

mid-test

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Q1

(a)

model function:

$$\log(u_i) = \beta_0 + \beta_1 * ReserveHahei_i + \beta_2 * ReserveTAWH_i + \beta_3 * SeasonSpring_i + \beta_4 * Year98 - 99_i$$

$$Y_i \sim \text{Poisson}(u_i)$$

where Reserve at Hahei when the i^{th} of $ReserveHahei_i=1$ and Reserve at TAWH when the i^{th} of $ReserveTAWH_i=1$, Otherwise Reserve at CROP, Year is between 1998-1999 when the i^{th} of $Year98 - 99_i=1$, otherwise is between 1997-1998, Season is spring when the i^{th} $SeasonSpring_i=1$, otherwise, Season is autumn. Y_i is the number of snapper in the recording collected by the i^{th} camera.

(b)

```
exp(c(-.928897, -.6669))
```

```
## [1] 0.3949891 0.5132973
```

```
100*(exp(c(-.928897, -.6669))-1)
```

```
## [1] -60.50109 -48.67027
```

We estimate that cameras deployed in spring detect between 0.39 and 0.51 times as many snapper as those deployed in autumn.

In the CROP Reserve and Year between 1997 to 1998, with 95% confidence interval, we estimate that the season spring is somewhere between 48.7% to 60.5% lower than the season autumn