

Supplement B: Example R code for Conducting Sample Size Estimates for the Number of Anglers to Interview to Estimate Mean Catch Rate using the Daily Estimator for Priest Lake, Idaho

```
#Import data
data<-read.table(data)

#View first few rows of data
head(data)
  #Number      Date      EffortEst  ObservedCatch  ObservedHoursFished  DayType  Fishery
    #1      3/2/2014         0           0             0         WE    Priest
    #2      3/6/2014        27           1             3         WD    Priest
    #3      3/7/2014   54.13333           8            17         WD    Priest
    #4      3/8/2014   285.25          19            60         WE    Priest

#Calculate season catch rate
CR<-sum(data$ObservedCatch)/sum(data$ObservedHoursFished)

#Subset weekend and weekday data
we.data<-subset(data, DayType=='WE')
wd.data<-subset(data, DayType=='WD')

#Set sample sizes to evaluate
samp.size<-c(seq(2,20,2), seq(30,300,20), seq(310, 1000, 50))

#Set the number of iterations
reps<-5000

#Create an empty vector to store standard error estimates
se.ss<-c()

#Create a for loop to loop over the sample size vector
for(i in 1:length(samp.size)){
  #Allocate sample size to weekends and weekdays
  n.wd<-round(((5/7)*samp.size[i]))
  n.we<-round(((2/7)*samp.size[i]))
  #Create empty vector to store catch rate estimates
  cr.est<-c()
  #Create a for loop to loop over iterations
  for(j in 1:reps){
    #Select days to sample with replacement, and conduct the
    #sampling and estimation process
```

```

    days.wd<-sample(c(1:nrow(wd.data)), n.wd, T)
    days.we<-sample(c(1:nrow(we.data)), n.we, T)
    wd.catch<-sum(wd.data$ObservedCatch[days.wd])
    we.catch<-sum(we.data$ObservedCatch[days.we])
    wd.hours<-sum(wd.data$ObservedHoursFished[days.wd])
    we.hours<-sum(we.data$ObservedHoursFished[days.we])
    cr.est[j]<-(wd.catch+we.catch)/(wd.hours+we.hours)
  }
#Calculate empirical standard error
se.ss[i]<-sd(cr.est)
}
#Calculate relative confidence interval
CI.percent<-100*((1.96*se.ss)/CR)

#plot results
plot(CI.percent, samp.size, xlim=c(0,100), xlab='Relative 95% CI (%)', ylab='Sample size
(interviews)', type='l')

```