	0.019%	0.870%	-0.012	0.051%	1.161%	0.156	-0.319%	1.730%	0.022	-0.022%	2.757%	0.015	0.156%	1.481%	0.073
Symmetric	0.25	Moderate Diel	1/2	1/2	-0.007%	0.619%	-0.023	0.023%	0.943%	0.063	-0.323%	1.636%	0.008	0.019%	2.668%	-0.014	0.198%	1.329%	0.069
Symmetric	0.25	Moderate Diel	1/4	1/6	-0.020%	1.415%	0.030	-0.006%	1.408%	0.066	-0.345%	1.930%	0.007	-0.012%	2.835%	0.011	0.182%	1.435%	0.053
Symmetric	0.25	Moderate Diel	1/4	1/4	0.001%	1.089%	0.022	0.004%	1.100%	0.013	-0.351%	1.710%	-0.030	0.027%	2.727%	0.034	0.122%	1.145%	-0.005
Symmetric	0.25	Moderate Diel	1/4	1/3	0.004%	0.873%	0.022	0.001%	0.917%	0.051	-0.345%	1.606%	0.047	-0.022%	2.687%	-0.001	0.080%	0.947%	0.022
Symmetric	0.25	Moderate Diel	1/4	1/2	0.013%	0.629%	-0.004	-0.012%	0.669%	0.057	-0.355%	1.505%	-0.023	0.029%	2.613%	0.001	0.034%	0.704%	0.027
Symmetric	0.25	Strong Diel	1	1/6	-0.008%	1.397%	0.050	0.020%	1.365%	0.127	-0.070%	1.946%	0.067	-0.055%	3.268%	0.006	0.201%	1.833%	0.158
Symmetric	0.25	Strong Diel	1	1/4	-0.018%	1.090%	0.010	-0.001%	1.085%	0.243	-0.032%	1.733%	-0.007	-0.046%	3.120%	0.022	0.204%	1.641%	0.134
Symmetric	0.25	Strong Diel	1	1/3	0.010%	0.852%	0.001	0.024%	0.896%	0.329	-0.023%	1.597%	0.004	-0.030%	3.088%	0.083	0.166%	1.563%	0.160
Symmetric	0.25	Strong Diel	1	1/2	0.008%	0.526%	0.020	0.031%	0.766%	0.536	-0.021%	1.552%	0.015	0.012%	3.052%	-0.014	0.186%	1.508%	0.161
Symmetric	0.25	Strong Diel	3/4	1/6	0.000%	1.410%	0.049	0.018%	1.328%	0.011	-0.040%	1.899%	0.027	-0.062%	3.203%	0.028	0.165%	1.551%	0.072
Symmetric	0.25	Strong Diel	3/4	1/4	0.011%	1.082%	0.039	0.012%	1.002%	0.088	-0.055%	1.695%	-0.002	0.076%	3.107%	0.008	0.133%	1.326%	0.161
Symmetric	0.25	Strong Diel	3/4	1/3	-0.005%	0.865%	0.039	-0.007%	0.820%	0.168	-0.050%	1.574%	0.029	-0.055%	3.063%	0.038	0.086%	1.207%	0.104
Symmetric	0.25	Strong Diel	3/4	1/2	0.001%	0.531%	0.024	-0.013%	0.633%	0.312	-0.065%	1.517%	0.020	0.029%	2.988%	-0.023	0.087%	1.144%	0.045
Symmetric	0.25	Strong Diel	1/2	1/6	-0.006%	1.431%	-0.044	0.009%	1.279%	0.013	-0.039%	1.886%	0.002	0.024%	3.243%	0.006	0.056%	1.316%	0.036
Symmetric	0.25	Strong Diel	1/2	1/4	-0.007%	1.086%	0.033	0.018%	0.975%	0.031	-0.054%	1.665%	-0.001	-0.015%	3.109%	-0.019	0.069%	1.028%	0.123
Symmetric	0.25	Strong Diel	1/2	1/3	0.004%	0.877%	-0.014	0.015%	0.746%	0.087	-0.032%	1.561%	-0.026	-0.015%	3.024%	0.003	0.049%	0.909%	0.070
Symmetric	0.25	Strong Diel	1/2	1/2	-0.005%	0.546%	0.026	0.011%	0.550%	0.059	-0.037%	1.493%	-0.005	0.072%	2.976%	-0.004	0.046%	0.783%	0.049
Symmetric	0.25	Strong Diel	1/4	1/6	-0.033%	1.370%	0.017	0.011%	1.249%	0.043	-0.072%	1.851%	0.000	-0.037%	3.244%	-0.036	0.059%	1.142%	0.038
Symmetric	0.25	Strong Diel	1/4	1/4	0.003%	1.087%	-0.006	-0.030%	0.930%	0.016	-0.068%	1.644%	-0.042	-0.028%	3.088%	-0.025	0.041%	0.813%	0.055
Symmetric	0.25	Strong Diel	1/4	1/3	0.002%	0.859%	-0.009	-0.002%	0.707%	0.030	-0.057%	1.545%	0.017	-0.011%	3.034%	0.001	0.017%	0.666%	0.060
Symmetric	0.25	Strong Diel	1/4	1/2	0.000%	0.546%	0.018	-0.006%	0.486%	-0.003	-0.055%	1.452%	0.004	-0.016%	2.967%	-0.037	0.013%	0.438%	0.032

Appendix A (page 3 of 9).

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Symmetric	0.5	No Diel	1	1/6	-0.009%	1.386%	0.052	0.883%	4.952%	0.426	-1.060%	4.951%	0.211	0.034%	3.768%	-0.032	3.857%	5.448%	0.345
Symmetric	0.5	No Diel	1	1/4	-0.029%	1.071%	0.027	0.726%	4.590%	0.416	-1.160%	4.739%	0.217	0.018%	3.595%	-0.009	3.424%	5.091%	0.378
Symmetric	0.5	No Diel	1	1/3	-0.009%	0.900%	-0.028	0.675%	4.478%	0.369	-1.279%	4.658%	0.247	0.024%	3.572%	0.048	3.298%	5.052%	0.343
Symmetric	0.5	No Diel	1	1/2	-0.007%	0.619%	0.079	0.606%	4.392%	0.334	-1.288%	4.657%	0.218	-0.026%	3.497%	-0.012	2.949%	4.989%	0.284
Symmetric	0.5	No Diel	3/4	1/6	0.004%	1.391%	-0.020	0.534%	3.903%	0.296	-1.298%	4.262%	0.144	0.037%	3.208%	-0.008	2.301%	3.928%	0.182
Symmetric	0.5	No Diel	3/4	1/4	0.053%	1.071%	0.035	0.509%	3.599%	0.261	-1.409%	4.096%	0.121	0.001%	3.102%	0.040	2.027%	3.743%	0.188
Symmetric	0.5	No Diel	3/4	1/3	0.004%	0.868%	-0.011	0.480%	3.452%	0.270	-1.404%	3.965%	0.132	0.009%	3.059%	-0.029	1.808%	3.605%	0.119
Symmetric	0.5	No Diel	3/4	1/2	-0.016%	0.626%	0.034	0.382%	3.284%	0.334	-1.513%	3.884%	0.130	0.006%	2.930%	0.000	1.642%	3.510%	0.213
Symmetric	0.5	No Diel	1/2	1/6	0.003%	1.358%	-0.035	0.394%	3.080%	0.173	-1.464%	3.698%	0.039	-0.020%	2.737%	0.017	1.288%	2.906%	0.110
Symmetric	0.5	No Diel	1/2	1/4	-0.007%	1.061%	0.021	0.302%	2.718%	0.203	-1.560%	3.558%	0.079	-0.018%	2.620%	-0.005	1.072%	2.597%	0.133
Symmetric	0.5	No Diel	1/2	1/3	0.005%	0.865%	-0.008	0.301%	2.466%	0.189	-1.579%	3.374%	0.028	0.038%	2.555%	-0.006	0.928%	2.430%	0.094
Symmetric	0.5	No Diel	1/2	1/2	0.001%	0.613%	-0.061	0.187%	2.256%	0.195	-1.603%	3.297%	0.006	-0.035%	2.505%	-0.009	0.724%	2.288%	0.101
Symmetric	0.5	No Diel	1/4	1/6	-0.017%	1.368%	-0.008	0.333%	2.418%	0.136	-1.513%	3.371%	0.014	0.015%	2.478%	-0.005	0.833%	2.144%	0.093
Symmetric	0.5	No Diel	1/4	1/4	-0.012%	1.038%	-0.015	0.216%	1.954%	0.144	-1.660%	3.190%	0.005	-0.021%	2.279%	0.028	0.546%	1.686%	0.062
Symmetric	0.5	No Diel	1/4	1/3	-0.020%	0.850%	-0.015	0.163%	1.683%	0.146	-1.660%	3.011%	-0.042	0.001%	2.219%	0.028	0.376%	1.442%	0.080
Symmetric	0.5	No Diel	1/4	1/2	-0.004%	0.620%	-0.024	0.082%	1.340%	0.104	-1.746%	2.930%	-0.061	-0.004%	2.142%	-0.006	0.228%	1.178%	0.001
Symmetric	0.5	Slight Diel	1	1/6	0.018%	1.398%	0.029	0.437%	3.605%	0.362	-0.709%	4.124%	0.159	0.041%	4.518%	0.057	1.718%	3.950%	0.233
Symmetric	0.5	Slight Diel	1	1/4	0.028%	1.066%	0.014	0.435%	3.367%	0.351	-0.715%	3.993%	0.117	-0.114%	4.465%	-0.038	1.592%	3.787%	0.213
Symmetric	0.5	Slight Diel	1	1/3	-0.009%	0.871%	-0.013	0.386%	3.307%	0.357	-0.778%	3.909%	0.161	0.022%	4.401%	0.003	1.535%	3.655%	0.212
Symmetric	0.5	Slight Diel	1	1/2	0.000%	0.622%	0.033	0.346%	3.187%	0.378	-0.773%	3.870%	0.131	-0.085%	4.328%	-0.043	1.461%	3.603%	0.209
Symmetric	0.5	Slight Diel	3/4	1/6	0.015%	1.376%	-0.009	0.370%	2.925%	0.326	-0.739%	3.752%	0.038	-0.052%	4.183%	-0.004	1.077%	3.046%	0.115
Symmetric	0.5	Slight Diel	3/4	1/4	-0.055%	1.061%	-0.022	0.221%	2.645%	0.295	-0.925%	3.535%	0.059	0.039%	4.100%	-0.032	0.947%	2.851%	0.163
Symmetric	0.5	Slight Diel	3/4	1/3	-0.003%	0.869%	-0.001	0.257%	2.525%	0.223	-0.894%	3.521%	0.035	-0.020%	4.015%	0.046	0.829%	2.725%	0.156
Symmetric	0.5	Slight Diel	3/4	1/2	0.003%	0.620%	0.021	0.174%	2.364%	0.265	-0.946%	3.344%	0.058	0.011%	4.016%	0.011	0.736%	2.626%	0.128
Symmetric	0.5	Slight Diel	1/2	1/6	-0.020%	1.394%	0.110	0.233%	2.348%	0.225	-0.954%	3.433%	0.017	0.009%	3.991%	0.035	0.714%	2.332%	0.037
Symmetric	0.5	Slight Diel	1/2	1/4	-0.027%	1.057%	-0.093	0.184%	2.043%	0.143	-0.939%	3.317%	0.052	-0.022%	3.916%	-0.032	0.548%	2.074%	0.130
Symmetric	0.5	Slight Diel	1/2	1/3	-0.012%	0.869%	-0.048	0.103%	1.849%	0.161	-0.968%	3.139%	0.010	0.021%	3.792%	0.028	0.422%	1.912%	0.087
Symmetric	0.5	Slight Diel	1/2	1/2	-0.006%	0.626%	0.017	0.107%	1.676%	0.166	-0.977%	3.072%	-0.011	0.014%	3.768%	-0.005	0.372%	1.754%	0.071
Symmetric	0.5	Slight Diel	1/4	1/6	0.010%	1.365%	-0.021	0.155%	1.930%	0.079	-0.910%	3.257%	0.008	0.046%	3.868%	-0.010	0.463%	1.741%	0.044
Symmetric	0.5	Slight Diel	1/4	1/4	-0.003%	1.075%	-0.004	0.077%	1.560%	0.059	-1.017%	3.047%	-0.001	0.025%	3.705%	-0.009	0.261%	1.399%	0.077
Symmetric	0.5	Slight Diel	1/4	1/3	-0.005%	0.880%	0.078	0.074%	1.320%	0.082	-0.971%	2.958%	0.002	-0.020%	3.712%	0.019	0.170%	1.157%	-0.010
Symmetric	0.5	Slight Diel	1/4	1/2	-0.015%	0.622%	-0.001	0.061%	1.047%	0.048	-1.026%	2.879%	-0.028	0.052%	3.633%	-0.020	0.083%	0.902%	-0.009
Symmetric	0.5	Moderate Diel	1	1/6	0.003%	1.407%	0.050	0.168%	2.164%	0.304	-0.192%	3.395%	0.057	0.011%	5.490%	0.024	0.799%	3.058%	0.179
Symmetric	0.5	Moderate Diel	1	1/4	0.006%	1.075%	0.002	0.106%	1.940%	0.299	-0.252%	3.303%	0.012	-0.008%	5.470%	0.009	0.689%	2.902%	0.152
Symmetric	0.5	Moderate Diel	1	1/3	-0.023%	0.901%	-0.025	0.110%	1.854%	0.367	-0.269%	3.205%	0.070	-0.126%	5.461%	-0.010	0.709%	2.808%	0.175
Symmetric	0.5	Moderate Diel	1	1/2	0.016%	0.834%	0.029	0.091%	1.718%	0.395	-0.312%	3.129%	0.055	0.095%	5.348%	-0.020	0.652%	2.718%	0.187
Symmetric	0.5	Moderate Diel	3/4	1/6	0.010%	1.395%	0.002	0.090%	1.854%	0.140	-0.286%	3.250%	0.033	0.077%	5.448%	0.025	0.530%	2.431%	0.072
Symmetric	0.5	Moderate Diel	3/4	1/4	-0.001%	1.065%	-0.044	0.071%	1.588%	0.220	-0.305%	3.120%	0.033	-0.063%	5.399%	0.009	0.384%	2.200%	0.120
Symmetric	0.5	Moderate Diel	3/4	1/3	-0.012%	0.896%	0.007	0.024%	1.469%	0.280	-0.349%	3.072%	-0.012	-0.069%	5.288%	-0.010	0.372%	2.107%	0.152
Symmetric	0.5	Moderate Diel	3/4	1/2	0.007%	0.642%	0.036	0.024%	1.328%	0.275	-0.359%	3.000%	-0.008	-0.115%	5.292%	-0.008	0.354%	2.028%	0.131
Symmetric	0.5	Moderate Diel	1/2	1/6	-0.038%	1.361%	0.031	0.053%	1.577%	0.134	-0.290%	3.151%	0.035	-0.015%	5.398%	0.036	0.333%	1.889%	0.088
Symmetric	0.5	Moderate Diel	1/2	1/4	0.008%	1.073%	0.005	0.046%	1.334%	0.163	-0.332%	3.055%	0.081	-0.119%	5.244%	-0.015	0.202%	1.637%	0.070
Symmetric	0.5	Moderate Diel	1/2	1/3	-0.013%	0.883%	-0.026	0.031%	1.180%	0.100	-0.317%	2.975%	0.005	-0.065%	5.145%	0.018	0.209%	1.508%	0.030
Symmetric	0.5	Moderate Diel	1/2	1/2	-0.007%	0.623%	0.001	0.023%	0.970%	0.152	-0.306%	2.879%	-0.044	0.003%	5.197%	-0.041	0.152%	1.374%	0.084
Symmetric	0.5	Moderate Diel	1/4	1/6	-0.019%	1.390%	0.045	0.031%	1.433%	0.122	-0.356%	3.101%	0.002	-0.073%	5.311%	0.021	0.184%	1.489%	0.071
Symmetric	0.5	Moderate Diel	1/4	1/4	-0.020%	1.070%	-0.065	-0.004%	1.111%	0.033	-0.372%	3.020%	0.001	-0.045%	5.237%	-0.014	0.136%	1.148%	0.038
Symmetric	0.5	Moderate Diel	1/4	1/3	0.014%	0.895%	-0.038	0.020%	0.932%	0.043	-0.377%	2.912%	-0.012	0.008%	5.285%	-0.058	0.070%	0.968%	-0.022
Symmetric	0.5	Moderate Diel	1/4	1/2	0.011%	0.635%	0.000	0.000%	0.679%	-0.002	-0.357%	2.818%	-0.025	-0.004%	5.187%	0.017	0.042%	0.715%	0.005
Symmetric	0.5	Strong Diel	1	1/6	0.000%	1.403%	-0.071	-0.001%	1.386%	0.088	-0.054%	3.074%	-0.004	0.050%	6.057%	0.018	0.211%	1.865%	0.108
Symmetric	0.5	Strong Diel	1	1/4	0.000%	1.087%	0.002	0.031%	1.087%	0.222	-0.026%	3.001%	0.021	-0.060%	6.083%	0.020	0.194%	1.680%	0.153
Symmetric	0.5	Strong Diel	1	1/3	0.016%	0.826%	-0.033	0.002%	0.893%	0.314	-0.037%	2.935%	-0.020	-0.058%	5.976%	0.016	0.185%	1.609%	0.145
Symmetric	0.5	Strong Diel	1	1/2	-0.001%	0.523%	0.014	0.021%	0.755%	0.492	0.003%	2.907%	-0.028	-0.062%	5.989%	-0.001	0.156%	1.518%	0.161
Symmetric	0.5	Strong Diel	3/4	1/6	-0.011%	1.426%	0.025	0.017%	1.330%	0.070	-0.055%	3.102%	-0.004	-0.043%	6.065%	0.013	0.161%	1.565%	0.111
Symmetric	0.5	Strong Diel	3/4	1/4	-0.001%	1.079%	0.040	0.008%	1.018%	0.108	-0.044%	2.957%	0.028	0.064%	5.866%	-0.015	0.110%	1.324%	0.088
Symmetric	0.5	Strong Diel	3/4	1/3	0.014%	0.841%	0.008	0.007%	0.812%	0.131	-0.077%	2.923%	-0.017	0.038%	5.935%	0.025	0.111%	1.262%	0.100
Symmetric	0.5	Strong Diel	3/4	1/2	-0.002%	0.518%	0.058	-0.010%	0.649%	0.266	-0.090%	2.860%	-0.015	-0.076%	5.930%	0.014	0.099%	1.152%	0.089
Symmetric	0.5	Strong Diel	1/2	1/6	-0.015%	1.403%	-0.033	0.026%	1.299%	0.045	-0.065%	3.085%	0.021	-0.036%	6.077%	0.045	0.065%	1.307%	0.019
Symmetric	0.5	Strong Diel	1/2	1/4	0.011%	1.086%	0.022	0.022%	0.952%	0.019	0.069%	2.986%	-0.028	-0.001%	5.913%	0.032	0.051%	1.048%	0.046
Symmetric	0.5	Strong Diel	1/2	1/3	-0.005%	0.859%	-0.003	0.011%	0.734%	0.086	-0.106%	2.919%	-0.025	0.022%	5.933%	-0.024	0.029%	0.923%	0.056
Symmetric	0.5	Strong Diel	1/2	1/2	-0.011%	0.533%	0.086	0.004%	0.546%	0.087	-0.026%	2.838%	0.017	-0.034%	5.913%	-0.024	0.033%	0.792%	0.116
Symmetric	0.5	Strong Diel	1/4	1/6	-0.022%	1.407%	0.039	-0.018%	1.256%	0.010	-0.090%	3.092%	0.003	0.121%	6.092%	0.005	0.038%	1.140%	0.089
Symmetric	0.5	Strong Diel	1/4	1/4	-0.041%	1.101%	0.038	-0.020%	0.931%	0.037	-0.028%	2.913%	0.004	-0.011%	5.925%	-0.002	0.027%	0.820%	0.036
Symmetric	0.5	Strong Diel	1/4	1/3	0.004%	0.858%	-0.020	-0.001%	0.706%	0.012	-0.073%	2.867%	-0.025	0.031%	5.923%	0.020	0.002%	0.662%	0.044
Symmetric	0.5	Strong Diel	1/4	1/2	0.000%	0.545%	0.019	-0.015%	0.484%	-0.013	-0.085%	2.858%	-0.015	-0.069%	5.940%	-0.027	-0.003%	0.449%	0.005

Appendix A (page 4 of 9).

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Skewed	0	No Diel	1	1/6	-0.001%	1.388%	-0.012	0.889%	4.387%	0.344	-1.275%	3.706%	0.341	0.216%	2.867%	0.065	3.900%	5.193%	0.355
Skewed	0	No Diel	1	1/4	0.010%	1.051%	-0.019	0.795%	4.157%	0.365	-1.285%	3.516%	0.291	0.140%	2.696%	-0.045	3.655%	4.908%	0.315
Skewed	0	No Diel	1	1/3	0.019%	0.869%	-0.036	0.750%	4.061%	0.334	-1.336%	3.423%	0.329	0.183%	2.653%	-0.035	3.380%	4.663%	0.333
Skewed	0	No Diel	1	1/2	-0.008%	0.624%	-0.014	0.677%	3.969%	0.357	-1.390%	3.349%	0.327	0.165%	2.572%	0.005	2.981%	4.490%	0.273
Skewed	0	No Diel	3/4	1/6	-0.023%	1.359%	-0.013	0.630%	3.511%	0.256	-1.537%	3.022%	0.203	0.112%	2.299%	0.051	2.572%	4.023%	0.294
Skewed	0	No Diel	3/4	1/4	0.029%	1.047%	-0.042	0.482%	3.239%	0.283	-1.561%	2.733%	0.218	0.164%	2.100%	-0.025	2.251%	3.673%	0.393
Skewed	0	No Diel	3/4	1/3	0.014%	0.868%	0.052	0.395%	3.093%	0.165	-1.637%	2.586%	0.133	0.195%	2.030%	0.023	1.936%	3.441%	0.279
Skewed	0	No Diel	3/4	1/2	-0.015%	0.604%	-0.077	0.371%	2.922%	0.256	-1.609%	2.484%	0.263	0.142%	1.937%	-0.020	1.610%	3.117%	0.212
Skewed	0	No Diel	1/2	1/6	-0.006%	1.386%	-0.067	0.464%	2.773%	0.078	-1.638%	2.376%	0.050	0.161%	1.794%	0.081	1.617%	3.173%	0.433
Skewed	0	No Diel	1/2	1/4	0.000%	1.070%	0.002	0.272%	2.479%	0.244	-1.738%	2.111%	0.111	0.156%	1.554%	-0.013	1.316%	2.766%	0.577
Skewed	0	No Diel	1/2	1/3	-0.005%	0.862%	-0.118	0.246%	2.235%	0.216	-1.767%	1.892%	0.219	0.146%	1.468%	0.019	1.100%	2.446%	0.335
Skewed	0	No Diel	1/2	1/2	-0.007%	0.617%	-0.072	0.171%	2.060%	0.169	-1.796%	1.704%	0.183	0.134%	1.312%	-0.002	0.747%	2.082%	0.046
Skewed	0	No Diel	1/4	1/6	0.000%	1.379%	0.030	0.275%	2.318%	0.123	-1.747%	1.965%	0.141	0.169%	1.429%	0.049	1.101%	2.592%	0.580
Skewed	0	No Diel	1/4	1/4	0.006%	1.062%	0.035	0.133%	1.824%	0.093	-1.823%	1.536%	0.060	0.150%	1.110%	0.010	0.841%	2.143%	0.813
Skewed	0	No Diel	1/4	1/3	-0.007%	0.855%	0.031	0.102%	1.551%	0.086	-1.882%	1.302%	0.030	0.150%	0.907%	-0.021	0.539%	1.659%	0.720
Skewed	0	No Diel	1/4	1/2	0.000%	0.619%	-0.045	0.064%	1.233%	0.044	-1.895%	0.995%	0.087	0.150%	0.644%	0.010	0.233%	1.111%	0.106
Skewed	0	Slight Diel	1	1/6	0.002%	1.397%	0.017	0.492%	3.349%	0.351	-0.785%	2.867%	0.283	-0.019%	2.556%	-0.052	1.867%	3.976%	0.414
Skewed	0	Slight Diel	1	1/4	0.006%	1.071%	-0.018	0.406%	3.019%	0.352	-0.851%	2.628%	0.290	-0.007%	2.392%	0.012	1.626%	3.627%	0.222
Skewed	0	Slight Diel	1	1/3	-0.002%	0.865%	0.018	0.340%	2.892%	0.235	-0.948%	2.461%	0.235	0.025%	2.300%	-0.005	1.421%	3.439%	0.170
Skewed	0	Slight Diel	1	1/2	-0.020%	0.618%	0.041	0.364%	2.830%	0.294	-0.908%	2.402%	0.260	0.039%	2.211%	-0.029	1.245%	3.303%	0.194
Skewed	0	Slight Diel	3/4	1/6	0.002%	1.390%	-0.048	0.265%	2.703%	0.194	-0.989%	2.313%	0.133	-0.035%	2.054%	0.061	1.439%	3.304%	0.565
Skewed	0	Slight Diel	3/4	1/4	0.058%	1.071%	0.072	0.209%	2.448%	0.285	-1.088%	2.101%	0.227	-0.057%	1.857%	0.002	1.164%	2.832%	0.386
Skewed	0	Slight Diel	3/4	1/3	0.024%	0.864%	0.020	0.147%	2.257%	0.231	-1.059%	1.912%	0.165	-0.041%	1.767%	0.022	0.961%	2.589%	0.133
Skewed	0	Slight Diel	3/4	1/2	-0.007%	0.619%	-0.007	0.229%	2.168%	0.221	-1.022%	1.844%	0.200	-0.073%	1.639%	0.049	0.858%	2.334%	0.074
Skewed	0	Slight Diel	1/2	1/6	-0.031%	1.360%	-0.028	0.221%	2.185%	0.086	-1.023%	1.957%	0.126	-0.043%	1.677%	0.014	1.016%	2.732%	0.750
Skewed	0	Slight Diel	1/2	1/4	-0.016%	1.077%	0.017	0.137%	1.870%	0.130	-1.096%	1.636%	0.184	0.010%	1.428%	-0.007	0.692%	2.205%	0.745
Skewed	0	Slight Diel	1/2	1/3	-0.008%	0.876%	0.025	0.148%	1.674%	0.105	-1.123%	1.439%	0.166	-0.009%	1.279%	0.030	0.514%	1.876%	0.185
Skewed	0	Slight Diel	1/2	1/2	0.000%	0.618%	0.006	0.116%	1.533%	0.098	-1.099%	1.264%	0.093	0.006%	1.101%	0.035	0.363%	1.580%	0.096
Skewed	0	Slight Diel	1/4	1/6	0.001%	1.371%	-0.052	0.177%	1.842%	0.069	-1.066%	1.627%	0.027	-0.018%	1.372%	0.006	0.864%	2.371%	1.049
Skewed	0	Slight Diel	1/4	1/4	0.008%	1.068%	-0.053	0.085%	1.462%	0.046	-1.138%	1.279%	0.037	-0.023%	1.051%	-0.023	0.512%	1.716%	0.923
Skewed	0	Slight Diel	1/4	1/3	-0.006%	0.881%	0.034	0.079%	1.254%	0.078	-1.167%	1.070%	0.046	-0.019%	0.852%	-0.021	0.348%	1.268%	0.263
Skewed	0	Slight Diel	1/4	1/2	-0.005%	0.617%	0.067	0.023%	0.941%	0.067	-1.186%	0.777%	0.030	-0.020%	0.569%	0.016	0.209%	0.871%	0.069
Skewed	0	Moderate Diel	1	1/6	-0.019%	1.381%	-0.037	0.184%	2.029%	0.231	-0.320%	1.808%	0.142	-0.154%	1.916%	0.053	0.874%	3.108%	0.559
Skewed	0	Moderate Diel	1	1/4	0.023%	1.062%	-0.013	0.133%	1.823%	0.316	-0.364%	1.594%	0.190	-0.224%	1.721%	0.024	0.689%	2.726%	0.248
Skewed	0	Moderate Diel	1	1/3	-0.013%	0.877%	0.001	0.137%	1.679%	0.313	-0.349%	1.455%	0.205	-0.199%	1.607%	-0.009	0.597%	2.624%	0.175
Skewed	0	Moderate Diel	1	1/2	0.000%	0.632%	0.027	0.142%	1.542%	0.303	-0.357%	1.318%	0.281	-0.167%	1.447%	-0.016	0.524%	2.511%	0.121
Skewed	0	Moderate Diel	3/4	1/6	-0.022%	1.391%	0.057	0.047%	1.788%	0.213	-0.437%	1.599%	0.089	-0.200%	1.663%	0.004	0.831%	2.620%	0.604
Skewed	0	Moderate Diel	3/4	1/4	-0.030%	1.072%	-0.024	0.063%	1.507%	0.163	-0.414%	1.351%	0.120	-0.198%	1.410%	-0.025	0.639%	2.176%	0.147
Skewed	0	Moderate Diel	3/4	1/3	-0.004%	0.877%	-0.054	0.033%	1.348%	0.180	-0.464%	1.199%	0.202	-0.190%	1.274%	0.008	0.508%	2.000%	0.082
Skewed	0	Moderate Diel	3/4	1/2	0.006%	0.633%	-0.022	0.009%	1.217%	0.228	-0.455%	1.034%	0.204	-0.214%	1.106%	0.014	0.417%	1.879%	0.123
Skewed	0	Moderate Diel	1/2	1/6	-0.016%	1.362%	-0.019	0.086%	1.536%	0.150	-0.429%	1.431%	0.084	-0.207%	1.470%	0.075	0.578%	2.172%	0.695
Skewed	0	Moderate Diel	1/2	1/4	-0.009%	1.062%	-0.027	0.071%	1.255%	0.139	-0.405%	1.130%	0.027	-0.223%	1.138%	0.011	0.391%	1.693%	0.295
Skewed	0	Moderate Diel	1/2	1/3	-0.002%	0.873%	0.027	0.038%	1.109%	0.063	-0.438%	1.005%	0.090	-0.223%	0.952%	0.014	0.290%	1.489%	0.073
Skewed	0	Moderate Diel	1/2	1/2	0.001%	0.623%	0.048	0.023%	0.884%	0.143	-0.441%	0.747%	0.106	-0.220%	0.734%	-0.043	0.238%	1.250%	0.085
Skewed	0	Moderate Diel	1/4	1/6	-0.002%	1.403%	-0.004	0.044%	1.425%	0.053	-0.456%	1.330%	0.022	-0.190%	1.302%	0.027	0.547%	1.961%	1.227
Skewed	0	Moderate Diel	1/4	1/4	0.014%	1.099%	-0.037	0.015%	1.082%	-0.019	-0.463%	1.048%	0.019	-0.171%	0.971%	0.010	0.380%	1.353%	0.636
Skewed	0	Moderate Diel	1/4	1/3	-0.023%	0.878%	0.001	0.039%	0.884%	0.010	-0.466%	0.805%	0.001	-0.200%	0.730%	0.014	0.258%	1.046%	0.171
Skewed	0	Moderate Diel	1/4	1/2	-0.007%	0.620%	0.051	0.027%	0.659%	-0.002	-0.471%	0.557%	-0.034	-0.193%	0.384%	0.062	0.195%	0.698%	0.060
Skewed	0	Strong Diel	1	1/6	0.019%	1.419%	0.003	0.019%	1.360%	0.101	-0.142%	1.329%	0.115	-0.295%	1.432%	0.026	0.309%	1.890%	0.227
Skewed	0	Strong Diel	1	1/4	0.011%	1.096%	0.006	0.031%	1.091%	0.177	-0.156%	1.015%	0.128	-0.299%	1.065%	-0.033	0.234%	1.815%	0.159
Skewed	0	Strong Diel	1	1/3	-0.005%	0.884%	-0.005	0.021%	0.902%	0.193	-0.170%	0.806%	0.100	-0.298%	0.906%	-0.057	0.198%	1.514%	0.132
Skewed	0	Strong Diel	1	1/2	-0.009%	0.556%	-0.025	0.041%	0.713%	0.373	-0.157%	0.631%	0.322	-0.294%	0.638%	0.000	0.181%	1.385%	0.123
Skewed	0	Strong Diel	3/4	1/6	0.020%	1.385%	0.004	0.003%	1.296%	0.039	-0.187%	1.267%	0.011	-0.322%	1.362%	0.013	0.182%	1.580%	0.234
Skewed	0	Strong Diel	3/4	1/4	-0.004%	1.094%	0.037	0.019%	1.041%	0.102	-0.173%	0.959%	0.036	-0.325%	0.999%	0.025	0.120%	1.312%	0.118
Skewed	0	Strong Diel	3/4	1/3	-0.009%	0.885%	-0.015	0.012%	0.809%	0.086	-0.188%	0.739%	0.074	-0.298%	0.793%	-0.016	0.079%	1.200%	0.120
Skewed	0	Strong Diel	3/4	1/2	-0.021%	0.573%	-0.056	0.019%	0.624%	0.248	-0.183%	0.556%	0.202	-0.299%	0.487%	-0.036	0.069%	1.050%	0.084
Skewed	0	Strong Diel	1/2	1/6	0.020%	1.392%	0.014	-0.003%	1.272%	-0.008	-0.178%	1.247%	0.062	-0.307%	1.321%	0.019	0.081%	1.414%	0.452
Skewed	0	Strong Diel	1/2	1/4	0.012%	1.076%	0.001	0.013%	0.969%	0.077	-0.169%	0.938%	-0.009	-0.322%	0.944%	-0.037	0.051%	1.069%	0.123
Skewed	0	Strong Diel	1/2	1/3	-0.005%	0.899%	0.062	-0.002%	0.758%	-0.015	-0.155%	0.690%	-0.025	-0.292%	0.728%	-0.001	-0.008%	0.929%	0.108
Skewed	0	Strong Diel	1/2	1/2	-0.011%	0.559%	0.031	-0.007%	0.543%	0.037	-0.172%	0.483%	0.015	-0.300%	0.333%	0.013	0.013%	0.740%	0.077
Skewed	0	Strong Diel	1/4	1/6	0.009%	1.415%	0.013	0.004%	1.231%	0.039	-0.152%	1.229%	0.039	-0.282%	1.296%	0.040	0.103%	1.300%	0.395
Skewed	0	Strong Diel	1/4	1/4	0.003%	1.085%	0.016	-0.001%	0.942%	0.037	-0.181%	0.924%	-0.007	-0.301%	0.907%	-0.037	0.024%	0.893%	0.054
Skewed	0	Strong Diel	1/4	1/3	0.013%	0.884%	0.074	0.005%	0.735%	-0.029	-0.182%	0.670%	-0.033	-0.295%	0.669%	-0.058	-0.001%	0.707%	0.023
Skewed	0	Strong Diel	1/4	1/2	0.008%	0.579%	-0.017	0.015%	0.495%	0.008	-0.166%	0.437%	0.014	-0.306%	0.175%	0.003	-0.021%	0.436%	0.062

Appendix A (page 5 of 9).

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Skewed	0.25	No Diel	1	1/6	-0.015%	1.390%	-0.018	0.866%	4.479%	0.357	-1.261%	4.020%	0.222	0.135%	3.071%	-0.024	3.876%	5.203%	0.340
Skewed	0.25	No Diel	1	1/4	-0.018%	1.042%	0.002	0.720%	4.178%	0.319	-1.390%	3.779%	0.280	0.078%	2.887%	0.031	3.723%	4.960%	0.389
Skewed	0.25	No Diel	1	1/3	0.001%	0.867%	0.031	0.669%	4.082%	0.378	-1.397%	3.698%	0.264	0.159%	2.877%	0.041	3.404%	4.660%	0.388
Skewed	0.25	No Diel	1	1/2	-0.002%	0.617%	-0.002	0.637%	3.897%	0.324	-1.457%	3.545%	0.267	0.193%	2.784%	-0.009	3.145%	4.482%	0.238
Skewed	0.25	No Diel	3/4	1/6	-0.270%	1.415%	0.019	0.593%	3.545%	0.214	-1.508%	3.254%	0.221	0.191%	2.454%	0.085	2.566%	4.038%	0.285
Skewed	0.25	No Diel	3/4	1/4	-0.024%	1.074%	0.005	0.532%	3.282%	0.270	-1.533%	3.062%	0.166	0.176%	2.328%	0.006	2.274%	3.736%	0.342
Skewed	0.25	No Diel	3/4	1/3	0.015%	0.870%	0.048	0.426%	3.161%	0.253	-1.627%	2.919%	0.175	0.194%	2.254%	0.032	1.993%	3.442%	0.327
Skewed	0.25	No Diel	3/4	1/2	0.007%	0.617%	-0.064	0.406%	2.944%	0.257	-1.602%	2.802%	0.226	0.187%	2.168%	0.021	1.689%	3.150%	0.174
Skewed	0.25	No Diel	1/2	1/6	0.001%	1.396%	-0.039	0.399%	2.846%	0.212	-1.644%	2.739%	0.074	0.190%	2.050%	-0.001	1.600%	3.204%	0.423
Skewed	0.25	No Diel	1/2	1/4	-0.007%	1.059%	0.137	0.293%	2.485%	0.120	-1.838%	2.448%	0.103	0.151%	1.843%	0.002	1.392%	2.738%	0.578
Skewed	0.25	No Diel	1/2	1/3	-0.005%	0.863%	-0.015	0.218%	2.266%	0.160	-1.784%	2.294%	0.097	0.141%	1.748%	0.000	1.079%	2.506%	0.349
Skewed	0.25	No Diel	1/2	1/2	0.002%	0.618%	0.000	0.147%	2.024%	0.144	-1.804%	2.111%	0.123	0.135%	1.588%	0.064	0.733%	2.054%	0.057
Skewed	0.25	No Diel	1/4	1/6	0.001%	1.370%	-0.018	0.261%	2.326%	0.099	-1.733%	2.306%	0.066	0.132%	1.700%	0.039	1.079%	2.630%	0.715
Skewed	0.25	No Diel	1/4	1/4	0.003%	1.065%	-0.071	0.157%	1.866%	0.120	-1.843%	2.018%	0.002	0.140%	1.450%	0.002	0.842%	2.135%	0.766
Skewed	0.25	No Diel	1/4	1/3	0.001%	0.862%	-0.021	0.116%	1.562%	0.079	-1.828%	1.810%	0.047	0.172%	1.292%	0.027	0.559%	1.661%	0.757
Skewed	0.25	No Diel	1/4	1/2	0.000%	0.624%	0.008	0.088%	1.239%	0.035	-1.875%	1.627%	0.061	0.182%	1.136%	0.013	0.240%	1.116%	0.118
Skewed	0.25	Slight Diel	1	1/6	0.008%	1.385%	0.041	0.486%	3.289%	0.310	-0.815%	3.104%	0.169	-0.052%	3.017%	0.007	1.929%	3.970%	0.339
Skewed	0.25	Slight Diel	1	1/4	-0.018%	1.067%	0.067	0.378%	3.091%	0.289	-0.894%	2.936%	0.160	-0.047%	2.932%	0.001	1.710%	3.667%	0.317
Skewed	0.25	Slight Diel	1	1/3	-0.025%	0.884%	-0.005	0.351%	3.000%	0.274	-0.949%	2.895%	0.164	-0.039%	2.839%	0.012	1.607%	3.426%	0.224
Skewed	0.25	Slight Diel	1	1/2	-0.015%	0.617%	-0.008	0.314%	2.859%	0.322	-0.964%	2.751%	0.200	-0.047%	2.769%	-0.005	1.384%	3.307%	0.157
Skewed	0.25	Slight Diel	3/4	1/6	-0.024%	1.388%	-0.050	0.373%	2.696%	0.187	-1.015%	2.640%	0.089	-0.053%	2.666%	0.015	1.307%	3.242%	0.530
Skewed	0.25	Slight Diel	3/4	1/4	-0.008%	1.066%	0.062	0.192%	2.414%	0.254	-1.004%	2.434%	0.102	-0.017%	2.521%	-0.005	1.095%	2.830%	0.302
Skewed	0.25	Slight Diel	3/4	1/3	-0.026%	0.861%	-0.008	0.186%	2.300%	0.285	-1.025%	2.307%	0.109	-0.035%	2.415%	0.006	0.886%	2.600%	0.214
Skewed	0.25	Slight Diel	3/4	1/2	-0.012%	0.614%	-0.005	0.216%	2.150%	0.297	-1.031%	2.203%	0.135	-0.005%	2.392%	-0.030	0.754%	2.391%	0.170
Skewed	0.25	Slight Diel	1/2	1/6	0.004%	1.397%	-0.014	0.181%	2.218%	0.107	-1.048%	2.353%	0.048	-0.001%	2.383%	0.015	0.975%	2.761%	0.762
Skewed	0.25	Slight Diel	1/2	1/4	0.049%	1.056%	0.002	0.142%	1.913%	0.147	-1.149%	2.100%	0.082	-0.042%	2.146%	0.023	0.704%	2.251%	0.523
Skewed	0.25	Slight Diel	1/2	1/3	0.013%	0.866%	0.058	0.072%	1.707%	0.158	-1.142%	1.941%	0.072	0.016%	2.044%	-0.016	0.547%	1.888%	0.167
Skewed	0.25	Slight Diel	1/2	1/2	0.001%	0.615%	0.007	0.086%	1.515%	0.114	-1.124%	1.799%	0.014	-0.038%	1.987%	0.005	0.399%	1.608%	0.042
Skewed	0.25	Slight Diel	1/4	1/6	0.008%	1.324%	0.094	0.147%	1.822%	0.113	-1.108%	2.036%	-0.055	-0.073%	2.118%	0.049	0.877%	2.350%	0.970
Skewed	0.25	Slight Diel	1/4	1/4	-0.003%	1.063%	-0.008	0.083%	1.484%	0.016	-1.144%	1.831%	0.048	-0.082%	1.952%	0.046	0.526%	1.761%	1.090
Skewed	0.25	Slight Diel	1/4	1/3	-0.013%	0.861%	-0.023	0.059%	1.240%	0.120	-1.165%	1.675%	0.040	-0.047%	1.869%	-0.012	0.369%	1.336%	0.549
Skewed	0.25	Slight Diel	1/4	1/2	-0.005%	0.612%	-0.070	0.047%	0.954%	0.093	-1.184%	1.507%	0.018	-0.022%	1.718%	0.015	0.243%	0.893%	0.082
Skewed	0.25	Moderate Diel	1	1/6	-0.018%	1.387%	0.019	0.145%	2.016%	0.229	-0.388%	2.242%	0.107	-0.187%	3.072%	-0.005	0.975%	3.126%	0.560
Skewed	0.25	Moderate Diel	1	1/4	0.026%	1.058%	-0.014	0.137%	1.823%	0.245	-0.344%	2.097%	0.185	-0.197%	2.926%	0.032	0.775%	2.784%	0.315
Skewed	0.25	Moderate Diel	1	1/3	-0.007%	0.879%	-0.006	0.125%	1.683%	0.296	-0.366%	1.967%	0.170	-0.249%	2.851%	-0.002	0.686%	2.672%	0.193
Skewed	0.25	Moderate Diel	1	1/2	-0.005%	0.635%	0.029	0.093%	1.555%	0.316	-0.396%	1.883%	0.082	-0.244%	2.755%	0.033	0.667%	2.507%	0.185
Skewed	0.25	Moderate Diel	3/4	1/6	-0.031%	1.368%	0.010	0.085%	1.754%	0.191	-0.434%	2.089%	0.041	-0.220%	2.892%	0.016	0.781%	2.650%	0.611
Skewed	0.25	Moderate Diel	3/4	1/4	0.020%	1.081%	0.013	0.104%	1.499%	0.153	-0.394%	1.896%	0.098	-0.186%	2.757%	0.018	0.522%	2.224%	0.209
Skewed	0.25	Moderate Diel	3/4	1/3	0.029%	0.901%	0.054	0.045%	1.380%	0.204	-0.416%	1.800%	0.067	-0.199%	2.677%	-0.009	0.452%	1.990%	0.135
Skewed	0.25	Moderate Diel	3/4	1/2	0.004%	0.611%	-0.034	0.043%	1.214%	0.186	-0.429%	1.675%	0.023	-0.200%	2.603%	-0.026	0.351%	1.844%	0.122
Skewed	0.25	Moderate Diel	1/2	1/6	-0.005%	1.399%	-0.007	0.047%	1.557%	0.108	-0.466%	1.968%	0.082	-0.212%	2.778%	0.016	0.573%	2.235%	0.907
Skewed	0.25	Moderate Diel	1/2	1/4	-0.020%	1.058%	0.006	0.060%	1.269%	0.083	-0.454%	1.761%	0.043	-0.214%	2.617%	-0.004	0.390%	1.731%	0.500
Skewed	0.25	Moderate Diel	1/2	1/3	-0.016%	0.875%	0.029	0.025%	1.106%	0.086	-0.426%	1.641%	0.072	-0.218%	2.552%	0.030	0.302%	1.499%	0.115
Skewed	0.25	Moderate Diel	1/2	1/2	0.015%	0.626%	0.038	0.028%	0.893%	0.142	-0.436%	1.515%	0.004	-0.144%	2.488%	-0.062	0.227%	1.265%	0.034
Skewed	0.25	Moderate Diel	1/4	1/6	-0.014%	1.378%	-0.008	0.009%	1.393%	0.078	-0.460%	1.830%	-0.001	-0.234%	2.664%	-0.028	0.556%	1.962%	1.375
Skewed	0.25	Moderate Diel	1/4	1/4	0.015%	1.091%	-0.009	-0.018%	1.075%	0.065	-0.437%	1.695%	0.033	-0.164%	2.579%	0.052	0.385%	1.400%	0.658
Skewed	0.25	Moderate Diel	1/4	1/3	0.002%	0.882%	-0.007	0.018%	0.906%	0.059	-0.461%	1.548%	0.008	-0.197%	2.467%	0.038	0.258%	1.064%	0.167
Skewed	0.25	Moderate Diel	1/4	1/2	-0.008%	0.624%	-0.020	0.014%	0.655%	0.090	-0.475%	1.450%	0.001	-0.236%	2.390%	0.003	0.193%	0.718%	0.038
Skewed	0.25	Strong Diel	1	1/6	0.014%	1.390%	0.002	0.035%	1.360%	0.121	-0.185%	1.881%	0.058	-0.338%	3.065%	0.020	0.344%	1.948%	0.372
Skewed	0.25	Strong Diel	1	1/4	-0.003%	1.093%	0.043	0.003%	1.069%	0.206	-0.164%	1.656%	0.041	-0.327%	2.933%	-0.016	0.243%	1.643%	0.194
Skewed	0.25	Strong Diel	1	1/3	0.003%	0.871%	0.002	0.016%	0.885%	0.190	-0.166%	1.555%	0.010	-0.286%	2.868%	-0.012	0.220%	1.521%	0.195
Skewed	0.25	Strong Diel	1	1/2	-0.005%	0.554%	0.027	0.030%	0.716%	0.360	-0.139%	1.482%	0.052	-0.289%	2.786%	-0.011	0.244%	1.408%	0.159
Skewed	0.25	Strong Diel	3/4	1/6	-0.002%	1.381%	0.001	0.016%	1.301%	-0.022	-0.169%	1.852%	0.010	-0.355%	3.004%	-0.001	0.206%	1.632%	0.256
Skewed	0.25	Strong Diel	3/4	1/4	0.005%	1.134%	-0.043	-0.006%	1.016%	0.106	-0.141%	1.626%	0.014	-0.304%	2.892%	0.013	0.107%	1.298%	0.173
Skewed	0.25	Strong Diel	3/4	1/3	0.013%	0.877%	0.006	0.004%	0.819%	0.100	-0.188%	1.504%	-0.003	-0.302%	2.804%	0.030	0.091%	1.204%	0.137
Skewed	0.25	Strong Diel	3/4	1/2	-0.015%	0.568%	0.027	0.018%	0.622%	0.218	-0.169%	1.433%	-0.001	-0.336%	2.732%	-0.003	0.069%	1.057%	0.112
Skewed	0.25	Strong Diel	1/2	1/6	-0.001%	1.404%	0.096	0.006%	1.263%	0.028	-0.224%	1.802%	0.020	-0.332%	3.014%	-0.012	0.080%	1.417%	0.230
Skewed	0.25	Strong Diel	1/2	1/4	0.015%	1.080%	0.017	0.016%	0.975%	0.075	-0.145%	1.621%	-0.014	-0.297%	2.910%	0.010	0.036%	1.081%	0.071
Skewed	0.25	Strong Diel	1/2	1/3	0.005%	0.895%	0.077	0.009%	0.767%	0.023	-0.173%	1.496%	-0.004	-0.305%	2.814%	0.014	0.017%	0.921%	0.038
Skewed	0.25	Strong Diel	1/2	1/2	-0.009%	0.568%	0.016	0.012%	0.548%	0.068	-0.205%	1.393%	0.057	-0.297%	2.715%	-0.026	-0.006%	0.738%	0.076
Skewed	0.25	Strong Diel	1/4	1/6	-0.025%	1.365%	0.014	-0.012%	1.227%	0.059	-0.201%	1.803%	0.060	-0.350%	2.998%	0.029	0.012%	1.266%	0.241
Skewed	0.25	Strong Diel	1/4	1/4	0.004%	1.087%	0.016	0.005%	0.951%	0.006	-0.176%	1.620%	0.014	-0.255%	2.861%	0.014	-0.019%	0.895%	0.092
Skewed	0.25	Strong Diel	1/4	1/3	0.012%	0.883%	0.026	-0.012%	0.731%	-0.001	-0.169%	1.475%	0.045	-0.311%	2.775%	0.000	-0.035%	0.711%	0.074
Skewed	0.25	Strong Diel	1/4	1/2	-0.013%	0.570%	0.040	-0.002%	0.495%	0.043	-0.185%	1.401%	-0.009	-0.282%	2.710%	0.020	-0.053%	0.436%	-0.009

Appendix A (page 6 of 9).

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Skewed	0.5	No Diel	1	1/6	-0.007%	1.376%	-0.057	0.947%	4.552%	0.416	-1.207%	4.627%	0.277	0.134%	3.481%	0.006	3.979%	5.392%	0.469
Skewed	0.5	No Diel	1	1/4	0.020%	1.063%	-0.004	0.767%	4.201%	0.344	-1.356%	4.353%	0.167	0.200%	3.376%	0.008	3.641%	5.076%	0.447
Skewed	0.5	No Diel	1	1/3	0.000%	0.865%	0.005	0.602%	4.120%	0.304	-1.408%	4.339%	0.194	0.188%	3.356%	-0.027	3.400%	4.829%	0.376
Skewed	0.5	No Diel	1	1/2	-0.012%	0.622%	-0.008	0.677%	3.971%	0.289	-1.338%	4.267%	0.169	0.137%	3.237%	-0.007	3.052%	4.566%	0.340
Skewed	0.5	No Diel	3/4	1/6	-0.024%	1.372%	0.000	0.568%	3.569%	0.267	-1.559%	3.958%	0.112	0.146%	2.964%	0.024	2.466%	4.139%	0.308
Skewed	0.5	No Diel	3/4	1/4	0.019%	1.062%	0.014	0.552%	3.358%	0.324	-1.605%	3.814%	0.114	0.148%	2.850%	0.000	2.240%	3.780%	0.333
Skewed	0.5	No Diel	3/4	1/3	0.016%	0.881%	0.026	0.392%	3.153%	0.259	-1.639%	3.680%	0.108	0.175%	2.840%	-0.038	2.052%	3.560%	0.267
Skewed	0.5	No Diel	3/4	1/2	0.010%	0.619%	-0.021	0.442%	3.016%	0.273	-1.549%	3.588%	0.073	0.121%	2.733%	-0.073	1.695%	3.313%	0.196
Skewed	0.5	No Diel	1/2	1/6	-0.020%	1.378%	-0.009	0.359%	2.868%	0.265	-1.642%	3.580%	0.017	0.171%	2.613%	-0.001	1.578%	3.275%	0.439
Skewed	0.5	No Diel	1/2	1/4	0.001%	1.061%	-0.038	0.231%	2.505%	0.178	-1.704%	3.279%	0.075	0.143%	2.458%	0.047	1.336%	2.853%	0.441
Skewed	0.5	No Diel	1/2	1/3	0.000%	0.856%	-0.023	0.219%	2.303%	0.157	-1.776%	3.216%	0.037	0.155%	2.371%	0.004	1.026%	2.509%	0.288
Skewed	0.5	No Diel	1/2	1/2	-0.004%	0.608%	-0.043	0.193%	2.057%	0.215	-1.745%	3.080%	0.066	0.139%	2.310%	-0.028	0.780%	2.158%	0.161
Skewed	0.5	No Diel	1/4	1/6	-0.005%	1.384%	-0.036	0.258%	2.345%	0.103	-1.726%	3.325%	-0.012	0.163%	2.323%	0.005	1.052%	2.726%	0.768
Skewed	0.5	No Diel	1/4	1/4	0.004%	1.067%	-0.030	0.185%	1.905%	0.082	-1.850%	3.007%	-0.011	0.120%	2.175%	0.007	0.817%	2.175%	0.757
Skewed	0.5	No Diel	1/4	1/3	-0.003%	0.882%	0.005	0.131%	1.610%	0.088	-1.786%	2.909%	0.009	0.114%	2.094%	0.013	0.585%	1.802%	0.850
Skewed	0.5	No Diel	1/4	1/2	0.002%	0.613%	-0.010	0.100%	1.262%	0.075	-1.844%	2.725%	-0.016	0.163%	1.977%	-0.002	0.284%	1.226%	0.417
Skewed	0.5	Slight Diel	1	1/6	-0.004%	1.406%	0.018	0.456%	3.251%	0.284	-0.821%	3.872%	0.103	-0.048%	4.256%	0.014	1.958%	4.139%	0.400
Skewed	0.5	Slight Diel	1	1/4	-0.002%	1.056%	-0.049	0.387%	3.127%	0.326	-0.901%	3.801%	0.126	-0.012%	4.109%	-0.009	1.710%	3.720%	0.353
Skewed	0.5	Slight Diel	1	1/3	0.006%	0.887%	-0.023	0.363%	2.976%	0.278	-0.938%	3.714%	0.114	-0.042%	4.097%	-0.012	1.614%	3.581%	0.240
Skewed	0.5	Slight Diel	1	1/2	-0.008%	0.634%	0.034	0.323%	2.857%	0.284	-0.928%	3.574%	0.137	-0.044%	4.023%	0.004	1.438%	3.365%	0.156
Skewed	0.5	Slight Diel	3/4	1/6	-0.019%	1.400%	0.045	0.338%	2.687%	0.314	-0.988%	3.459%	0.097	-0.043%	3.966%	0.033	1.305%	3.389%	0.589
Skewed	0.5	Slight Diel	3/4	1/4	-0.001%	1.075%	-0.002	0.218%	2.482%	0.213	-1.038%	3.359%	0.037	-0.028%	3.827%	0.007	1.121%	2.939%	0.415
Skewed	0.5	Slight Diel	3/4	1/3	-0.020%	0.862%	-0.032	0.239%	2.291%	0.189	-1.021%	3.250%	0.087	-0.077%	3.791%	0.008	0.916%	2.704%	0.204
Skewed	0.5	Slight Diel	3/4	1/2	-0.002%	0.612%	-0.047	0.178%	2.140%	0.211	-1.096%	3.172%	0.026	0.004%	3.719%	-0.048	0.737%	2.440%	0.127
Skewed	0.5	Slight Diel	1/2	1/6	-0.031%	1.396%	-0.024	0.255%	2.276%	0.168	-0.970%	3.262%	0.034	-0.062%	3.707%	0.032	1.012%	2.785%	0.610
Skewed	0.5	Slight Diel	1/2	1/4	-0.004%	1.069%	-0.011	0.138%	1.905%	0.160	-1.052%	3.059%	0.032	-0.086%	3.605%	0.017	0.734%	2.295%	0.606
Skewed	0.5	Slight Diel	1/2	1/3	-0.006%	0.856%	-0.028	0.127%	1.732%	0.107	-1.108%	3.004%	0.036	-0.031%	3.481%	-0.045	0.560%	1.976%	0.374
Skewed	0.5	Slight Diel	1/2	1/2	-0.020%	0.626%	0.002	0.132%	1.519%	0.141	-1.105%	2.923%	0.010	-0.054%	3.524%	-0.017	0.401%	1.704%	0.064
Skewed	0.5	Slight Diel	1/4	1/6	-0.007%	1.393%	0.013	0.158%	1.905%	0.092	-1.130%	3.091%	0.047	-0.020%	3.588%	0.025	0.863%	2.412%	0.897
Skewed	0.5	Slight Diel	1/4	1/4	0.036%	1.055%	-0.006	0.065%	1.472%	0.114	-1.126%	2.915%	-0.004	0.012%	3.501%	0.033	0.583%	1.905%	1.284
Skewed	0.5	Slight Diel	1/4	1/3	0.014%	0.860%	-0.035	0.062%	1.263%	0.097	-1.143%	2.789%	0.003	-0.011%	3.425%	0.014	0.465%	1.428%	0.628
Skewed	0.5	Slight Diel	1/4	1/2	-0.001%	0.602%	0.007	0.014%	0.962%	0.116	-1.168%	2.695%	-0.013	-0.005%	3.379%	-0.069	0.246%	0.968%	0.240
Skewed	0.5	Moderate Diel	1	1/6	-0.009%	1.367%	0.040	0.137%	2.012%	0.229	-0.355%	3.239%	0.061	-0.200%	5.128%	-0.026	0.873%	3.190%	0.495
Skewed	0.5	Moderate Diel	1	1/4	-0.016%	1.078%	0.020	0.112%	1.819%	0.265	-0.347%	3.138%	0.032	-0.216%	5.032%	-0.045	0.787%	2.868%	0.265
Skewed	0.5	Moderate Diel	1	1/3	-0.004%	0.885%	0.035	0.113%	1.697%	0.251	-0.435%	3.045%	-0.010	-0.250%	5.013%	0.017	0.730%	2.761%	0.146
Skewed	0.5	Moderate Diel	1	1/2	-0.023%	0.628%	-0.006	0.102%	1.599%	0.339	-0.425%	2.983%	0.010	-0.234%	4.874%	-0.035	0.668%	2.555%	0.196
Skewed	0.5	Moderate Diel	3/4	1/6	-0.026%	1.395%	-0.014	0.109%	1.777%	0.147	-0.495%	3.102%	0.046	-0.205%	5.010%	0.006	0.712%	2.646%	0.598
Skewed	0.5	Moderate Diel	3/4	1/4	-0.005%	1.056%	-0.034	0.041%	1.524%	0.195	-0.421%	2.971%	0.057	-0.236%	4.976%	0.026	0.534%	2.295%	0.345
Skewed	0.5	Moderate Diel	3/4	1/3	0.010%	0.868%	-0.028	0.084%	1.377%	0.200	-0.426%	2.883%	0.016	-0.166%	4.875%	-0.030	0.432%	2.089%	0.126
Skewed	0.5	Moderate Diel	3/4	1/2	0.001%	0.624%	-0.047	0.031%	1.228%	0.239	-0.399%	2.869%	-0.014	-0.208%	4.845%	-0.019	0.362%	1.946%	0.089
Skewed	0.5	Moderate Diel	1/2	1/6	0.002%	1.399%	0.017	0.053%	1.583%	0.128	-0.423%	2.972%	0.046	-0.050%	4.994%	0.004	0.610%	2.302%	0.840
Skewed	0.5	Moderate Diel	1/2	1/4	0.033%	1.055%	0.034	0.033%	1.261%	0.094	-0.488%	2.887%	0.012	-0.107%	4.865%	0.022	0.385%	1.777%	0.521
Skewed	0.5	Moderate Diel	1/2	1/3	0.016%	0.889%	-0.065	0.045%	1.111%	0.098	-0.483%	2.827%	0.017	-0.205%	4.885%	0.008	0.309%	1.540%	0.300
Skewed	0.5	Moderate Diel	1/2	1/2	0.006%	0.627%	-0.035	0.032%	0.905%	0.163	-0.490%	2.770%	0.006	-0.192%	4.762%	0.000	0.228%	1.315%	0.055
Skewed	0.5	Moderate Diel	1/4	1/6	0.037%	1.418%	-0.019	0.032%	1.445%	0.020	-0.428%	2.991%	-0.005	-0.230%	4.961%	0.024	0.534%	2.010%	0.994
Skewed	0.5	Moderate Diel	1/4	1/4	-0.003%	1.070%	-0.012	0.022%	1.099%	0.033	-0.448%	2.822%	0.019	-0.155%	4.873%	0.033	0.364%	1.434%	0.654
Skewed	0.5	Moderate Diel	1/4	1/3	0.000%	0.871%	-0.004	0.018%	0.883%	0.101	-0.422%	2.763%	0.044	-0.267%	4.770%	-0.023	0.256%	1.111%	0.281
Skewed	0.5	Moderate Diel	1/4	1/2	0.000%	0.631%	0.042	0.004%	0.663%	0.095	-0.478%	2.658%	0.011	-0.253%	4.788%	0.003	0.184%	0.739%	0.045
Skewed	0.5	Strong Diel	1	1/6	-0.004%	1.406%	-0.001	0.008%	1.362%	0.056	-0.176%	2.976%	0.026	-0.336%	5.589%	0.029	0.273%	1.916%	0.304
Skewed	0.5	Strong Diel	1	1/4	0.003%	1.087%	-0.028	0.014%	1.075%	0.117	-0.175%	2.861%	-0.017	-0.331%	5.508%	0.003	0.229%	1.872%	0.142
Skewed	0.5	Strong Diel	1	1/3	-0.007%	0.856%	-0.038	0.008%	0.881%	0.254	-0.183%	2.807%	-0.009	-0.313%	5.505%	-0.001	0.215%	1.557%	0.140
Skewed	0.5	Strong Diel	1	1/2	0.003%	0.551%	0.021	0.027%	0.730%	0.427	-0.165%	2.745%	-0.023	-0.291%	5.436%	-0.042	0.187%	1.437%	0.105
Skewed	0.5	Strong Diel	3/4	1/6	0.007%	1.408%	-0.059	0.015%	1.313%	0.085	-0.127%	2.982%	0.005	-0.380%	5.593%	-0.020	0.118%	1.632%	0.430
Skewed	0.5	Strong Diel	3/4	1/4	-0.009%	1.095%	0.025	0.006%	1.033%	0.074	-0.212%	2.827%	0.008	-0.325%	5.510%	0.012	0.070%	1.345%	0.160
Skewed	0.5	Strong Diel	3/4	1/3	0.005%	0.877%	0.004	0.020%	0.807%	0.130	-0.132%	2.778%	0.002	-0.352%	5.545%	-0.002	0.056%	1.234%	0.125
Skewed	0.5	Strong Diel	3/4	1/2	0.003%	0.562%	-0.014	0.016%	0.622%	0.214	-0.188%	2.701%	-0.032	-0.296%	5.508%	-0.007	0.055%	1.075%	0.112
Skewed	0.5	Strong Diel	1/2	1/6	0.008%	1.389%	0.026	0.017%	1.271%	0.043	-0.185%	2.905%	-0.001	-0.310%	5.598%	-0.034	0.054%	1.458%	0.463
Skewed	0.5	Strong Diel	1/2	1/4	-0.025%	1.097%	0.045	-0.010%	0.962%	0.040	-0.201%	2.829%	-0.006	-0.336%	5.492%	0.012	0.011%	1.101%	0.080
Skewed	0.5	Strong Diel	1/2	1/3	0.012%	0.875%	0.002	0.003%	0.752%	0.027	-0.123%	2.744%	0.009	-0.357%	5.513%	-0.033	0.000%	0.927%	0.100
Skewed	0.5	Strong Diel	1/2	1/2	-0.002%	0.560%	-0.015	0.009%	0.549%	0.111	-0.190%	2.699%	0.021	-0.282%	5.511%	0.007	-0.015%	0.760%	0.065
Skewed	0.5	Strong Diel	1/4	1/6	0.018%	1.376%	0.013	0.012%	1.235%	0.002	-0.154%	2.932%	0.020	-0.293%	5.539%	0.043	0.004%	1.277%	0.306
Skewed	0.5	Strong Diel	1/4	1/4	-0.003%	1.080%	-0.008	0.001%	0.943%	0.065	-0.190%	2.837%	-0.020	-0.365%	5.535%	0.012	-0.032%	0.917%	0.180
Skewed	0.5	Strong Diel	1/4	1/3	0.021%	0.881%	0.041	0.002%	0.727%	-0.025	-0.227%	2.771%	-0.022	-0.288%	5.528%	-0.005	-0.054%	0.720%	0.079
Skewed	0.5	Strong Diel	1/4	1/2	-0.007%	0.573%	-0.018	0.001%	0.488%	-0.032	-0.173%	2.682%	0.000	-0.305%	5.397%	0.004	-0.085%	0.461%	-0.028

Appendix A (page 7 of 9).

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Bimodal	0	No Diel	1	1/6	-0.039%	1.351%	0.018	0.864%	4.092%	0.339	-1.156%	3.512%	0.266	0.033%	2.608%	-0.020	3.525%	4.351%	0.254
Bimodal	0	No Diel	1	1/4	-0.013%	1.062%	0.042	0.777%	3.752%	0.252	-1.309%	3.208%	0.277	0.069%	2.418%	0.029	3.180%	4.083%	0.222
Bimodal	0	No Diel	1	1/3	-0.013%	0.866%	-0.068	0.757%	3.628%	0.227	-1.273%	3.110%	0.188	-0.008%	2.308%	0.031	3.020%	3.989%	0.181
Bimodal	0	No Diel	1	1/2	-0.007%	0.610%	-0.030	0.699%	3.491%	0.310	-1.355%	2.955%	0.262	0.048%	2.268%	0.002	2.995%	3.909%	0.218
Bimodal	0	No Diel	3/4	1/6	0.121%	1.332%	0.041	0.598%	3.382%	0.175	-1.351%	2.914%	0.070	0.102%	2.131%	-0.065	2.107%	3.303%	0.072
Bimodal	0	No Diel	3/4	1/4	0.075%	1.052%	-0.009	0.527%	2.959%	0.214	-1.422%	2.532%	0.187	0.040%	1.915%	0.060	1.744%	3.036%	0.220
Bimodal	0	No Diel	3/4	1/3	0.070%	0.867%	-0.093	0.386%	2.804%	0.217	-1.506%	2.380%	0.178	-0.001%	1.831%	0.054	1.619%	2.868%	0.101
Bimodal	0	No Diel	3/4	1/2	0.045%	0.606%	-0.026	0.356%	2.649%	0.204	-1.656%	2.217%	0.245	0.007%	1.694%	0.013	1.583%	2.696%	0.096
Bimodal	0	No Diel	1/2	1/6	-0.013%	1.361%	-0.044	0.392%	2.706%	0.150	-1.619%	2.303%	0.078	0.020%	1.673%	-0.037	1.061%	2.488%	0.100
Bimodal	0	No Diel	1/2	1/4	-0.002%	1.051%	-0.071	0.289%	2.280%	0.134	-1.693%	1.956%	0.167	0.026%	1.428%	-0.034	0.797%	2.152%	0.114
Bimodal	0	No Diel	1/2	1/3	0.001%	0.870%	-0.030	0.213%	2.092%	0.199	-1.782%	1.766%	0.141	0.011%	1.293%	0.031	0.709%	2.000%	0.164
Bimodal	0	No Diel	1/2	1/2	0.000%	0.622%	-0.006	0.194%	1.853%	0.172	-1.764%	1.538%	0.151	0.050%	1.130%	0.015	0.709%	1.790%	0.065
Bimodal	0	No Diel	1/4	1/6	-0.002%	1.359%	0.015	0.247%	2.275%	0.111	-1.718%	1.919%	0.073	0.031%	1.377%	0.049	0.537%	1.926%	0.038
Bimodal	0	No Diel	1/4	1/4	0.005%	1.061%	-0.032	0.162%	1.798%	0.059	-1.766%	1.515%	-0.004	0.034%	1.054%	0.030	0.294%	1.511%	0.028
Bimodal	0	No Diel	1/4	1/3	0.003%	0.868%	-0.065	0.122%	1.522%	0.067	-1.822%	1.263%	0.073	0.030%	0.859%	0.044	0.190%	1.273%	0.028
Bimodal	0	No Diel	1/4	1/2	0.000%	0.605%	-0.0693	0.071%	1.170%	0.1144	-1.864%	0.936%	0.0084	0.024%	0.562%	-0.0011	0.209%	1.000%	0.0751
Bimodal	0	Slight Diel	1	1/6	0.150%	1.350%	-0.083	0.286%	3.013%	0.244	-0.894%	2.588%	0.218	-0.079%	2.291%	-0.003	1.516%	3.207%	0.045
Bimodal	0	Slight Diel	1	1/4	-0.015%	1.075%	0.018	0.394%	2.783%	0.216	-0.859%	2.413%	0.189	0.042%	2.133%	-0.034	1.422%	3.075%	0.093
Bimodal	0	Slight Diel	1	1/3	0.002%	0.869%	-0.040	0.280%	2.613%	0.253	-0.937%	2.282%	0.265	0.047%	2.048%	-0.046	1.378%	2.953%	0.105
Bimodal	0	Slight Diel	1	1/2	0.006%	0.627%	-0.002	0.333%	2.552%	0.234	-0.893%	2.162%	0.238	-0.042%	1.947%	0.046	1.333%	2.853%	0.119
Bimodal	0	Slight Diel	3/4	1/6	0.001%	1.390%	-0.076	0.241%	2.544%	0.284	-0.942%	2.170%	0.119	0.032%	1.906%	0.050	0.860%	2.545%	0.189
Bimodal	0	Slight Diel	3/4	1/4	0.026%	1.050%	-0.070	0.208%	2.205%	0.184	-0.971%	1.934%	0.170	-0.015%	1.690%	0.039	0.716%	2.315%	0.088
Bimodal	0	Slight Diel	3/4	1/3	0.016%	0.859%	-0.0517	0.247%	2.097%	0.1765	-0.961%	1.795%	0.1764	0.008%	1.595%	0.0094	0.697%	2.196%	0.0857
Bimodal	0	Slight Diel	3/4	1/2	0.015%	0.614%	-0.069	0.114%	1.901%	0.167	-1.081%	1.613%	0.168	-0.031%	1.438%	-0.050	0.631%	2.088%	0.100
Bimodal	0	Slight Diel	1/2	1/6	0.008%	1.355%	-0.038	0.195%	2.070%	0.091	-1.029%	1.838%	0.053	0.006%	1.572%	0.021	0.421%	1.997%	0.050
Bimodal	0	Slight Diel	1/2	1/4	-0.018%	1.050%	0.008	0.217%	1.795%	0.156	-1.035%	1.541%	0.064	0.029%	1.318%	0.025	0.289%	1.694%	0.098
Bimodal	0	Slight Diel	1/2	1/3	-0.004%	0.863%	-0.032	0.120%	1.587%	0.190	-1.085%	1.343%	0.120	0.023%	1.150%	0.048	0.216%	1.556%	0.048
Bimodal	0	Slight Diel	1/2	1/2	0.002%	0.616%	-0.016	0.100%	1.368%	0.046	-1.080%	1.150%	0.085	0.023%	0.989%	0.000	0.153%	1.365%	0.025
Bimodal	0	Slight Diel	1/4	1/6	0.003%	1.358%	0.017	0.132%	1.846%	0.112	-1.086%	1.616%	0.115	0.021%	1.337%	0.045	0.068%	1.593%	0.077
Bimodal	0	Slight Diel	1/4	1/4	0.000%	1.054%	-0.021	0.096%	1.454%	0.044	-1.104%	1.242%	0.088	0.018%	1.020%	-0.010	-0.065%	1.249%	0.048
Bimodal	0	Slight Diel	1/4	1/3	0.001%	0.863%	-0.0967	0.052%	1.192%	0.0335	-1.133%	1.024%	0.0150	0.028%	0.800%	0.0412	-0.125%	1.027%	0.0713
Bimodal	0	Slight Diel	1/4	1/2	-0.002%	0.610%	-0.019	0.030%	0.900%	0.029	-1.137%	0.725%	0.080	0.005%	0.490%	-0.012	-0.198%	0.743%	0.037
Bimodal	0	Moderate Diel	1	1/6	0.006%	1.372%	0.034	0.091%	1.871%	0.227	-0.322%	1.712%	0.118	-0.042%	1.777%	0.033	0.609%	2.516%	0.142
Bimodal	0	Moderate Diel	1	1/4	-0.028%	1.074%	0.007	0.060%	1.656%	0.240	-0.356%	1.480%	0.227	0.008%	1.548%	0.001	0.616%	2.353%	0.155
Bimodal	0	Moderate Diel	1	1/3	-0.020%	0.858%	-0.046	0.068%	1.540%	0.212	-0.365%	1.353%	0.154	-0.040%	1.427%	-0.007	0.596%	2.282%	0.097
Bimodal	0	Moderate Diel	1	1/2	0.000%	0.611%	-0.014	0.056%	1.414%	0.258	-0.376%	1.216%	0.207	-0.022%	1.270%	-0.067	0.501%	2.153%	0.092
Bimodal	0	Moderate Diel	3/4	1/6	-0.018%	1.378%	-0.006	0.024%	1.656%	0.103	-0.387%	1.533%	0.088	-0.018%	1.555%	-0.032	0.279%	2.080%	0.062
Bimodal	0	Moderate Diel	3/4	1/4	-0.002%	1.076%	-0.024	0.014%	1.419%	0.141	-0.414%	1.296%	0.078	-0.020%	1.313%	-0.005	0.257%	1.843%	0.081
Bimodal	0	Moderate Diel	3/4	1/3	0.030%	0.871%	-0.019	0.015%	1.274%	0.108	-0.450%	1.118%	0.104	-0.001%	1.154%	-0.022	0.237%	1.752%	0.110
Bimodal	0	Moderate Diel	3/4	1/2	0.010%	0.618%	0.090	-0.013%	1.095%	0.187	-0.425%	0.919%	0.176	-0.047%	0.951%	-0.022	0.204%	1.581%	0.073
Bimodal	0	Moderate Diel	1/2	1/6	-0.024%	1.386%	-0.021	0.065%	1.487%	0.060	-0.383%	1.408%	-0.025	0.010%	1.403%	-0.003	0.102%	1.665%	0.071
Bimodal	0	Moderate Diel	1/2	1/4	-0.006%	1.067%	-0.013	0.088%	1.198%	0.020	-0.372%	1.119%	0.045	0.004%	1.113%	0.002	0.032%	1.415%	0.067
Bimodal	0	Moderate Diel	1/2	1/3	-0.014%	0.851%	0.041	0.061%	1.033%	0.084	-0.388%	0.931%	0.046	0.018%	0.902%	0.018	-0.012%	1.268%	0.037
Bimodal	0	Moderate Diel	1/2	1/2	-0.016%	0.620%	-0.050	0.027%	0.823%	0.141	-0.397%	0.709%	0.137	0.018%	0.637%	0.011	-0.072%	1.078%	0.038
Bimodal	0	Moderate Diel	1/4	1/6	0.053%	1.358%	-0.003	0.027%	1.394%	0.123	-0.360%	1.369%	0.095	-0.044%	1.317%	0.056	-0.067%	1.389%	0.099
Bimodal	0	Moderate Diel	1/4	1/4	-0.009%	1.110%	-0.099	-0.001%	1.089%	-0.002	-0.384%	1.049%	0.017	-0.026%	0.963%	-0.042	-0.108%	1.071%	0.063
Bimodal	0	Moderate Diel	1/4	1/3	-0.006%	0.884%	-0.057	0.008%	0.875%	0.018	-0.398%	0.802%	-0.035	0.009%	0.707%	-0.012	-0.185%	0.856%	-0.012
Bimodal	0	Moderate Diel	1/4	1/2	-0.016%	0.613%	0.007	0.026%	0.628%	0.054	-0.423%	0.534%	0.017	-0.002%	0.335%	0.080	-0.195%	0.583%	0.030
Bimodal	0	Strong Diel	1	1/6	-0.001%	1.389%	-0.010	-0.007%	1.329%	0.023	-0.135%	1.305%	0.015	-0.002%	1.371%	-0.004	0.124%	1.605%	0.115
Bimodal	0	Strong Diel	1	1/4	0.003%	1.111%	-0.031	0.009%	1.079%	0.114	-0.125%	1.020%	0.063	-0.075%	1.043%	-0.002	0.087%	1.441%	0.129
Bimodal	0	Strong Diel	1	1/3	-0.003%	0.885%	-0.014	0.026%	0.890%	0.127	-0.111%	0.824%	0.051	-0.031%	0.838%	0.009	0.065%	1.329%	0.100
Bimodal	0	Strong Diel	1	1/2	-0.006%	0.618%	-0.017	0.017%	0.700%	0.361	-0.106%	0.591%	0.270	-0.035%	0.565%	-0.023	0.081%	1.201%	0.151
Bimodal	0	Strong Diel	3/4	1/6	0.030%	1.393%	0.048	-0.009%	1.317%	0.074	-0.145%	1.285%	0.041	-0.024%	1.332%	-0.045	0.010%	1.400%	0.030
Bimodal	0	Strong Diel	3/4	1/4	-0.022%	1.061%	-0.002	-0.005%	1.006%	0.016	-0.118%	0.980%	0.086	-0.046%	0.985%	-0.018	0.004%	1.164%	-0.007
Bimodal	0	Strong Diel	3/4	1/3	-0.012%	0.898%	0.032	-0.001%	0.835%	0.088	-0.116%	0.796%	0.057	-0.016%	0.775%	0.016	-0.010%	1.067%	0.064
Bimodal	0	Strong Diel	3/4	1/2	-0.013%	0.635%	-0.039	0.015%	0.606%	0.109	-0.129%	0.524%	0.081	-0.019%	0.432%	-0.054	-0.051%	0.911%	0.056
Bimodal	0	Strong Diel	1/2	1/6	0.007%	1.404%	-0.016	-0.023%	1.277%	-0.029	-0.126%	1.251%	0.005	-0.011%	1.294%	-0.008	-0.006%	1.232%	0.037
Bimodal	0	Strong Diel	1/2	1/4	0.026%	1.082%	-0.041	0.015%	0.974%	0.081	-0.126%	0.950%	0.080	-0.008%	0.945%	0.083	-0.050%	1.001%	0.051
Bimodal	0	Strong Diel	1/2	1/3	-0.003%	0.880%	0.008	-0.003%	0.798%	0.042	-0.137%	0.750%	0.043	-0.009%	0.692%	0.026	-0.006%	0.840%	0.022
Bimodal	0	Strong Diel	1/2	1/2	-0.007%	0.634%	-0.019	-0.005%	0.530%	0.050	-0.136%	0.462%	0.061	-0.010%	0.284%	0.032	-0.052%	0.628%	0.043
Bimodal	0	Strong Diel	1/4	1/6	-0.002%	1.400%	-0.018	0.058%	1.244%	0.055	-0.129%	1.209%	0.013	-0.057%	1.265%	-0.018	-0.055%	1.093%	0.003
Bimodal	0	Strong Diel	1/4	1/4	-0.026%	1.072%	-0.009	0.019%	0.955%	-0.015	-0.107%	0.919%	0.040	-0.047%	0.910%	0.114	-0.078%	0.847%	0.095
Bimodal	0	Strong Diel	1/4	1/3	-0.031%	0.880%	0.066	-0.009%	0.753%	0.084	-0.131%	0.727%	-0.001	-0.027%	0.647%	-0.008	-0.105%	0.665%	-0.038
Bimodal	0	Strong Diel	1/4	1/2	0.022%	0.644%	-0.033	0.002%	0.495%	0.005	-0.112%	0.425%	0.008	-0.046%	0.161%	0.031	-0.110%	0.381%	0.019

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Bimodal	0.25	No Diel	1	1/6	-0.023%	1.346%	-0.022	0.869%	4.089%	0.337	-1.205%	3.665%	0.237	0.105%	2.709%	0.005	3.449%	4.420%	0.221
Bimodal	0.25	No Diel	1	1/4	-0.008%	1.055%	0.007	0.738%	3.828%	0.292	-1.293%	3.427%	0.252	0.035%	2.566%	0.006	3.210%	4.141%	0.209
Bimodal	0.25	No Diel	1	1/3	-0.006%	0.871%	-0.041	0.702%	3.670%	0.341	-1.312%	3.283%	0.224	0.023%	2.482%	0.002	3.025%	3.964%	0.187
Bimodal	0.25	No Diel	1	1/2	-0.009%	0.629%	-0.002	0.546%	3.514%	0.327	-1.464%	3.217%	0.276	0.041%	2.411%	-0.010	2.971%	3.978%	0.582
Bimodal	0.25	No Diel	3/4	1/6	-0.051%	1.395%	-0.019	0.505%	3.351%	0.219	-1.557%	3.026%	0.200	0.021%	2.218%	0.042	1.990%	3.316%	0.139
Bimodal	0.25	No Diel	3/4	1/4	-0.026%	1.045%	-0.055	0.465%	3.026%	0.269	-1.570%	2.803%	0.211	0.070%	2.047%	-0.015	1.765%	3.016%	0.134
Bimodal	0.25	No Diel	3/4	1/3	-0.007%	0.854%	-0.056	0.467%	2.814%	0.194	-1.573%	2.603%	0.174	0.027%	1.976%	-0.060	1.697%	2.912%	0.227
Bimodal	0.25	No Diel	3/4	1/2	-0.014%	0.613%	-0.035	0.329%	2.609%	0.178	-1.634%	2.442%	0.130	0.028%	1.857%	-0.032	1.611%	2.756%	0.090
Bimodal	0.25	No Diel	1/2	1/6	0.002%	1.378%	0.076	0.388%	2.721%	0.196	-1.662%	2.534%	0.142	0.037%	1.878%	-0.032	1.048%	2.529%	0.106
Bimodal	0.25	No Diel	1/2	1/4	-0.007%	1.080%	-0.145	0.228%	2.329%	0.157	-1.777%	2.208%	0.146	0.057%	1.622%	0.029	0.810%	2.169%	0.029
Bimodal	0.25	No Diel	1/2	1/3	0.003%	0.858%	-0.024	0.229%	2.115%	0.138	-1.739%	2.080%	0.049	0.017%	1.519%	-0.023	0.734%	1.971%	0.115
Bimodal	0.25	No Diel	1/2	1/2	0.009%	0.624%	-0.036	0.127%	1.817%	0.046	-1.769%	1.917%	0.031	-0.006%	1.448%	-0.051	0.691%	1.832%	0.119
Bimodal	0.25	No Diel	1/4	1/6	-0.002%	1.345%	-0.015	0.299%	2.296%	0.096	-1.712%	2.203%	0.069	0.030%	1.565%	0.000	0.553%	1.961%	0.083
Bimodal	0.25	No Diel	1/4	1/4	0.002%	1.065%	-0.078	0.169%	1.845%	0.081	-1.781%	1.881%	0.034	0.013%	1.340%	0.008	0.302%	1.546%	0.071
Bimodal	0.25	No Diel	1/4	1/3	-0.001%	0.863%	-0.030	0.115%	1.550%	0.065	-1.833%	1.648%	0.011	0.022%	1.169%	-0.014	0.223%	1.306%	0.053
Bimodal	0.25	No Diel	1/4	1/2	-0.001%	0.610%	-0.031	0.075%	1.175%	0.076	-1.878%	1.411%	-0.023	0.035%	0.989%	-0.014	0.206%	1.027%	0.104
Bimodal	0.25	Slight Diel	1	1/6	-0.049%	1.376%	0.008	0.430%	3.111%	0.272	-0.747%	2.675%	0.178	0.036%	2.763%	-0.012	1.549%	3.245%	0.120
Bimodal	0.25	Slight Diel	1	1/4	0.016%	1.088%	-0.012	0.406%	2.781%	0.218	-0.889%	2.636%	0.169	-0.029%	2.561%	0.035	1.360%	3.094%	0.151
Bimodal	0.25	Slight Diel	1	1/3	0.006%	0.865%	-0.024	0.391%	2.656%	0.272	-0.852%	2.522%	0.216	-0.042%	2.515%	-0.031	1.392%	2.991%	0.155
Bimodal	0.25	Slight Diel	1	1/2	-0.001%	0.618%	0.019	0.343%	2.527%	0.284	-0.891%	2.395%	0.170	0.088%	2.463%	-0.004	1.342%	2.885%	0.122
Bimodal	0.25	Slight Diel	3/4	1/6	0.020%	1.381%	-0.005	0.294%	2.484%	0.200	-0.919%	2.398%	0.075	0.008%	2.404%	0.014	0.831%	2.537%	0.090
Bimodal	0.25	Slight Diel	3/4	1/4	-0.024%	1.039%	-0.020	0.275%	2.233%	0.163	-0.950%	2.209%	0.103	-0.007%	2.203%	0.021	0.738%	2.381%	0.105
Bimodal	0.25	Slight Diel	3/4	1/3	-0.008%	0.878%	0.028	0.230%	2.090%	0.206	-1.015%	2.114%	0.087	0.013%	2.141%	0.003	0.705%	2.203%	0.016
Bimodal	0.25	Slight Diel	3/4	1/2	-0.012%	0.620%	-0.010	0.171%	1.929%	0.139	-1.021%	1.959%	0.098	0.029%	2.039%	-0.004	0.597%	2.022%	0.055
Bimodal	0.25	Slight Diel	1/2	1/6	-0.010%	1.374%	-0.030	0.215%	2.149%	0.164	-1.021%	2.155%	0.026	0.086%	2.106%	-0.002	0.361%	2.042%	0.096
Bimodal	0.25	Slight Diel	1/2	1/4	-0.004%	1.048%	0.007	0.144%	1.775%	0.113	-1.068%	1.889%	0.030	0.013%	1.945%	-0.022	0.272%	1.699%	0.075
Bimodal	0.25	Slight Diel	1/2	1/3	0.001%	0.849%	-0.051	0.112%	1.591%	0.104	-1.082%	1.727%	0.011	0.034%	1.839%	0.047	0.234%	1.589%	0.096
Bimodal	0.25	Slight Diel	1/2	1/2	0.000%	0.605%	-0.032	0.093%	1.366%	0.095	-1.079%	1.596%	0.073	0.016%	1.735%	-0.006	0.120%	1.381%	-0.012
Bimodal	0.25	Slight Diel	1/4	1/6	0.011%	1.372%	-0.062	0.142%	1.864%	0.060	-1.037%	1.922%	0.019	0.008%	1.950%	0.008	0.092%	1.613%	0.013
Bimodal	0.25	Slight Diel	1/4	1/4	0.002%	1.057%	-0.075	0.086%	1.455%	0.056	-1.119%	1.675%	0.031	0.019%	1.750%	0.029	-0.076%	1.254%	0.022
Bimodal	0.25	Slight Diel	1/4	1/3	0.001%	0.861%	-0.020	0.024%	1.175%	0.084	-1.181%	1.491%	-0.018	0.015%	1.697%	0.043	-0.148%	1.034%	0.022
Bimodal	0.25	Slight Diel	1/4	1/2	-0.006%	0.606%	-0.027	0.036%	0.908%	0.167	-1.132%	1.307%	-0.004	0.013%	1.516%	-0.060	-0.190%	0.750%	0.017
Bimodal	0.25	Moderate Diel	1	1/6	0.025%	1.393%	0.004	0.132%	1.910%	0.177	-0.316%	2.065%	0.120	-0.002%	2.738%	0.028	0.596%	2.543%	0.143
Bimodal	0.25	Moderate Diel	1	1/4	-0.027%	1.049%	0.041	0.077%	1.660%	0.191	-0.341%	1.836%	0.075	-0.038%	2.556%	0.015	0.578%	2.392%	0.128
Bimodal	0.25	Moderate Diel	1	1/3	-0.007%	0.871%	-0.034	0.115%	1.535%	0.255	-0.360%	1.754%	0.120	-0.008%	2.500%	-0.054	0.558%	2.292%	0.107
Bimodal	0.25	Moderate Diel	1	1/2	-0.005%	0.821%	-0.010	0.104%	1.401%	0.312	-0.335%	1.616%	0.100	-0.049%	2.428%	0.004	0.472%	2.163%	0.112
Bimodal	0.25	Moderate Diel	3/4	1/6	0.025%	1.394%	-0.033	0.103%	1.704%	0.068	-0.337%	1.904%	0.044	-0.006%	2.599%	0.018	0.363%	2.103%	0.106
Bimodal	0.25	Moderate Diel	3/4	1/4	-0.014%	1.084%	0.058	0.079%	1.417%	0.129	-0.376%	1.708%	0.012	0.008%	2.470%	-0.008	0.281%	1.861%	0.072
Bimodal	0.25	Moderate Diel	3/4	1/3	0.008%	0.885%	0.051	0.056%	1.268%	0.176	-0.371%	1.593%	0.092	0.015%	2.367%	0.032	0.203%	1.743%	0.092
Bimodal	0.25	Moderate Diel	3/4	1/2	0.000%	0.621%	0.017	0.070%	1.102%	0.163	-0.349%	1.433%	0.052	-0.017%	2.273%	-0.013	0.170%	1.618%	0.096
Bimodal	0.25	Moderate Diel	1/2	1/6	0.000%	1.366%	0.024	0.062%	1.520%	0.100	-0.403%	1.797%	0.014	-0.058%	2.523%	0.025	0.028%	1.676%	0.031
Bimodal	0.25	Moderate Diel	1/2	1/4	0.026%	1.066%	-0.045	0.052%	1.199%	0.096	-0.368%	1.573%	0.018	0.053%	2.290%	0.021	-0.024%	1.388%	0.023
Bimodal	0.25	Moderate Diel	1/2	1/3	0.037%	0.869%	0.005	0.026%	1.051%	0.095	-0.432%	1.463%	-0.019	-0.055%	2.259%	0.003	-0.018%	1.267%	0.116
Bimodal	0.25	Moderate Diel	1/2	1/2	0.002%	0.605%	0.005	0.015%	0.838%	0.115	-0.448%	1.314%	0.061	-0.036%	2.171%	0.038	-0.077%	1.105%	0.073
Bimodal	0.25	Moderate Diel	1/4	1/6	-0.013%	1.414%	-0.039	0.028%	1.426%	0.031	-0.406%	1.762%	0.031	-0.010%	2.466%	-0.004	-0.091%	1.407%	0.090
Bimodal	0.25	Moderate Diel	1/4	1/4	0.029%	1.095%	-0.039	0.002%	1.082%	0.047	-0.387%	1.493%	0.004	-0.039%	2.278%	0.033	-0.123%	1.067%	-0.001
Bimodal	0.25	Moderate Diel	1/4	1/3	-0.009%	0.861%	-0.072	0.002%	0.885%	0.041	-0.433%	1.359%	0.004	-0.020%	2.205%	0.011	-0.197%	0.869%	0.011
Bimodal	0.25	Moderate Diel	1/4	1/2	-0.011%	0.619%	0.016	0.016%	0.618%	0.030	-0.418%	1.225%	-0.025	-0.026%	2.085%	-0.006	-0.224%	0.598%	-0.010
Bimodal	0.25	Strong Diel	1	1/6	-0.011%	1.416%	0.014	0.000%	1.336%	0.087	-0.104%	1.705%	0.030	-0.050%	2.776%	0.029	0.095%	1.616%	0.105
Bimodal	0.25	Strong Diel	1	1/4	0.000%	1.078%	-0.006	-0.006%	1.052%	0.065	-0.122%	1.515%	0.041	-0.035%	2.585%	0.028	0.091%	1.449%	0.103
Bimodal	0.25	Strong Diel	1	1/3	0.014%	0.876%	0.046	0.012%	0.892%	0.151	-0.122%	1.369%	0.037	-0.012%	2.542%	0.037	0.092%	1.336%	0.086
Bimodal	0.25	Strong Diel	1	1/2	0.003%	0.614%	-0.042	0.029%	0.690%	0.239	-0.104%	1.268%	0.048	-0.039%	2.441%	0.019	0.093%	1.228%	0.095
Bimodal	0.25	Strong Diel	3/4	1/6	0.011%	1.395%	-0.022	-0.001%	1.274%	0.043	-0.152%	1.688%	-0.018	-0.077%	2.712%	0.012	0.052%	1.418%	0.088
Bimodal	0.25	Strong Diel	3/4	1/4	0.008%	1.091%	0.062	-0.012%	1.019%	0.093	-0.100%	1.485%	0.070	-0.004%	2.575%	0.029	0.027%	1.192%	0.071
Bimodal	0.25	Strong Diel	3/4	1/3	0.003%	0.880%	0.045	0.004%	0.820%	0.094	-0.093%	1.342%	-0.016	-0.022%	2.458%	-0.059	0.011%	1.074%	0.050
Bimodal	0.25	Strong Diel	3/4	1/2	0.004%	0.622%	-0.040	0.021%	0.601%	0.117	-0.127%	1.218%	0.081	-0.024%	2.386%	-0.005	-0.003%	0.927%	0.038
Bimodal	0.25	Strong Diel	1/2	1/6	0.029%	1.385%	-0.058	-0.028%	1.240%	-0.021	-0.136%	1.658%	-0.036	-0.038%	2.684%	0.028	-0.037%	1.229%	-0.019
Bimodal	0.25	Strong Diel	1/2	1/4	0.008%	1.081%	-0.001	0.000%	0.984%	0.034	-0.118%	1.449%	0.043	-0.006%	2.530%	-0.029	-0.044%	0.998%	0.047
Bimodal	0.25	Strong Diel	1/2	1/3	0.013%	0.888%	0.049	-0.001%	0.786%	0.000	-0.132%	1.335%	0.020	-0.047%	2.486%	0.002	-0.051%	0.824%	0.032
Bimodal	0.25	Strong Diel	1/2	1/2	-0.005%	0.632%	-0.025	-0.001%	0.543%	0.049	-0.144%	1.188%	0.003	0.008%	2.406%	-0.049	-0.060%	0.643%	0.026
Bimodal	0.25	Strong Diel	1/4	1/6	-0.014%	1.380%	0.005	-0.026%	1.224%	0.004	-0.103%	1.654%	0.033	-0.002%	2.667%	0.019	-0.071%	1.119%	-0.048
Bimodal	0.25	Strong Diel	1/4	1/4	-0.006%	1.069%	0.037	0.025%	0.943%	0.030	-0.132%	1.464%	0.017	-0.023%	2.519%	-0.033	-0.091%	0.848%	0.041
Bimodal	0.25	Strong Diel	1/4	1/3	-0.010%	0.881%	0.054	0.007%	0.757%	0.030	-0.116%	1.331%	0.016	-0.010%	2.448%	-0.020	-0.087%	0.655%	-0.017
Bimodal	0.25	Strong Diel	1/4	1/2	-0.008%	0.636%	-0.035	0.007%	0.501%	-0.045	-0.115%	1.195%	-0.016	-0.042%	2.379%	-0.037	-0.114%	0.382%	0.029

Appendix A (page 9 of 9).

Daily Escapement Model	Uniform Error	Hourly Escapement Model	Relative Standard Deviation	Proportion Of Time Counted	Constant Design			Two-Stage Design - Type I			Two-Stage Design - Type II			Rotating Design - Type I			Rotating Design - Type II		
					Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient	Relative Bias	Coefficient of Variation	Skewness Coefficient
Bimodal	0.5	No Diel	1	1/6	-0.023%	1.358%	-0.019	0.877%	4.110%	0.308	-1.209%	4.058%	0.155	0.057%	3.062%	-0.016	3.455%	4.575%	0.336
Bimodal	0.5	No Diel	1	1/4	-0.004%	1.079%	0.022	0.707%	3.793%	0.354	-1.338%	3.899%	0.212	-0.021%	2.965%	0.007	3.122%	4.278%	0.298
Bimodal	0.5	No Diel	1	1/3	0.011%	0.865%	-0.024	0.688%	3.682%	0.313	-1.315%	3.794%	0.158	0.017%	2.943%	-0.011	3.055%	4.146%	0.312
Bimodal	0.5	No Diel	1	1/2	-0.023%	0.612%	0.001	0.546%	3.511%	0.310	-1.476%	3.708%	0.225	0.037%	2.851%	-0.007	2.914%	4.002%	0.313
Bimodal	0.5	No Diel	3/4	1/6	-0.095%	1.368%	0.030	0.600%	3.389%	0.265	-1.559%	3.575%	0.104	0.041%	2.687%	-0.016	2.125%	3.443%	0.187
Bimodal	0.5	No Diel	3/4	1/4	-0.007%	1.053%	0.004	0.470%	3.079%	0.234	-1.559%	3.335%	0.116	-0.005%	2.563%	0.038	1.771%	3.145%	0.127
Bimodal	0.5	No Diel	3/4	1/3	-0.016%	0.850%	-0.043	0.401%	2.847%	0.230	-1.662%	3.235%	0.119	0.027%	2.419%	-0.002	1.591%	2.994%	0.153
Bimodal	0.5	No Diel	3/4	1/2	-0.006%	0.614%	-0.040	0.364%	2.673%	0.236	-1.675%	3.134%	0.102	0.017%	2.421%	0.022	1.568%	2.799%	0.203
Bimodal	0.5	No Diel	1/2	1/6	-0.009%	1.368%	0.013	0.390%	2.817%	0.188	-1.601%	3.186%	0.031	-0.001%	2.376%	0.030	1.164%	2.637%	0.143
Bimodal	0.5	No Diel	1/2	1/4	-0.017%	1.048%	0.002	0.268%	2.388%	0.155	-1.700%	2.917%	--0.011	0.008%	2.198%	0.034	0.856%	2.280%	0.091
Bimodal	0.5	No Diel	1/2	1/3	-0.010%	0.866%	-0.012	0.216%	2.135%	0.158	-1.745%	2.843%	0.009	0.054%	2.117%	0.028	0.742%	2.051%	0.081
Bimodal	0.5	No Diel	1/2	1/2	-0.007%	0.615%	-0.060	0.182%	1.863%	0.166	-1.737%	2.652%	0.101	0.038%	1.996%	0.010	0.639%	1.868%	0.092
Bimodal	0.5	No Diel	1/4	1/6	0.000%	1.400%	-0.014	0.280%	2.365%	0.100	-1.732%	2.902%	-0.025	0.026%	2.097%	0.008	0.624%	2.029%	0.109
Bimodal	0.5	No Diel	1/4	1/4	0.011%	1.037%	-0.084	0.145%	1.890%	0.114	-1.790%	2.638%	0.015	0.052%	1.957%	-0.028	0.320%	1.573%	0.061
Bimodal	0.5	No Diel	1/4	1/3	0.003%	0.856%	-0.013	0.134%	1.566%	0.056	-1.818%	2.492%	-0.004	0.004%	1.854%	-0.011	0.255%	1.333%	0.109
Bimodal	0.5	No Diel	1/4	1/2	-0.006%	0.603%	-0.084	0.079%	1.172%	0.017	-1.904%	2.307%	0.063	0.067%	1.724%	-0.057	0.164%	1.026%	0.078
Bimodal	0.5	Slight Diel	1	1/6	-0.001%	1.350%	0.003	0.445%	3.096%	0.231	-0.796%	3.464%	0.132	0.022%	3.697%	-0.022	1.521%	3.379%	0.136
Bimodal	0.5	Slight Diel	1	1/4	0.032%	1.051%	-0.019	0.415%	2.825%	0.197	-0.850%	3.260%	0.093	0.064%	3.600%	0.039	1.403%	3.120%	0.154
Bimodal	0.5	Slight Diel	1	1/3	-0.001%	0.870%	0.044	0.306%	2.694%	0.257	-0.915%	3.175%	0.111	0.054%	3.557%	-0.042	1.369%	3.034%	0.189
Bimodal	0.5	Slight Diel	1	1/2	0.003%	0.621%	0.000	0.285%	2.552%	0.237	-0.932%	3.034%	0.113	0.019%	3.522%	-0.018	1.282%	2.971%	0.123
Bimodal	0.5	Slight Diel	3/4	1/6	0.028%	1.374%	0.038	0.339%	2.566%	0.132	-0.881%	3.132%	0.075	0.056%	3.508%	0.036	0.850%	2.609%	0.107
Bimodal	0.5	Slight Diel	3/4	1/4	0.004%	1.046%	-0.055	0.292%	2.261%	0.203	-0.948%	2.924%	0.044	-0.028%	3.354%	-0.016	0.767%	2.433%	0.114
Bimodal	0.5	Slight Diel	3/4	1/3	0.000%	0.880%	-0.044	0.260%	2.179%	0.184	-0.985%	2.860%	0.082	0.075%	3.303%	0.049	0.726%	2.263%	0.091
Bimodal	0.5	Slight Diel	3/4	1/2	0.010%	0.614%	-0.082	0.224%	1.953%	0.183	-1.014%	2.720%	0.049	0.009%	3.249%	0.016	0.645%	2.164%	0.083
Bimodal	0.5	Slight Diel	1/2	1/6	-0.009%	1.364%	-0.083	0.243%	2.183%	0.156	-0.971%	2.863%	0.015	-0.017%	3.223%	0.006	0.425%	2.077%	0.097
Bimodal	0.5	Slight Diel	1/2	1/4	0.002%	1.078%	-0.006	0.199%	1.833%	0.172	-1.101%	2.640%	0.013	0.044%	3.189%	0.002	0.253%	1.776%	0.084
Bimodal	0.5	Slight Diel	1/2	1/3	0.010%	0.872%	-0.013	0.127%	1.599%	0.076	-1.056%	2.582%	-0.003	-0.028%	3.152%	-0.013	0.248%	1.611%	0.050
Bimodal	0.5	Slight Diel	1/2	1/2	-0.002%	0.616%	-0.065	0.100%	1.398%	0.129	-1.093%	2.493%	0.030	0.004%	3.007%	0.049	0.129%	1.437%	0.098
Bimodal	0.5	Slight Diel	1/4	1/6	0.000%	1.360%	-0.024	0.121%	1.890%	0.107	-1.051%	2.741%	0.031	-0.022%	3.222%	0.004	0.132%	1.638%	0.038
Bimodal	0.5	Slight Diel	1/4	1/4	-0.015%	1.063%	-0.007	0.103%	1.494%	0.084	-1.078%	2.515%	0.021	0.081%	3.019%	-0.011	-0.018%	1.268%	0.057
Bimodal	0.5	Slight Diel	1/4	1/3	-0.004%	0.859%	-0.010	0.075%	1.234%	0.093	-1.145%	2.408%	-0.022	0.016%	3.001%	0.006	-0.099%	1.058%	0.009
Bimodal	0.5	Slight Diel	1/4	1/2	0.001%	0.603%	-0.059	0.061%	0.915%	0.075	-1.149%	2.299%	-0.034	0.000%	2.892%	-0.067	-0.175%	0.788%	0.016
Bimodal	0.5	Moderate Diel	1	1/6	0.039%	1.402%	0.103	0.139%	1.920%	0.198	-0.397%	2.790%	0.049	-0.060%	4.501%	-0.029	0.616%	2.632%	0.147
Bimodal	0.5	Moderate Diel	1	1/4	-0.033%	1.071%	-0.014	0.135%	1.660%	0.210	-0.310%	2.623%	0.026	-0.139%	4.436%	-0.012	0.549%	2.425%	0.196
Bimodal	0.5	Moderate Diel	1	1/3	-0.023%	0.868%	0.033	0.117%	1.534%	0.237	-0.368%	2.584%	0.045	-0.032%	4.368%	0.026	0.537%	2.334%	0.203
Bimodal	0.5	Moderate Diel	1	1/2	-0.006%	0.620%	0.024	0.082%	1.403%	0.270	-0.365%	2.502%	0.016	-0.053%	4.334%	-0.015	0.481%	2.250%	0.172
Bimodal	0.5	Moderate Diel	3/4	1/6	0.023%	1.381%	0.036	0.082%	1.684%	0.154	-0.351%	2.699%	0.038	-0.113%	4.514%	-0.021	0.331%	2.104%	0.074
Bimodal	0.5	Moderate Diel	3/4	1/4	-0.009%	1.065%	-0.036	0.081%	1.415%	0.078	-0.296%	2.586%	0.057	0.014%	4.319%	0.018	0.281%	1.908%	0.110
Bimodal	0.5	Moderate Diel	3/4	1/3	-0.012%	0.875%	0.036	0.037%	1.297%	0.164	-0.399%	2.494%	0.029	0.070%	4.279%	-0.003	0.222%	1.767%	0.117
Bimodal	0.5	Moderate Diel	3/4	1/2	-0.003%	0.626%	-0.005	0.073%	1.107%	0.205	-0.345%	2.395%	0.038	0.030%	4.251%	-0.021	0.172%	1.649%	0.096
Bimodal	0.5	Moderate Diel	1/2	1/6	0.048%	1.385%	0.016	0.039%	1.529%	0.078	-0.415%	2.646%	0.056	-0.061%	4.343%	-0.006	0.098%	1.735%	0.074
Bimodal	0.5	Moderate Diel	1/2	1/4	-0.017%	1.055%	0.039	0.052%	1.219%	0.089	-0.343%	2.486%	-0.001	0.032%	4.250%	0.021	0.008%	1.450%	0.027
Bimodal	0.5	Moderate Diel	1/2	1/3	-0.012%	0.874%	0.001	0.044%	1.062%	0.142	-0.419%	2.413%	0.011	-0.037%	4.252%	-0.028	-0.026%	1.308%	0.078
Bimodal	0.5	Moderate Diel	1/2	1/2	0.015%	0.618%	0.025	0.047%	0.851%	0.101	-0.449%	2.311%	-0.019	-0.055%	4.208%	-0.038	-0.059%	1.125%	0.065
Bimodal	0.5	Moderate Diel	1/4	1/6	0.019%	1.365%	-0.043	0.050%	1.408%	0.014	-0.375%	2.580%	0.015	-0.018%	4.263%	0.000	-0.057%	1.405%	-0.023
Bimodal	0.5	Moderate Diel	1/4	1/4	0.020%	1.078%	-0.016	0.033%	1.084%	0.046	-0.386%	2.423%	0.039	-0.028%	4.249%	-0.024	-0.158%	1.096%	0.032
Bimodal	0.5	Moderate Diel	1/4	1/3	0.001%	0.885%	-0.021	0.038%	0.885%	0.016	-0.415%	2.330%	0.002	-0.030%	4.149%	0.037	-0.175%	0.890%	0.040
Bimodal	0.5	Moderate Diel	1/4	1/2	0.005%	0.618%	0.054	0.001%	0.642%	0.001	-0.450%	2.288%	0.002	-0.079%	4.129%	0.019	-0.217%	0.615%	-0.003
Bimodal	0.5	Strong Diel	1	1/6	-0.036%	1.408%	-0.040	0.031%	1.303%	0.020	-0.088%	2.580%	-0.057	-0.047%	4.965%	0.018	0.134%	1.643%	0.103
Bimodal	0.5	Strong Diel	1	1/4	-0.024%	1.057%	0.031	0.005%	1.069%	0.189	-0.140%	2.463%	0.006	0.044%	4.780%	-0.007	0.134%	1.461%	0.130
Bimodal	0.5	Strong Diel	1	1/3	-0.006%	0.899%	0.032	0.020%	0.890%	0.107	-0.126%	2.344%	0.004	-0.074%	4.852%	0.003	0.120%	1.360%	0.113
Bimodal	0.5	Strong Diel	1	1/2	0.005%	0.608%	-0.003	0.012%	0.702%	0.271	-0.142%	2.334%	0.036	-0.112%	4.792%	-0.010	0.089%	1.245%	0.107
Bimodal	0.5	Strong Diel	3/4	1/6	-0.013%	1.412%	0.011	0.002%	1.274%	-0.022	-0.071%	2.543%	-0.020	-0.059%	4.939%	0.073	0.045%	1.433%	0.059
Bimodal	0.5	Strong Diel	3/4	1/4	-0.010%	1.082%	0.005	0.028%	1.005%	0.095	-0.166%	2.444%	0.025	-0.109%	4.767%	0.000	0.016%	1.228%	0.094
Bimodal	0.5	Strong Diel	3/4	1/3	-0.008%	0.898%	-0.012	0.007%	0.828%	0.067	-0.087%	2.351%	-0.065	-0.044%	4.870%	0.008	0.013%	1.095%	0.080
Bimodal	0.5	Strong Diel	3/4	1/2	0.003%	0.617%	-0.075	0.006%	0.597%	0.093	-0.151%	2.257%	0.027	0.003%	4.839%	-0.005	0.007%	0.958%	0.075
Bimodal	0.5	Strong Diel	1/2	1/6	-0.029%	1.381%	-0.016	-0.007%	1.256%	-0.021	-0.156%	2.558%	0.004	-0.033%	4.958%	0.007	-0.022%	1.252%	0.033
Bimodal	0.5	Strong Diel	1/2	1/4	0.004%	1.086%	-0.010	0.003%	0.976%	0.040	-0.112%	2.398%	-0.001	0.005%	4.908%	0.011	-0.055%	0.981%	0.026
Bimodal	0.5	Strong Diel	1/2	1/3	0.013%	0.890%	0.029	0.004%	0.801%	0.062	-0.146%	2.336%	-0.009	-0.009%	4.823%	0.017	-0.049%	0.855%	-0.001
Bimodal	0.5	Strong Diel	1/2	1/2	-0.001%	0.626%	-0.066	-0.004%	0.541%	0.035	-0.094%	2.256%	-0.028	-0.047%	4.797%	-0.033	-0.078%	0.654%	0.053
Bimodal	0.5	Strong Diel	1/4	1/6	-0.003%	1.369%	-0.015	0.011%	1.226%	0.031	-0.135%	2.547%	-0.010	-0.082%	4.947%	-0.018	-0.068%	1.127%	0.029
Bimodal	0.5	Strong Diel	1/4	1/4	0.005%	1.070%	0.002	-0.004%	0.954%	0.117	-0.127%	2.380%	0.019	-0.082%	4.825%	-0.011	-0.090%	0.846%	0.022
Bimodal	0.5	Strong Diel	1/4	1/3	0.005%	0.886%	0.062	-0.004%	0.764%	0.042	-0.100%	2.345%	-0.005	-0.032%	4.788%	-0.006	-0.109%	0.650%	-0.018
Bimodal	0.5	Strong Diel	1/4	1/2	0.002%	0.634%	-0.038	-0.015%	0.516%	-0.023	-0.083%	2.232%	-0.032	-0.097%	4.653%	-0.001	-0.107%	0.386%	0.030